JAPAN'S FOREIGN DIRECT INVESTMENT IN THAILAND: TRENDS, PATTERNS AND DETERMINANTS, 1970-2003

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ABSTRACT

This thesis examines the trends, patterns and determinants of Japan's foreign direct investment (FDI) in Thailand during the period 1970 to 2003, taking into account the up to date literature and most recent data. The research consists of analyses of the trends and patterns of Japan's FDI in Thailand, literature reviews of the theories and empirical studies of FDI in general and in particular of FDI in Thailand, and an econometric analysis of the determinants of Japan's total FDI in Thailand and Japan's FDI in Thailand's manufacturing and services sectors.

Japan is the largest foreign investor in Thailand, followed by the United States, the European Union and the Asian newly industrialising countries. More than fifty per cent of Japanese foreign direct investment (FDI) in Thailand is undertaken in Thailand's manufacturing sector. Beyond the Asian financial crisis of 1997-98, Thailand's FDI laws had a significant impact to attract more foreign investors. However, the foreign investment may decline because of the world economic slowdown. Moreover, most of the investors turn to China and Vietnam because of larger domestic markets, and lower wage costs than in Thailand. The policies toward FDI in Thailand at the national level have so far been mainly aimed at stimulating foreign investment rather than in maximising the benefits of FDI. However, to help Thailand remain an attractive investment site, the Thai government attempts to overhaul the foreign investment regime and investment promotion privileges, but the success has been short of expectations.

The econometric analysis of the determinants of Japan's total FDI in Thailand and Japan's FDI in Thailand's manufacturing and services sectors over the period 1970 to 2003 was conducted using the estimation technique of unrestricted error correction modelling (UECM). The results of the econometric estimation indicate that Thailand's GDP (market size) is the most significant positive determinant of Japan's total FDI in Thailand in both the short-run and long run, while it is the most important positive determinant of Japan's FDI in Thailand's manufacturing sector in the short-run. Japan's exports to Thailand positively and significantly influence Japan's FDI in Thailand's

services sector in the short-run. Thailand's tariff rate is a significant negative determinant of Japan's total FDI and FDI in the services sector in Thailand in the short-run. Thailand's real wage rate relative to that of Japan is an important negative determinant of Japan's total FDI in Thailand in both the short-run and long run.

These results imply that, in order to attract FDI, including Japan's FDI into Thailand, the Thai policy makers should implement sound economic policies to expand Thailand's market size (real GDP) and to stimulate economic growth, continue to reduce tariffs and other barriers to trade, and ensure to maintain lower real wage rates in Thailand's relative to FDI home ountries including Japan. Inadequately developed infrastructure is one of the major deterrents to FDI in Thailand at present. The Thai government should direct the FDI inflows of Thailand toward the projects that ensure the transfer of technology, and the private sector's involvement in educational development, infrastructure projects and industrialisation of Thailand. Recently the Thai government policy has been altered to encourage investments in infrastructure projects such as roads and rail network, the new Bangkok International airport called Suvarnabhumi airport, electricity, and telecommunications. These indicate that the need for a better infrastructure to attrract FDI and stimulate economic growth is being appreciated. The Thai government should encourage foreign investment also by decreasing administrative barriers and red tape. The government should create more state agencies and use high technology communications to help investors through the paper work, in order to promote FDI. The investment policy should aim to create an enabling business environment for all foreign investors.

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DECLARATION

I, Permporn Sangiam, declare that the DBA thesis entitled 'Japan's Foreign Direct Investment in Thailand: Trends, Patterns and Determinants, 1970-2003' is no more than 65,000 words in length, exclusive of tables, figures, appendices, references and footnotes. This thesis contains no material that has been submitted previously, in whole or in part, for the award of any other academic degree or diploma. Except where otherwise indicated, this thesis is my own work.

Signature [redacted]

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LIST OF ABBREVIATIONS

ABL	Alien Business Law
ADB	Asian Development Bank
ADF	Augment Dickey-Fuller (test)
AIC	Akaike Information Criterion
AR	Autoregressive Process
ARDL	Autoregressive Distributed Lag (model)
ARMA	Autoregressive Moving Average
BIE	Bureau of Industry Economics
ASEAN	Association of South East Asian Nations
BOI	Board of Investment
BUILD	BOI Unit for Industrial Linkage Development
CRDW	Co-integrating Regression Durbin-Watson
CPI	Consumer Price Index
DF	Dickey-Fuller (test)
DFAT	Department of Foreign Affairs and Trade
DW	Durbin-Watson (test)
GDP	Gross Domestic Product
ECM	Error Correction Model
EDC	Export Development Canada
EEC	Eastern European Countries
EG	Engle-Granger (test)
EIU	Economist Intelligence Unit
EOI	Export Oriented Industrialisation
EP	Export Promotion
ESCAP	Economic and Social Commission for Asia and the Pacific
EU	European Union
FDI	Foreign Direct Investment

IDBI	Industrial Development Bank of India
IEAT	Industrial Estate Authority of Thailand
IFCT	Industrial Finance Corporation of Thailand
IFS	International Financial Statistics
ILO	International Labour Office
IMF	International Monetary Fund
IORN	Indian Ocean Rim Network
IRP	Industrial Restructuring Programme
IS	Import Substitution
JETRO	Japan External Trade Organisation
MNCs	Multinational Corporations
MNEs	Multinational Enterprises
MOJ	Ministry of Japan
NICs	Newly Industrialising Countries
NESDB	National Economic and Social Development Board
NTBs	Non-Tariff Barriers
OECD	Organisation for Economic and Co-operation Development
OIE	Office of Industrial Economics
OLS	Ordinary Least Squares
RESET	Ramsey's (test for functional form misspecification)
PP	Phillips-Perron (test)
SARS	Severe Acute Respiratory Syndrome
SBC	Schwarz-Bayesian Criterion
TNCs	Transnational Corporations
UECM	Unrestricted Error Correction Model
UNCTAD	United Nations Conference on Trade and Development
UNCTC	United Nations Committee on Transnational Corporations
USDC	United State Development of Commerce
VAR	Vector Autoregression
WDI	World Development Indicators
WTO	World Trade Organisaion
WS	Weighted Symmetric (test)

CHAPTER 1
Introduction

1.1 Introduction to the Context of Research

'Foreign Direct investment is the category of international investment that reflects the objective of a *resident entity* in one economy to obtain *lasting interest*[1] in an *enterprise* resident in another country' (IMF, 1993, P.86). The types of FDI are wholly owned subsidiaries, mergers, acquisitions and joint ventures (Hill, 2002). FDI has been a major force of market integration in the world. FDI has become an increasingly important form of activity in the global economic environment (BIE, 1995). FDI in Asia increased from US$ 3 billion in 1980 to US$16.5 billion in 1989 (Blomqvist, 1995). In the 1990s, Thailand was successful in attracting a high proportion of investment flows coming into South East Asia (Udomsaph, 2002). The most important country that invest in Thailand is Japan, followed by U.S., Hong Kong, Taiwan, EU and ASEAN countries (Meephokee, 2004).

In the 1990s, FDI inflows to Thailand continued to be substantial although the net inflows slowed down with the Asian crisis of 1997. The sharp increase in FDI inflows in recent years partly reflected the result of the Thai currency depreciation. But even in foreign currency, the FDI increased much in the last four years. The reason for the rapid increase in FDI flows includes takeovers, mergers and acquisitions, and recapitalisation of joint ventures by their partners. Some major commercial banks and finance companies have recapitalised and sold a substantial part of their shares to foreign investors; hence there were large FDI inflows into the financial sector after the crisis. FDI inflows have been declining since 1998 although the net inflows are still larger than the pre-crisis years (BOI, 2002).

[1] "...the lasting interest implies the existence of a long-term relationship between the MNE and the affiliate and a significant degree of influence by the former on the management of the latter. It is this lasting interest that distinguishes direct from portfolio investment and other forms of international capital flow such as portfolio investment, foreign aid and commercial bank lending" (IMF, 1993, P.86).

The Asian crisis revealed structural weaknesses in the financial and corporate sectors of the affected Asian countries of Indonesia, Republic of Korea, Malaysia, the Philippines, and Thailand. The crisis resulted in the fears that FDI inflows would decline permanently and thus delay the region's recovery, undermining long-term growth (ADB, 2001a). Accordingly, FDI had fallen from US$ 21.5 billion in 1997 to US$ 13.3 billion in 1999. Most of ASEAN's 10 economies were attracting fewer funds (Bharathi, 2000). During the crisis, foreign investors and creditors lost confidence in Thailand due to its economic problems of external debt servicing and debt rollover of the private sector. According to the National Economic and Social Development Board, gross domestic investment dropped from 1,921.7 billion baht in 1996 to 1,554.6 billion baht in 1997 and to 939.2 billion baht in 1998. The private sector investment alone dropped from 1,423.7 million baht in 1996 to 1029.6 billion baht in 1997 and to 581.6 billion baht in 1998 (IDBI, 2003).

After the crisis in Thailand, the Thai government has been attempting to restore foreign investor's confidence in the Thai economy by offering them various incentives. Investment has been rising in recent years, but Thai officials are worried now that China and Vietnam have become the main investment attractions in Asia recently. Competition for foreign investment is expected in coming years as China has joined the World Trade Organization. Vietnam had promoted FDI in the labour-intensive sectors, and Vietnam's lobour force is the cheapest in Southeast Asia (Zhang, 1999). Fifty-seven per cent of Japanese manufacturing TNCs find China more attractive than ASEAN countries. Moreover, nearly half of the Japanese firms expect not to change their plans for FDI, but more than half were unable to make an assessment and some companies are reported to have cancelled planned investment after September 11, 2001 (UNCTAD, 2002). The September 11 attack on the U.S. added another element of uncertainty to an already weak global economy (ADB, 2001b). The war in Iraq and SARS were also having a negative impact on global capital flows in the early months of 2003. The SARS epidemic is likely to have its biggest short-term impact in Asia (EDC, 2003). Moreover, global FDI flows declined sharply in 2001, inflows fell by 51 per cent and outflows by 55 per cent and continued to fall in most countries in 2002. The economic slowdown intensified competitive pressures, forcing companies to search for cheaper locations. This may

have resulted in increased FDI activities that benefit from relocation, or expansion in, low wage economies (UNCTAD, 2002).

The government of Thailand has attempted to promote foreign direct investment in Thailand through various policy reforms. Thailand can be successful in continuously attracting FDI. The Thai government can further promote FDI in competition with its neighbors, since Thailand has a number of advantages over its competitors in Southeast Asia in terms of larger tangible assets such as natural and mineral resources, a larger domestic market, low cost labour, lower interest rates, political stability, low trade barriers, openness of the economy and attractive privileges for foreign investors. Moreover, the Thai government can make an effort to attract foreign investors by investing in education, technical skills, research and infrastructure.

As mentioned earlier, Japan is the largest foreign direct investor country in Thailand. However, Japan's total FDI as well as Japan's FDI in manufacturing and services sectors in Thailand have been subject to fluctuations and variations over the years due to various factors. Despite these, to the best of the author's knowledge, so far there has been no study that examines the trends, patterns and determinant factors of Japan's FDI in Thailand. This thesis is an attempt to fill the gap of knowledge in this area.

1.2 Objectives of the Study

The overall aim of this thesis is to analyse the trends, patterns and determinants of Japan's foreign direct investment (FDI) in Thailand during 1970-2003. The specific aims of the thesis are:

- To review the theories and previous empirical studies of FDI in order to lay the foundation in the development of empirical models to analyse the determinants of Japan's FDI in Thailand during 1970-2003.
- To develop and estimate the empirical models of the determinants of Japan's FDI into Thailand during 1970-2003, using appropriate econometric procedures.
- To examine the impact of Thailand's FDI policies on Japan's FDI in Thailand.
- To assist the Thai government to formulate appropriate polices and strategies to attract more FDI from Japan.

1.3 Significance of Research

This research will be useful for policy markers within Thailand who will gain a better understanding of the determinants of Japan's FDI into Thailand. The result of the study will be important for the Thai government to formulate policies and strategies to encourage foreign investors to invest more in Thailand. This will in turn provide a congenial environment for foreign investors to enter the Thai market or increase their investments in Thailand with renewed confidence. Moreover, the econometric analysis of the determinants of FDI in this study will benefit academic analysts, business decision makers and policy formulators, both in the government and private sectors.

The study of Japan's FDI in Thailand during 1970-2003 would add to the existing body of knowledge in the following ways:

- It will be a comprehensive study conducted on the trends, patterns and determinants of Japan's FDI into Thailand during 1970-2003.
- It will examine Thai government policies towards FDI in Thailand.
- It will develop and estimate models for identifying the key variables which have determined Japan's FDI into Thailand during 1970-2003.

1.4 Outline of the Thesis

The thesis consists of seven chapters. Chapter 2 provides an overview of the trends and patterns of worldwide FDI, FDI in the ASEAN region and Japan's FDI in Thailand. It especially focuses on the trends and patterns of Japan's total FDI in Thailand and Japan's FDI in manufacturing and service sectors in Thailand. This overview provides background information for the analysis in the subsequent chapters of the thesis.

Chapter 3 reviews the government policy concerned with FDI in Thailand. The effects of FDI are explored, as are the foreign investment policies, which have so far been adopted by governmental authorities. The chapter starts with a discussion of the historical background of foreign investment promotion and guidelines under five year economic plans. Then, it reviews the political environment including the policy structure and government agencies charged with

FDI. Next, the chapter discusses the legal environment including alien business law, alien employment act, and immigration act. Finally, there is a review of promoted investment in Thailand.

Chapter 4 focuses on a review of the theories and empirical studies of the factors that determine of FDI in general and in particular in Thailand. These reviews will form the basis of the methodology for the empirical analysis of factors that determine Japan's FDI in Thailand.

The purposes of Chapter 5 are to develop empirical models, to specify hypotheses and to discuss econometric procedures for the analysis of the determinants of Japan's FDI in Thailand. The data, data sources and the econometric procedures are discussed.

Chapter 6 focuses on the empirical estimation of models and the discussion of results on the determinants of Japan's FDI in Thailand. The chapter presents the models and hypotheses for Japan's total FDI in Thailand and Japan's FDI in manufacturing and services sectors in Thailand. The models of Japanese FDI in Thailand are estimated econometrically, using the unrestricted error correction modeling procedure. The short run and long run relationships among the variables are identified and discussed.

Chapter 7 provides a summary of major findings, policy implications and limitations of the thesis, and offers some suggestions for further research on Japan's FDI in Thailand.

CHAPTER 2

An Overview of Japan's Foreign Direct Investment in Thailand

2.1 Introduction

The purpose of this chapter is to present an overview of the trends and patterns of Japan's foreign direct investment (FDI) in Thailand. This overview provides background information for the analysis in the subsequent chapters of this thesis. Section 2.2 reviews the trends and patterns of worldwide FDI. Section 2.3 provides an overview of the trends and patterns of FDI in the ASEAN region. Section 2.4 reviews the trends and patterns of Japan's FDI in Thailand. Concluding remarks are presented in section 2.5[2].

2.2 The Trends and Patterns of Worldwide FDI

This section presents an overview of worldwide trends and important aspects of FDI. The patterns of global FDI have changed dramatically (Tallman, 1988). FDI has been growing faster than world GDP, and is becoming a major component of foreign investment (Mody, Razin, and Sadka, 2003). The nominal annual average growth rate of 34 per cent of global FDI outflows between 1985 and 1990 exceeded that of merchandise exports (by 13 per cent) and nominal GDP (by 12 per cent) (UNCTC, 1992). The global inflow of FDI reached US$195 billion in 1993 (UNCTAD, 1994). As globalisation of business activity grows, there is considerable business interest in broad-brush evaluations of countries as hosts to FDI (Jackson and Markowski, 1996). The share of world exports in world production has grown from 7.2 per cent in 1960 to 13.6 per cent in 1999, while the share of FDI in world production increased from 4.4 per cent in 1960 to 10.4 per cent in 1999 (Pantulu, 2002). The developed world, such as the European Union (EU), the United States, and Japan had 71 per cent of world inflows and 82 per cent of outflows of FDI in 2000 (UNCTAD, 2001). The growth in FDI accelerated in the 1990s, rising to US$331 billion in 1995 and US$1.3 trillion in 2000 FDI flows, however, were expected to decline in 2001 (UNCTAD, 2002). There is a fairly large body of literature on the contribution of FDI and trade to economic growth and development (Balassa, 1978;

[2] The discussions in this chapter are based on nominal, rather than real data series on FDI.

Borensztein et al, 1998; Markusen, 1986). FDI continues to expand rapidly, enlarging the role of international production in the world economy (UNCTAD, 2001).

The substantially increasing trends in FDI from the 1990s highlight the importance of FDI. The volume of FDI had grown three-fold from US$1,714 billion in 1990 to US$5,004 billion by the end of 1999. Policies resulting in liberalisation of trade and investment, privatisation, deregulation, rapid technological growth, and growth of MNCs characterised by geographical diversification of both production and distribution, have all led to increased FDI (Pantulu, 2002). The role of FDI in the world economy would be significantly greater, if the impact of FDI on various economic activities is considered. FDI recipients can obtain not only the funds for investment; but can also receive assistance in utilising their firm specific assets such as technologies and managerial know-how efficiently (Urata, 1997). World FDI outflows increased about fivefold from 1993 to 2000 before falling at the beginning of 2001, while world trade and output grew at a more modest pace, not even doubling in value between 1990 and 2002 (ADB, 2004). As shown in Table 2.1, world FDI outflows inflows had risen every year from 1990 until 2000.

Table 2.1: **World FDI Outflows and Inflows; 1990-1995 to 2002 (US$ Million)**

Year	World FDI Outflows	World FDI Inflows
1990-1995	253302	225321
1996	394996	386140
1997	474010	478082
1998	684039	694457
1999	1042051	1088263
2000	1379493	1491934
2001	711445	823825
2002	647363	651188

Source: UNCTAD, 2002 and 2003.

The Asian financial crisis did not immediately affect the world FDI, and global inflows increased from US$478 billion in 1997 to US$694 billion in 1998. FDI outflows reached

US$684 billion in 1998 (see Table 2.1). However, global FDI flows declined sharply in 2001; inflows fell by 51 per cent and outflows by 55 per cent (UNCTAD, 2002).

The decline in FDI in 2001 reflects a slowdown in the world economy (UNCTAD, 2002). World FDI inflows and outflows in 2001 amounted to US$823 billion and US$711 billion, respectively. The events of September 11 in 2001 may also have contributed to the decline in FDI. Such events have had adverse impacts on overseas investment plans of Transnational Corporations (TNCs) (UNCTAD, 2002). In addition, global FDI inflows has continued to decline in 2002, for the second consecutive year, falling by a fifth to US$651 billion (see Table 2.1). The decline in FDI in 2002 was uneven across regions and countries. The decline had different impacts on different sectors; this was demonstrated when FDI flows into manufacturing and services declined, while those into primary sector rose (UNCTAD, 2003).

2.3 Trends and Patterns of FDI in the Asia Region

Eighteen developing countries received over 90 per cent of FDI inflows into all developing countries in 1990. Forty-five per cent of the total went to Southeast Asian developing market economies in which eight countries were involved. These were Hong Kong, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan, and Thailand (Fry, 1993). As shown in Table 2.2, during 1980-1990, FDI inflows into ASEAN-5 was growing. The largest inflow of FDI into ASEAN-5 in 1990 was to Singapore, followed by Malaysia, Thailand, Indonesia and the Philippines (see Table 2.2).

Table 2.2: **FDI Inflows into ASEAN-5,1980-1985 to1990 (US$ Million)**

Countries	1980-1985	1986	1987	1988	1989	1990
Indonesia	227	258	385	576	682	964
Malaysia	1058	489	423	719	1668	2902
Philippines	35	127	307	936	563	530
Singapore	1330	1710	2836	3647	4212	4808
Thailand	264	263	352	1105	1777	2376

Source: UNCTC, 1992.

From the late 1970s until the early 1990s the ASEAN-5 region (Indonesia, Malaysia, the Philippines, Singapore, and Thailand) became one of the most attractive investment locations in the developing world. Its share in the total stock of FDI in developing countries increased from 9 per cent in 1980 to 24 per cent in 1992 (UNCTAD, 1994).

In the second half of 1997, the financial markets of some countries in East and Southeast Asia were in crisis. The crisis affected the economies of the region in a number of ways. FDI plays an important role in the growth and development of Asian economies, including those most affected by the crisis. Among other things, inward FDI provides a useful supplement to domestic investment; with the ratio of inward FDI flows to gross fixed capital formation ranging from about 5 per cent in Thailand to 12 per cent in Malaysia. Asian countries most affected by the crisis had been ranked high priority among developing countries in the attractiveness of their economies to foreign investors. Asian countries in particular, have built up fundamental strengths that make for long term growth such as high domestic saving rates and skilled and flexible human resources, thereby creating opportunities for FDI that is competitiveness-enhancing for TNCs. Asian countries have also substantially liberalised their FDI policies and have taken steps to facilitate business. All of these factors can be expected to remain favorable to foreign investors in attracting more FDI (UNCTAD, 1998).

Inflows of FDI into South, East and Southeast Asia rose by 25 per cent from 1995 to 1996, to a record of US$81 billion. This represented about two-thirds of all developing-country FDI inflows. The increase shows that foreign investors remained confident about the region's long-term prospects, despite a slowing of its export growth and, to a lesser extent, GDP growth. FDI flows into four ASEAN member countries (Indonesia, Malaysia, the Philippines, and Thailand) increased by 43 per cent in 1996, approximately US$17 billion. This was attributed to the significant growth experienced in Indonesia, Malaysia and Thailand, while FDI flows into the Philippines fell below the 1995 level. The other reason is that the ASEAN countries have faced domestic capacity and infrastructure constraints.

Currently, ASEAN is responding by developing ASEAN Investment Area to enhance its attractiveness to foreign investors. In the past decade, a number of East and Southeast Asian

countries experienced remarkable economic growth, which was partly export-led and associated with an upsurge of FDI during that period. A feature of this performance is that, despite rapid export growth, large and persistent current account deficits were registered in some countries, such as Malaysia and Thailand. In 1995 and 1996, Japan's outflows were strongly focused on Asia and the United States. Many Asian host countries increased their share of Japanese FDI outflows. The divestments also reflect changes in Japanese TNCs' strategic priority; their aim now is to maximise production efficiency and profitability, a shift, which favors investment in South, East and Southeast Asia. In that region, the ratio of current income to sales of Japanese affiliates is more than twice that in the United States or Europe. South and East Asia provide a greater advantage as an export market for Japanese goods compared with Europe and North America (UNCTAD, 1997).

The inflows share of total FDI in developing countries has increased from 20 per cent in 1990 to roughly 27 per cent in 1999. Developing regions that have received the highest FDI in this period include East, South, and Southeast Asia, which together accounted for around 15 per cent of world FDI inflows in 1999. The slowdown of FDI inflows to Southeast Asia in 1997 is attributed to the Asian financial crisis of 1997-1998. This affected the FDI inflows into Singapore, Malaysia, and Indonesia. This was largely due to FDI flows in Indonesia have been negative since onset of the financial crisis, and outflow is on the increase. However in Thailand there was a significant increase in FDI until 1998 (see Table 2.3). Flows to Southeast Asia stagnated at US$13 billion, however, a part of this was continued disinvestment at US$ 3 billion in 2001 in Indonesia, where disinvestments have exceeded outflows since late 1998 (UNCTAD, 2002). FDI remained as an important source of capital and has played an important role in helping the region recover from the financial crisis (Encarnation, 1998; Poon and Thompson, 2001).

Table 2.3: **FDI Inflows in Asia, 1988-1993 to 2004 (US$ Million)**

	China	Indonesia	Malaysia	Singapore	Thailand	Vietnam
1988-1993	8852	1269	3320	3982	1899	319
1994	33787	2109	4581	8550	1343	1936
1995	35849	4346	5816	7206	2000	2349
1996	40180	6194	7296	8984	2405	2455
1997	44236	4677	6513	8085	3732	2745
1998	43751	-356	2700	5493	7449	1972
1999	40319	-2745	3532	6984	6078	1609
2000	40772	-4550	5542	6390	2448	2081
2001	46878	-2977	554	15038	3813	1300
2002	52743	145	3203	5822	947	1200
2003	53505	597	2473	9331	952	1450
2004	60630	1023	4624	16060	1064	1610

Source: UNCTAD (1994; 1997; 2001; 2004; 2005).

As shown in Table 2.3, during 2001-2004, China was the largest recipient of FDI inflows. However, FDI inflows to Malaysia and Vietnam decreased in 2001, butt rose significantly from 2002 to 2004. FDI inflows to Singapore, and Thailand increased in 2001, decreased in 2002-2003, but increased again in 2004.

At the beginning of the 1970s, there was a rapid increase in Japanese investment in Asia, which provoked criticism in some of these countries, especially Thailand and Indonesia (Komiya and Wakasugi, 1991). In Japan, the increase in FDI outflows may be traced to the 1985 Plaza Accord where the Japanese yen was forced to appreciate against the currencies of the major trading partners of Japan. Among the ASEAN countries (Indonesia, Malaysia, the Philippines, and Thailand), the average economic growth rate has closely followed the trends in FDI inflow from Japan (Kwan, 1994).

Japan's FDI decreased from 1990 to 1993, but it started to increase again in 1994, reaching 6.6 trillion yen in 1997 because of sharp appreciation of Japanese yen in 1994. However, in 1998, Japan's FDI decreased because of the Asian economic crisis and the Japanese economic recession. Japan is the largest supplier of foreign capital for almost all-Asian countries. Intra-company trades between the parent company in Japan and the local subsidiary in manufacturing industry is also important. These consisted of 25 per cent of Japanese exports to

Asia and 37 per cent for imports from Asia in 1996. Japanese FDI to Asia promotes trade between Japan and Asia. There is also a strong correlation between Japanese FDI into Asia and Japan's imports from Asia as well as exports to Asia (Nakajima, 2004).

For the Japanese FDI in Asia, the share of electric and electronics in total manufacturing increased from 11 per cent in 1985 to 26 per cent in 1994 (Urata, 1997). Japanese firms shifted their FDI to ASEAN countries, because of low cost labour. In particular, Thailand and Malaysia were the major recipients of Japanese FDI, pursued by Japanese electronics firms. FDI, particularly in the electronics and electrical sectors, has played a key role in transforming Southeast Asia's economies from primary production to more diversified economies (Chia, 1997; Dicken, 1998). However, in the early 1990s these ASEAN countries lost their attractiveness for cost saving FDI. Japanese firms under competitive pressure shifted their FDI to China, where labour costs are lower than in ASEAN countries (UNCTAD, 2002).

2.4 Japan's FDI in Thailand

2.4.1 Thailand's Economy and Economic Growth

Before the economic crisis in 1997, Thailand's economic development was considered as a continuous success with an average economic growth rate of nearly 11 per cent per year from 1960 to 1996. The rapid economic growth was driven largely by growing FDI inflows and exports, which was accompanied by a shift towards manufacturing, with the manufacturing share of total GDP reaching 29.9 per cent by 1995, up from 11.6 per cent in 1960 (Brimble, 2002). Thailand was the world's fastest-growing economy in the decade 1985 to 1994 (Phongpaichit, 1996). Thailand experienced a rapid gross domestic product (GDP) growth rate of over 7.9 per cent between 1970-1980. During the global recession in 1985 - 1986 the growth rates of Thailand slowed down, but in 1987 the GDP growth rate quickly picked up again almost doubling itself over the growth rate in 1986 (see Table 2.4). The Gulf War in 1990 unexpectedly checked the accelerated growth period starting from 1987 (Santikarn, 1996). The real GDP growth rates were very high at 9.5, 13.2, 12 and 10 per cent respectively, from 1987 to 1990. However, the GDP growth rate slowed down to 7.5 per cent in 1991 and picked up again to 8.5 per cent on average from 1992 to 1995 (see Table 2.4).

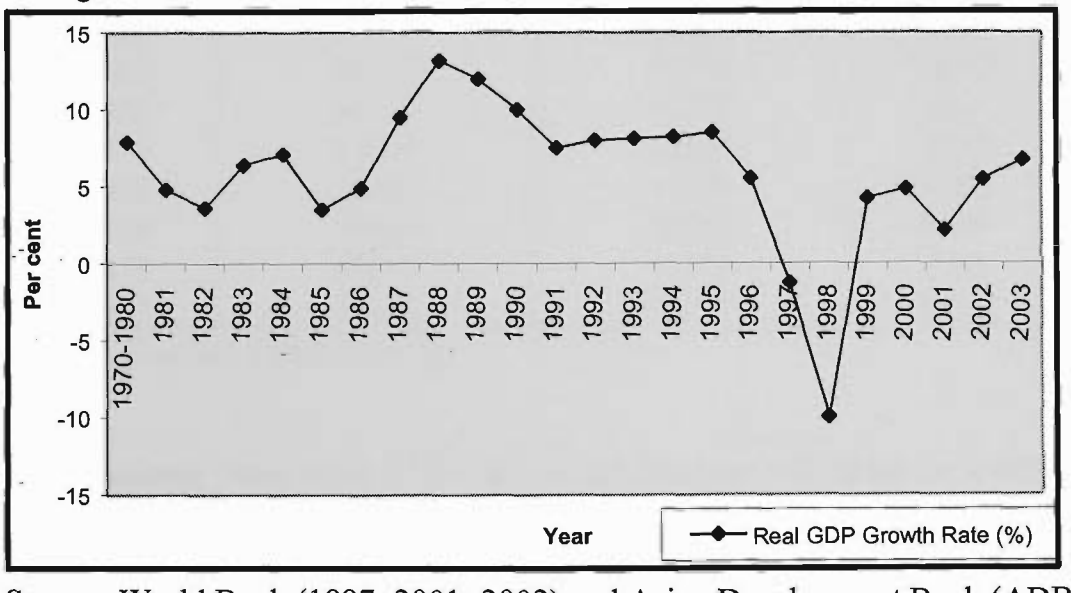
Thailand continues to rebuild its economy after debilitating effects of the Asian financial crisis, which hit the country in 1997 (Morrison, 2003). The Thai economy was recovering steadily during 1999-2000 after the disastrous minus 10 per cent growth rate in 1998 (see Table 2.4 and Figure 2.1). Thai GDP growth was expected to move slowly in 2001 due to the weakness of exports coupled with sluggish domestic demand. This might have been because of the global economic slowdown, which significantly affected the Thai economy (ADB, 2001c).

Table 2.4: **Real GDP Growth Rate of Thailand, 1970-1980 to 2003**

Year	Real GDP Growth Rate	Year	Real GDP Growth Rate
1970-1980	7.9	1992	8
1981	4.8	1993	8.1
1982	3.6	1994	8.2
1983	6.4	1995	8.5
1984	7.1	1996	5.5
1985	3.5	1997	-1.3
1986	4.9	1998	-10
1987	9.5	1999	4.2
1988	13.2	2000	4.8
1989	12	2001	2.1
1990	10	2002	5.4
1991	7.5	2003 [f]	6.7

Source: World Bank (1997; 2001; 2002).
f = forecast.

Figure 2.1: **Real GDP Growth Rate of Thailand, 1970-1980 to 2003**



Source: World Bank (1997; 2001; 2002) and Asian Development Bank (ADB), (2004).

Similar to other Southeast Asian countries, Thailand has two kinds of low labour cost, there are skilled and unskilled labour. It successfully attracted significant FDI to build production plants for export to developed economies. As shown in Table 2.5, from 1980 to 1997, the trade balance between exports and imports was negative. From 1998 to 2001 the trade balance became positive. FDI was the major factor for imbalance in some sectors that affected the Thai economy growth (Meephokee, 2004).

Table 2.5: **FDI and Trade balance in Thailand: 1980-2001**

Year	FDI ($US million)	Merchandise Exports (fob) ($US million)	Merchandise Imports (cif) ($US million)	Trade Balance ($US million)
1980	189	6505	9214	-2709
1981	294	7031	9955	-2924
1982	188	6945	8549	-1604
1983	358	6368	10287	-3919
1984	408	7413	10398	-2985
1985	162	7121	9242	-2121
1986	263	8872	9173	-301
1987	352	11654	13023	-1369
1988	1105	15953	20285	-4332
1989	1778	20078	25771	-5693
1990	2529	23068	33045	-9977
1991	2014	28428	37569	-9141
1992	2114	32472	40686	-8214
1993	1730	36969	46077	-9108
1994	1322	45261	54459	-9198
1995	2002	56439	70786	-14347
1996	2268	55721	72332	-16611
1997	3753	57374	62854	-5480
1998	5075	54456	42971	11485
1999	3559	58440	50342	8098
2000	2478	69057	61924	7133
2001	3885	65113	62058	3055

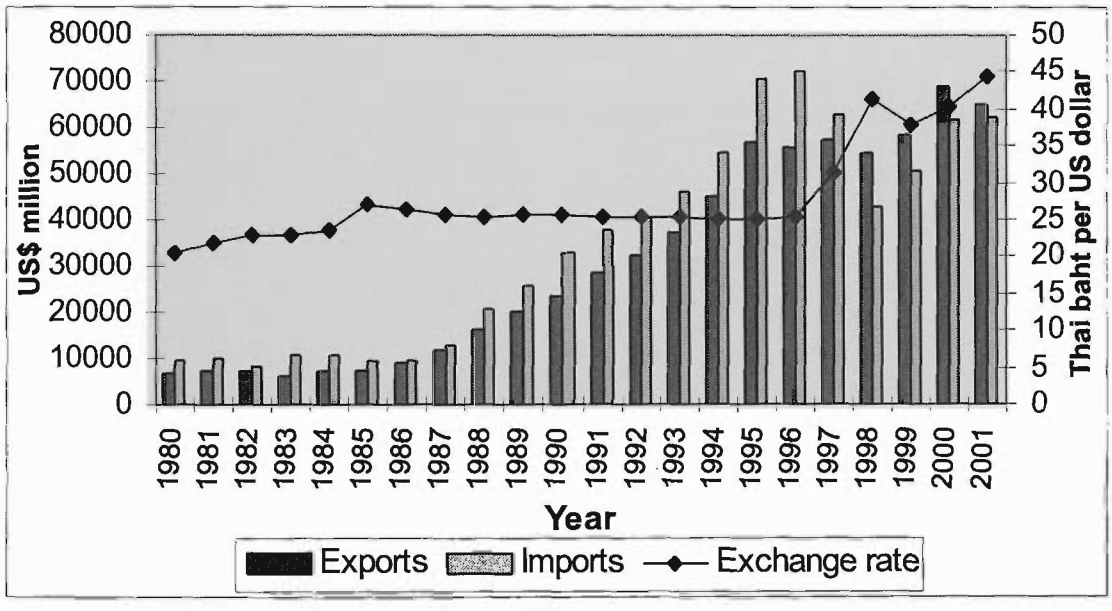
Source: Bank of Thailand (2004a; 2005).

The average exchange rates were 37.96 and 40.30 baht per US dollar in 1999 and 2000, respectively (see Figure 2.2). In 2001 Thai baht was expected to further depreciate because the Thai economy in 2001 had shown the signs of slow growth. The Thai baht weakened following the Asian crisis in 1997, the terrorist attacts in 11 September 2001 on the US and the US

retaliation in recognition of a poorer outlook for exports and tourism and rising risk premium in emerging markets in general. The Thai baht was expected to remain under pressure in 2002 owing to lower revenue from exports of goods and services (see Figure 2.3), and high external debt repayment obligations. However, the debt repayments in 2003, which coupled with stronger economic fundamentals, enabled a stronger Thai baht (EIU, 2001).

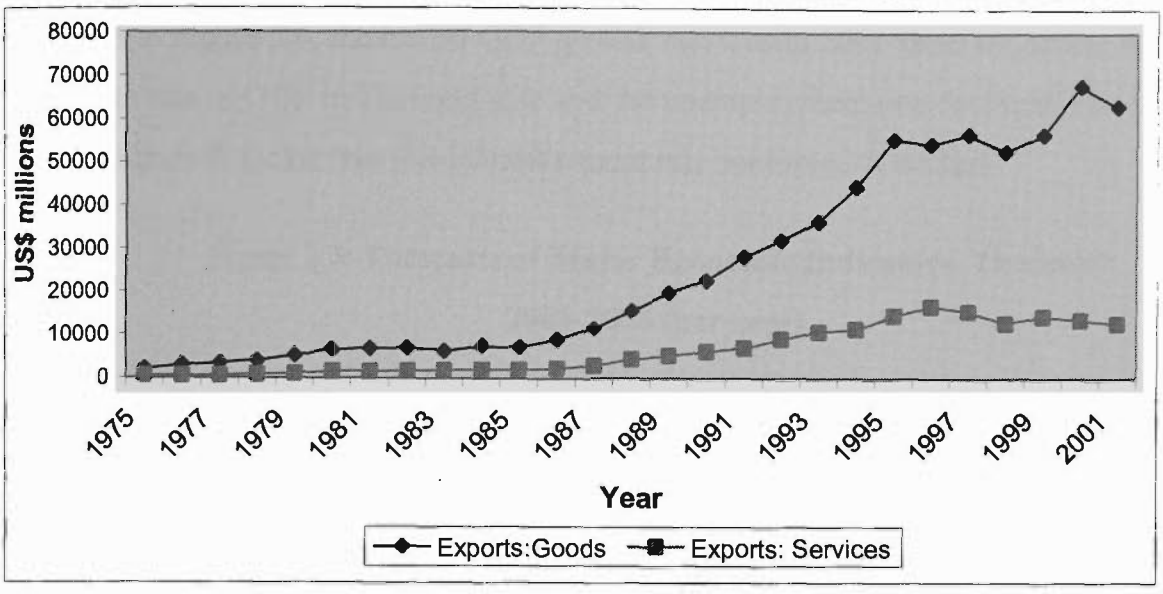
In the 1980s to early 1997, there was an impression that imports will grow faster than exports. Moreover, after the Asian crisis the imports have increased during 1999-2001 (See Figure 2.4). The Asian crisis resulted in a slowdown in export growth that compelled the devaluation of the currency in order to promote exports (Lai, 2000).

Figure 2.2 **Thailand's Total Exports and Imports Compared with the Exchange Rate: 1980-2001**



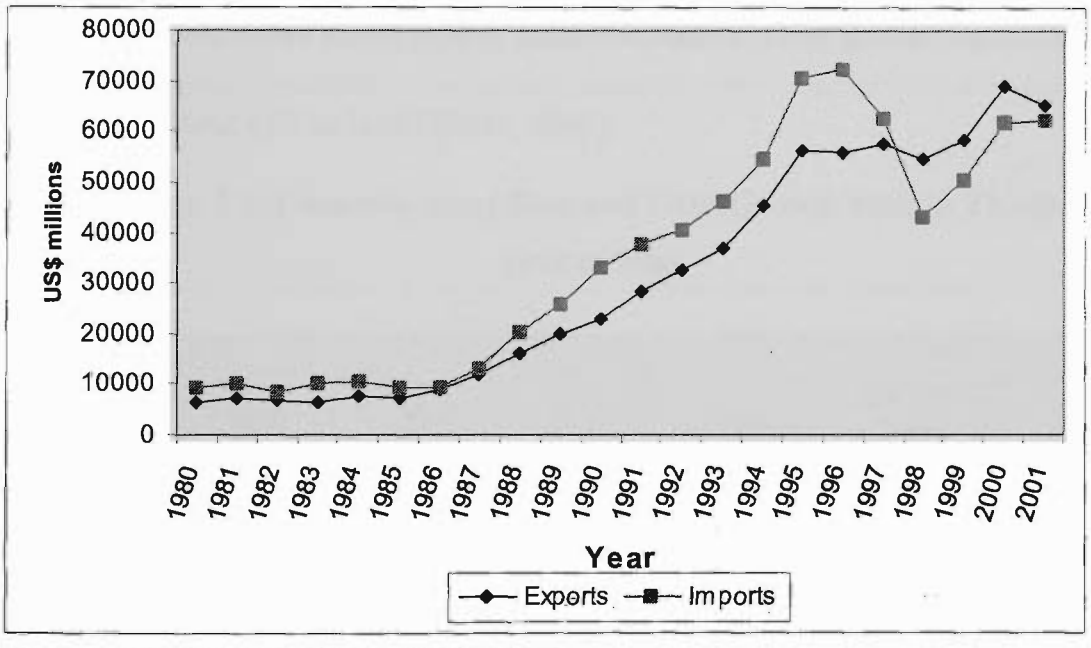
Source: World Bank (1997; 2001; 2002).

Figure 2.3: **Exports of Goods and Exports of Services in Thailand: 1975-2001**



Source: World Bank (1997; 2001; 2002).

Figure 2.4: **Total Exports and Imports of Thailand: 1980 to 2001**

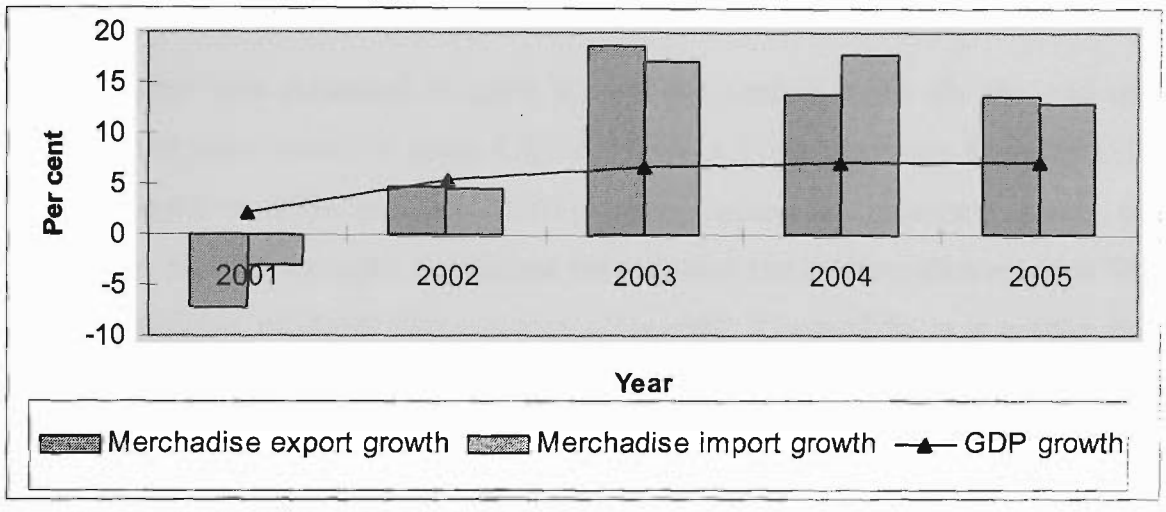


Source: World Bank (1997; 2001; 2002).

Thailand's merchandise export and import growth rates in 2001 have declined sharply from the year 2000 (from 19.5 to –7.1 per cent, and 31.3 to –3.0 per cent, respectively). However, in 2002 both exports and imports increased by 4.8 per cent and 4.6 per cent, respectively. Especially in 2003, merchandise exports and imports grew strongly, registering growth rates of 18.6 per cent and 17.1 per cent, respectively (see Figure 2.5).

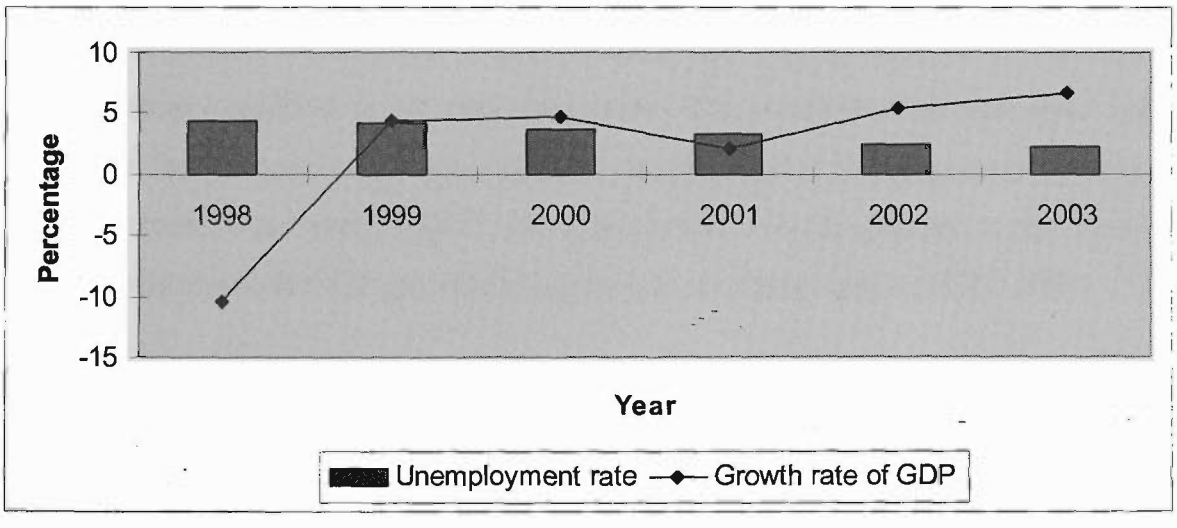
As shown in Figure 2.6, the lowest GDP growth rate was in 2001 since the crisis. After 2001, the growth rate of GDP in Thailand rose and the unemployment rate declined. The stronger economic growth meant that the unemployment rate continued to decline.

Figure 2.5: **Forecasts of Major Economic Indicators, Thailand; 2001-2005 (per cent)**



Source: Bank of Thailand (2004a; 2005).

Figure 2.6: **Unemployment Rate and GDP Growth Rate in Thailand; 1998 to 2003**



Source: ADB (2004).

In Thailand, the momentum associated with the solid GDP growth of 5.3 per cent achieved in 2002 carried itself through to the first half of 2003. The negative impact of Severe Acute Respiratory Syndrome (SARS) was felt in the fall in the real value the services exports. The

global economy also experienced other negative factors in the first half of 2003, such as the conflict in Iraq and its possible effects, as well as the overall weakness in some economies and job markets. In Asia, sentiments were dampened by regional terrorism, especially after the October 2002 Bali bombings. Consumption and the wider economy have also been only slightly damaged in Thailand where no SARS cases were reported but a large part of the tourism sector still suffered from the threat of SARS in the second quarter of 2003 (ADB, 2003).

The Thai economy was estimated to grow by 6.4 per cent in 2003. By the end of 2003, Thailand's exports were poised to reach US$79 billion, a 15 per cent rise from the US$68.81 billion it registered in 2002 (Allison, 2004). Strong economic growth suggests that the government may be able to make significant inroads into the poverty that resulted from the crisis. As a significant producer and exporter of poultry, Thailand faces a greater potential problem than most other countries from the outbreak of avian flu or chicken flu, although this disease was not likely to have a larger impact than SARS had on business and tourist arrivals in 2003 (ADB, 2004).

However, the December 26th 2004 Indian Ocean Tsunami is now thought to have killed more than 260,000 people in South Asia (Sri Lanka and India) and Southeast Asia (Indonesia and Thailand). The impact on Thailand's growth from this tragedy will be considerable, even though the country suffered fewer casualties than other countries. The economic impact on Thailand from the Tsunami will show up mainly in the damage to the tourism industry, which accounts for around 6 per cent of GDP. The government's initial estimate is that Tsunami and its aftermath will result in GDP growth falling by 0.3 percentage points (EIU, 2005).

2.4.2 FDI in Thailand in General

From the 1960s through to the 1970s, several factors in Thailand made it more attractive to the foreign investors, which were the abundance of cheap labour and resources, a larger market size, and the incentives from the government to attract the foreign investors (Meephokee, 2004). However, the net inflow of FDI was affected by the oil crises during 1973-74 and 1978-79 (The Economist, 2004). The oil crisis made the net inflow of FDI to decrease to 1,128

million baht during 1978-79 (see Appendix 2.1). During 1985-1987, the political stability in Thailand was shaken because of the military coup. In 1985, FDI had decreased more than half that of 1984 (see Appendix 2.1). However, in 1986 FDI started to increase again and the foreign investors continued to come in and invest. Despite the change in the government, economic and social policies of Thailand had not changed much since every government considered FDI as one of the priority areas for the development of the Thai economy (Tambunlertchai, 1991). The importance of FDI in Thailand has drawn increasing attention in the past few years. The major reasons for this increased attention were the dramatic increase in FDI inflows in Thailand after 1988 and the coincidence of these increased flows with an unprecedented economic boom between 1987 and 1990 when gross GDP growth reached highs of between 9.5 and 13.3 per cent (National Economic and Social Development Board, 1988; 1992; 1993). During 1988-89, a large amount of FDI flowed into Thailand. In the 1980s, the net FDI flow increased sharply from the previous decades, which averaged to be 12,655 million baht per year. The net FDI flow continued to increase in 1990, with an amount of 64,695 million baht. However, FDI inflows dropped to 51,389.1 million baht in 1991 (see Appendix 2.1).

FDI has been a major contributor to Thailand's economic growth since the mid-1980s (Indian Ocean Rim Network, 2000). Thailand is considered to be the most attractive investment location in Southeast Asia, and it is widely expected to become the "Fifth Tiger" or Asia's newly industrialized countries (NICs). Its potential stability, private enterprise economy, plentiful and cheap labour, positive attitudes towards foreign investment and increasingly liberal industrial and financial policies contributed to this capability (Gwynne, 1993). FDI inflows into Thailand increased in the second half of the 1980s after the Plaza Accord, which resulted in the appreciation of currencies of Japan and NIEs such as Taiwan, Hong Kong and Korea. From 1986 to 1989 Thailand attracted on average over 22 billion baht per annum of the net FDI flows. From 1990 to 1996, FDI flows into Thailand were over 50 billion baht per year. However, in 1993 FDI dropped to nearly to 44 billion baht and to just over 33 billion baht in 1994. FDI had been decreasing because of the effect created by the political unrest in the early 1990s (Gulf War), which affected foreign investor's confidence (Santikarn, 1996; Brimble, 2002) (see also, Appendix 2.1). However, the depreciation of the Thai baht due to the

economic crisis in 1997 made FDI inflows increased, totaling 117,696 million baht in 1997, 209,888 million baht in 1998 and 134,592 million baht in 1999, before falling to 115,286 million baht in 2000 which increased again to 172,640 million baht in 2001 (see Appendix 2.1).

The major foreign investors into Thailand were Japan, the United States, EU, and the Newly Industrialized economies (NIEs: Hong Kong, Taiwan, Singapore, and South Korea) (see Appendix 2.1). The recent period of high FDI inflow resulted in a diversification of exports from primarily natural resource-based products into growing shares of technology-intensive and skilled labour-intensive goods. FDI inflows into Thailand continued growing because of cost reductions and investment for export to home market (Pupphavesa and Pussarungsri, 1994). However, in 1997 and 1998, FDI in Thailand also took advantage of lower investment costs that resulted from the devaluation of the baht. The total FDI stock in Thailand at the end of 2002 was estimated at US$32.5 billion. During 2000-2002, the annual average FDI in Thailand was US$3.5 billion (Morrison, 2003).

Japan has generally been the largest source of FDI into Thailand since the late 1970s. In the late 1980s, Thailand was the major beneficiary of a massive relocation of industries from Japan brought on by a steep rise in the value of the yen. In 1988-90, net inflows of FDI from Japan constituted about 40-50 per cent of Thailand total net inflows. In 1991-1996, the net inflow of FDI has fallen due to weak economic conditions in Japan (Tangkitvanich and Nikomborirak, 2004; see also Appendix 2.1). Following the economic crisis and the depreciation of the baht in 1997, Japan has increased net FDI flows into Thailand during 1997-98, however, with the exception of being overtaken by the EU in 1999 and by Singapore in 2001. Japanese FDI dropped sharply in 1999 as a result of the weakening of Japan's economy. However, the Japanese were back to invest in Thailand in 2000 and 2001 as their firms increased equity shares in local subsidiaries. In 1998, Singapore has ranked highest among the FDI sources in Thailand, compared with the previous year. European investment rose strongly during 1998 - 1999, which was led by the Netherlands, but fell rapidly during 2000-2003 (Brimble, 2002; Tangkitvanich and Nikomborirak, 2004).

With the Thai government actively encouraging manufactured exports though its investment policies, the manufacturing sector has consistently been the major recipient of FDI (Tangkitvanich and Nikomborirak, 2004). Manufacturing sectors accounted for 49 per cent of the total FDI of 39 billion baht (US$1.5 billion) in 1993, a decline of 27.5 per cent from the previous year. According to the bank of Thailand, this occurred because economic conditions in several countries were sluggish and together with the fact that Thailand's ability to attract FDI declined relative to major competitors such as China and Indonesia, which have an advantage of lower wages (Bank of Thailand, 1993). Before the financial crisis, manufacturing led the growth of the Thai economy. Relatively abundant and inexpensive labour and natural resources, fiscal conservatism, open foreign investment policies, and encouragement of the private sector contributed to the economic success in the year up to 1997 (USDC, 1994).

During the period 1970-2004, the manufacturing sector was the largest recipient of FDI (616,101 million baht). The trade and real estate sectors were the second largest of business interest for foreign investors, followed by the services sector (see Appendix 2.2). FDI inflows to Thailand have spread over several manufacturing industries. In 1970, 1978-79, 1987-1991, 1997-98, 2000-2002 and 2004 there were substantial FDI inflows, of which more than 40 per cent (65 per cent in 2000) went into the manufacturing sector (see Appendix 2.2). During 1980-1989, FDI inflows were mainly in the electrical appliances and chemicals sectors. During 1990-2000, the FDI inflows were mostly in electrical appliances, machinery and transport equipment and chemicals industries. Machinery and transport equipment started to become an important sector for FDI after 1995 (see Appendix 2.2).

The manufacturing sector's share of FDI inflows increased from an annual average of 37 per cent during 1970-1995 to 57 per cent in 2001. Within the manufacturing sector, the electronics industry attracted the largest volume of FDI, amounting to 17.6 per cent in 2001. However, in the manufacturing sector, during 1998-2000, electronics industry was overtaken by machinery and transport equipment industries. The metal and non-metallic and chemical industries were the third largest industries having the highest average share of FDI accounting for US$2,156 million in 1970 and US$2,028 million in 2001 (Brimble, 2002, P.15). Foreign companies

investing in electronics and electrical products, and transport equipment dominate the manufacturing sectors.

Foreign investment projects approved in Thailand increased rapidly from 1987 to 1988, however, from 1989 to 1992, they started to slowly decrease and increased again in 1993 to 1995 (see Appendix 2.3). This may have been because of the problem in the economies of the foreign investor countries, during that time. Also the Asian crisis occurred during mid 1997, resulting in investors losing confidence leading to a decrease in applications for projects to invest in Thailand, and these led to a decrease in the approval of projects from 867 projects in 1997 to 647 projects in 1998 (see Appendix 2.3), However, the approval of projects began to increase again in 2000-2001. This was largely due to an increase in expansion of investments of export-oriented projects that performed very well after the devaluation of the baht (Brimble, 2002). The total planned investment of foreign projects approved by the BOI decreased from 522 billion baht in 1996 to 162 billion baht in 1999. This trend was mainly due to the shrinking of domestic demand following the Asian crisis. However, the value of BOI approvals increased to around 279 billion baht in 2000 and nearly 266 billion baht in 2001, and started to decrease again in 2002. In 2003-2004 they stared to increase again (see Appendix 2.3). Moreover, during 1987-2004, Japan, Taiwan, the European Union, the USA, Singapore, and Hong Kong, in that order, were the main sources of approved FDI projects in Thailand (see Appendix 2.3).

Most of the approved projects between 1990 and 2004 concentrated in the manufacturing sector such as the chemicals and paper, whereas electrical and electronic products industries attracted the largest value of investments. The services sector attracted the second largest value of investments, followed by agricultural products sector (see Appendix 2.4). The Thailand Board of investment (BOI) is the main agency that provides incentives to foreign investors. BOI promoted industries with a significant proportion of FDI include electronic products, chemicals, metals and machinery, and transport equipment (Meephokee, 2004). During 1990–2004, there were 7,546 foreign investment projects approved by the BOI with a total investment value of 3,684,545 million baht (see Appendix 2.4). A number of foreign investments projects approved by the BOI were classified by factory location, nearly 2,000

planed for investment in Zone 2[3], followed by 1792 projects in Zone 3, and 1,333 in Zone 1 during 1996 to 2004 (see Appendix 2.5).

Net inflows of FDI in Thailand increased from US$841 million in 2002 to US$954 million in 2003, with investment in manufacturing and trade-related activities accounting for the bulk of the inflows. Thailand's economic recovery has been strong, with the highest growth rate projected for 2004. Investor and consumer confidence remains high. Gross FDI inflows into Thailand amounted to around US$7 billion during 2002-2003, relative to pre-crisis levels of US$3.5 billion (Fossberg, 2004). The Thai government has set a target of attracting 270 billion baht (US$6.9 billion) in domestic and foreign investment in 2004. Domestic investment will make up about 40 per cent of the estimated figure for 2004 and FDI will comprise the remaining 60 per cent. Thailand aims to become one of the five leading investment destinations in the Asia-Pacific region by 2006. In 2001, Thailand was ranked the 11th, registering only US$3.8 billion out of a total US$651 billion in investment for the region (ADB, 2004).

The main types of FDI in Thailand are wholly foreign-owned (100 per cent foreign owner) and joint ventures. As shown in Table 2.6, the period 1960 to 1992 was identified as the period with the strongest growth of joint venture and wholly foreign-owned FDI in Thailand by Japanese firms, Hong Kong was the second largest after Japan and Taiwan was the third largest in wholly foreign-owned FDI. Taiwan was the second largest source and Hong Kong was the third largest source of joint ventures. As shown in Appendix 2.11, it was clear that joint ventures were very popular during 1996-1998. However, after the Asian crisis the foreign investors have turned to 100 per cent wholly-owned investments during 1999-2002, and started to turn back to joint ventures again in 2003-2004. Also from 1996 to 2004 the total of joint venture projects were higher than wholly foreign-owned projects (2669 and 2447, respectively). The value of investments in joint ventures was also higher than in wholly foreign-owned investments (and 1,285,436 million baht and 789,490 million baht, respectively). Japanese firms have been the largest contributors to international joint venture formation in Thailand since 1960 (Julian, 1998).

[3] Zone 2 is the Industrial Estate Zone (details are in chapter 4).

Table 2.6 **Registered Capital of Firms Granted Promotion Certificates by Nationality, 1960-1992**

Nationality	100 per cent Owned (million baht)	Joint Venture (million baht)	Total (million baht)	Total Per cent
Total Thai	89463	90780	180243	65.5
Total Foreign:	31085	63372	94457	34.4
Japan	16919	25056	41975	15.3
Hong Kong	7762	3948	11709	4.3
Taiwan	3069	6093	9163	3.3
USA	510	6323	6832	2.5
UK	152	3498	3650	1.3
Singapore	381	1873	2254	0.8
Other	2292	16581	18874	6.9
Total	120548	154152	274700	100

Source: International Affairs Division, BOI (1995).

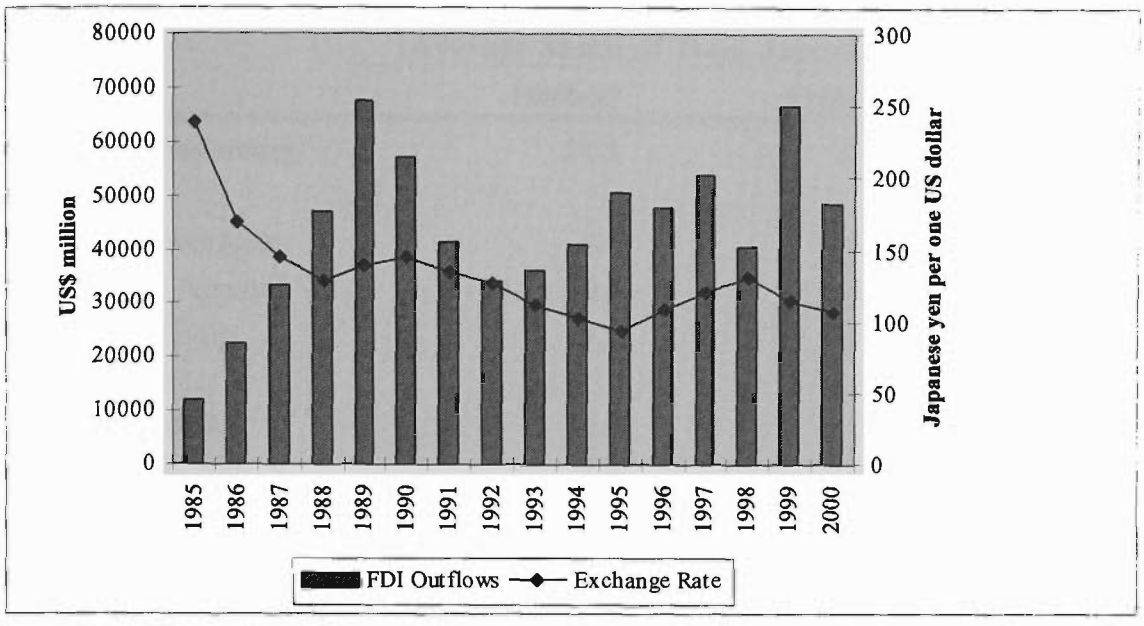
2.4.3 Japan's FDI into Thailand

In the post-second world war period, the Japanese Government fostered trade and investment as one of the nation's priority. As part of this strategy, inward FDI was restricted and direction of outward FDI was closely monitored, at least until the 1980's (Mason and Encarnation, 1995). Since the mid-1980s Japan has been one of the largest sources of FDI in the world. Japanese corporations actively pursued investment overseas in response to yen appreciation, foreign protectionism, higher domestic labour costs, slower domestic growth and the need to secure natural resources and markets. Foreign investment also facilitated Japan's adjustment to its changing comparative advantages as its domestic economy evolved from light manufacturing towards more advanced industries. During this period a large number of different host countries and industries attracted Japanese investors. As the world's second largest economy, Japan established extensive trade and investment linkages with the rest of the world; linkages that have significantly affected trade and industrial development in many of these host economies (Farrell and Gaston, 2001). The understanding of the changing global pattern of Japanese FDI has become increasingly important, but it has been seriously impeded by deficiencies in available investment statistics (UNCTAD, 1998).

FDI outflows from Japan reflect the cyclical movements of the Japanese yen and the growth of the Japanese economy. As shown in Figure 2.8, changes in Japanese outward direct investment appear to reflect movements in the value of the Japanese yen. In particular, the appreciation of the Japanese yen after the Plaza Accord in 1985 is regarded as the most important macroeconomic factor explaining the expansion of Japanese foreign direct investment during the latter half of the 1980s. FDI was increasing from the start of 1985 until 1989. This was because of the appreciation of the yen resulting in relative prices of Japanese products to be more expensive. Therefore, Japanese manufacturing firms interpreted the yen appreciation as a permanent change and shifted their production overseas to improve the competitiveness of their products in the international markets (Fung et al, 2002).

Japanese FDI in manufacturing increased steadily during the 1960s and 1970s, due in part to the import substitution policies adopted by host country governments in Latin America and Asia. Host country import barriers and the small scale of the domestic market typically made Japanese subsidiaries less competitive on world markets, but the subsequent liberalization of FDI inflow guidelines, especially by the NIE's and ASEAN countries, encouraged a more outward approach by Japanese investors. Also at the same time, a number of Asian governments began to encourage Japanese FDI (Urata, 1993). Froot (1991) found that the character of Japanese FDI changed during the 1980s, with trade-promoting investments being superseded by investments designed to substitute for trade, particularly in the manufacturing sector, and by investment in property and financial services. Manufacturing regained its importance during the 1990s (see Table 2.7).

Figure 2.8: **Japan's FDI; 1985-2000**



Source: UNCTAD (2003) and The Organisation for Economic Co-operation and Development (OECD) (2002a; 2002b).

The sector composition of Japanese FDI in the 1990s reflects a more even distribution in manufacturing, services, and other industries. During the 1990s, the manufacturing sector accounted for an annual average of 36 per cent of total FDI. This was followed closely by investments in the services and other sectors, which accounted for around 32 per cent of total FDI. Japanese manufacturing FDI is mostly in the transport equipment and electrical industries. Finance, insurance and real estate are some of the industries that have accounted for the increasing share of FDI in the services sector between 1996 and 1998.

Table 2.7: **Japanese FDI in Manufacturing Industries; 1984-87 to 1992-95**

	Average Share of Total Japanese FDI (per cent)		
	1984-87	**1988-91**	**1992-95**
All Manufacturing	**21.1**	**27.2**	**33.2**
Food & Beverages	0.8	1.5	2.2
Textiles & Apparel	0.5	1.1	1.6
Lumber & Pulp	0.6	0.8	0.8
Chemicals	2.1	3.4	5.2
Primary metals	2.8	2.3	2.6
General Machinery	2.4	2.8	3.6
Electrical &Electronic - Machinery	5.5	7.3	7.8
Transport Equipment	4.3	3.4	3.8
Total Japanese FDI ($US millions)	**78.1**	**213.1**	**163.9**

Note: Calculated using the data from the Ministry of Finance, Annual Report of the International Finance Bureau (Okurasho Kokusai Kinyu Kyoku Nenpo), various years, Tokyo. Figures published in $US and for Japanese financial years (e.g., 1995 refers to the period from April 1995 to March 1996).

Japan's investment abroad grew by 21 per cent (US$ 23 billion) in 1999 and is expected to keep growing since 2000. According to a survey of manufacturing TNCs by the Japan Bank for International Cooperation in 2001 (JBIC, 2002), 72 per cent of respondents planned to increase their outward investment over the next three years, compared to 21 per cent 1999 and 55 per cent in 2000. The Japanese investment gap between China and the ASEAN-4 (Indonesia, Malaysia, the Philippines and Thailand) has narrowed since 1999 and grew up again in 2001 (US$2.7 billion and US$2.9 billion, respectively) (UNCTAD, 2002).

The Asian continent has traditionally been attractive to investors for its cheaper production sites. But its attractiveness, as a market has been increasing as well. Japan is now the largest single investor in terms of FDI stock in Thailand, Indonesia and Malaysia. The economic and financial crisis in much of Southeast Asia has not affected Japan's FDI in Southeast Asia. Asian countries such as Malaysia, the Philippines, Thailand, and Indonesia, which were hit hardest by the crisis, would have benefited more from FDI. They had a more balanced policy

towards foreign investment, in particular in the areas of improvements in linking with the local industry and developing the region's human capital (OECD, 1999). In 1997, 1998, and 2000, Japan was the largest foreign investor in Thailand. However, in 1999, the EU was the largest foreign investor in Thailand, followed by the USA, Asian NIEs (Hong Kong, Taiwan, Singapore, and South Korea), Japan, and ASEAN (see Table 2.8).

Table 2.8: **FDI in Thailand by Source Countries: 1997-2000 (US$ million)**

Source Countries	**1997**	**1998**	**1999**	**2000**
ASEAN	26	35	35	29
Newly Industrialized Countries (NIEs)	879	1114	896	845
Japan	1348	1485	489	869
European Union (EU)	360	912	1369	507
USA	780	1284	641	617

Source: Bank of Thailand (2004a; 2005).

Note: ASEAN (less Singapore). Newly Industrialized Countries (NIEs) are Taiwan, Hong Kong, South Korea, and Singapore.

Thailand benefited from the yen appreciation in Japan and higher labour cost in Japan and other Asian newly industrializing economies, which led to a sharp rise in FDI inflows to Thailand in the late 1980s (Farrell and Gaston, 2001; Pupphavesa and Pussarungsri, 1995). Japanese investment in Thailand increased sharply from 3,269 million baht in to 1987 to 27,931 million baht in 1990. The investment boom in Thailand reached its peak in 1988 and declined in subsequent two years in terms of number of applications and application approved by the Board of Investment (Yoshida, 1992). The increase raised the share of Japanese FDI in Thailand from 1986 to 1991 (3,049 billion baht to 15,593 billion baht respectively; see Appendix 2.1). However, the share declined from 1992 to 1994; the reason might be because Japan had experienced economic problems during this period, such as the problems of the non-performing loans becoming too large and had reduced the ability of the banking sector to expand credit (Basu and Miroshnik, 2000).

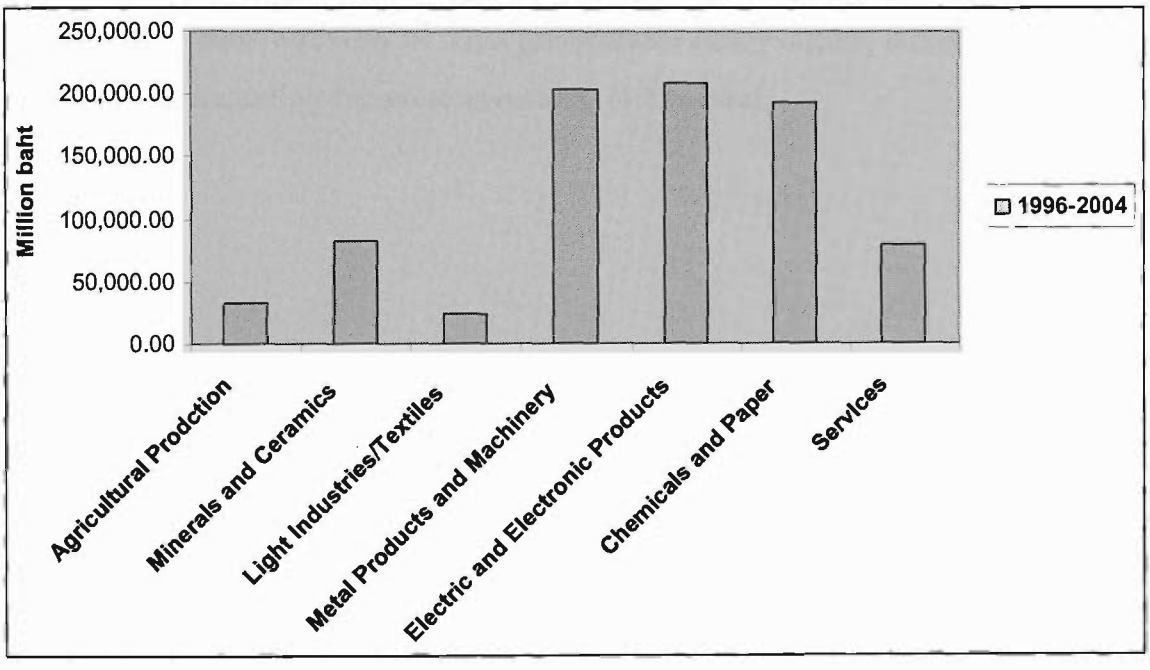
The Japanese direct investment in Thailand mostly involved joint ventures, being concentrated in the automotive and electronics industries (OECD, 1999; DFAT, 2000). However, during the financial crisis, Japanese investment in Thailand recovered; it accounted for around 30 per cent of all inflows in 1997 and 1998. This mainly reflected existing Japanese investors taking advantage of new foreign investment guidelines to buy out local Thai partners. In 1999, as this activity decreased, Japan's share of FDI again fell to below 20 per cent (DFAT, 2000).

Japanese FDI in Thailand has varied among different economic sectors. The most important sector is manufacturing, accounting for around 60 per cent of net flows from 1971 to 1995. During the same period, Trade and construction have also been important sectors (see Appendix 2.6). During 1990-2004, of the total project approvals, more than 50 per cent were in the manufacturing sector, followed by services and agricultural sectors. In terms of value of investments, the most important manufacturing sectors were chemicals and paper, followed by electrical and electronic products and metal products and machinery (see Appendix 2.7). During 1996-2004, the number of Japanese investment project approvals was more than half in Zone 2, followed by Zone 3 and Zone 1 (see Appendix 2.8). (Chapter 3 provides more details about the Zones).

During 1990-2000, FDI inflows in Thailand were mostly in electrical appliances and machinery and transport equipment industries. In 2000, there were 761 foreign investment projects approved by the BOI with the total investment value of 212,649 million baht. Japan has been the most important foreign investing country, with 50.5 per cent of total foreign investment value approved in 2000. In 2000, most of the Japanese investment was in electrical and electronic sector (35.84 per cent), and in chemicals and paper (26.29 per cent) (Meephokee, 2004). Japanese investment projects approved by the BOI during 1996-2004 are classified by sector averages in Figure 2.9 and Appendix 2.9. The electrical and electronic products industries received the largest share of Japan's total FDI, or 209,223.2 million baht, followed by metal products and machinery, chemicals and paper, minerals and ceramics, services, agricultural products, and light industries/textiles.

During 2000-2004, Japan remained the largest foreign investor in Thailand, with 1364 investment projects approved with a value of 452,677.7 million baht. This was followed by the European Union with 415 projects, Taiwan with 321 projects, Singapore with 285 projects and the United States with 226 projects (see Appendix 2.10). Moreover, as shown in the Appendix 2.11, at 100 per cent foreign investment and joint ventures between Thai and foreign investors became the main types of investment after the Asian crisis.

Figure 2.9: **Japanese Investment Projects Approved by the BOI of Thailand, Classified by Sectors; average during 1996 - 2004 (million baht)**



Source: International Affairs Division, BOI (2002; 2004b; 2005b).

Note: Japanese Investment Projects refer to projects with Japanese capital of at least 10 per cent.

2.5 Conclusion

This chapter presented an overview of worldwide trends in FDI, and the trends of FDI in the ASEAN including Thailand. It also highlighted trends, patterns and important aspects of Japan's FDI into Thailand. The sectoral composition of Japan's FDI in Thailand indicates that more than 50 per cent of FDI is undertaken in the manufacturing sector. Japan is the most important foreign investor in Thailand, followed by the United States, the European Union and the Asian newly industrialising countries. Beyond the Asian financial crisis, Thailand's FDI

laws had a significant impact to attract more of the foreign investors. However, the foreign investment may decrease because of the world economic slowdown. Moreover, most of the investors turn to China and Vietnam because of larger domestic markets, and lower wage costs than Thailand[4]. However, to help Thailand remain an attractive investment site, the Thai government attempts to overhaul the foreign investment regime and investment promotion privileges, but there has been mixed success. The Thai government Senate had undermined the efforts to liberalise the alien business law, which limits foreign investors access to many economic activities, and to relax the restriction on foreign ownership of land.

Chapter 3 will provide a review of Thai government FDI policies, which are applicable to all foreign investors, including Japanese investors, in Thailand.

[4] Whether China has crowded out investment opportunities for other countries remains a controversial issue in the scholarly literature relating to this issue (Eichangreen and Tong 2005; Wei, 2000).

CHAPTER 3

Thai Government Policies in Relation to Foreign Direct Investment

3.1 Introduction

This chapter will provide an overview of the Thai government policies concerned with foreign direct investment (FDI) in Thailand. The part of government policy that the foreign investors should become familiar with before coming to do business in Thailand is reviewed as follows. Section 3.2 outlines the historical background of foreign investment promotion and FDI guidelines under five year economic plans. Section 3.3 reviews the political environment including the policy structure and government agencies charged with FDI. Section 3.4 is an overview of the legal environment including alien business law, alien employment act, and immigration act. Section 3.5 deals with promoted investment. Conclusion to the chapter is included in section 3.6.

3.2 An Outline of Thai Government FDI Policies

3.2.1. Historical Background of Foreign Investment Promotion

The history of foreign investment in Thailand dates back to the nineteenth century. In 1855, a commercial treaty was signed, and this marked a new era for the Thai economy to be integrated in to the world economy. According to the treaty, Thailand allowed foreigners to do business anywhere in the country (Suehiro, 1989). FDI started in the mid-1950s when the Thai government enacted the Industrial Promotion Act of 1954 and set up the Board of Industrial Promotion. This Act was replaced by an interim law (Decree of the National Executive Council No. 33) in 1958. Then, a formal "Industrial Investment Promotion Act 1960" was announced in October 1959. At the same time, the Board of Investment was set up to replace the previous Board and to administer investment promotion under the new law.

The first clause of the Decree of the National Executive Council number 33 made it clear that both Thai and foreign investors can apply for investment promotion. This trend toward equal treatment was also seen in the subsequent laws up to 1972 when the *Alien Business Law* was announced. The Board of Investment promoted certain business activities in agriculture,

commerce, services, and building construction, which were closed to foreigners (see Appendix 3.1).

The basic law behind the Thai Government's push to promote inward FDI, the Investment Promotion Act, was established in 1977, amended in 1991 and in 2001. Under this act, the Board of Investment (BOI) was authorised to grant promotional privileges and work with other relevant government agencies in the granting of permits for investment in promoted sectors. While the investment policy is continuously undergoing change, the direction and goals remain the same, for example, to stimulate FDI in the country and to maximise its contribution to the competitiveness and productivity of the Thai economy (BOI, 2004a).

Generally, the Thai government allowed FDI in all business areas prior to 1972, which was the period of Import Substitution Industrialisation (ISI) policy. The Export Oriented Industrialisation (EOI) policy started receiving attention in the Third Economic and Social Development Plan (1972-1976). FDI was then restricted to mining and manufacturing activities and some services activities. However, activities shown in the Board of Investment's List of Activities Eligible for Promotion, which includes almost all manufacturing activities and certain activities in agriculture and services that require a large amount of investment, have remained open for foreign investors.

3.2.2 Guidelines Under Five Year Economic Plans

Foreign investment policies have usually been a part of the Thai industrial development schemes. In the First Economic and Social Development Plan (1961-1966), the Thai government tried to create conditions conducive to investment in industries by private entrepreneurs, both domestic and foreign (NESDB, 1963, p. 82). One of the policies and objectives of industrial development was to encourage domestic and foreign enterprises to undertake more investment in industries in Thailand.

The import-substitution policies were also implemented under the Second Plan (1967-1971), in which government promoted industries which utilised domestic raw materials and generated employment, and encouraged joint-ventures between Thai and foreign investors that would support small-scale and cottage industries. Under the import-substitution policy of this period,

the principal means of promoting investment were the government's development of infrastructure, investment promotion incentives granted by the BOI, industrial investment credits, both long-term and medium-term loans provided by the Industrial Finance Corporation of Thailand (IFCT), and tariff protection against imports provided by the Ministry of Finance. Industries favored during this period were of large scale and capital-intensive. However, the import-substitution policy worsened the trade balance due to the large amount of imports of intermediate material and capital goods. Thus, the importance of exports was rising in order to improve the trade balance (NESDB, 1966). This policy was not considered successful.

The government continued to emphasize the issue of technology transfer in the Third Plan (1972-1976), stating that, "Investment from domestic sources and from aboard will be promoted. With respect to investment from aboard, the participation of Thai nationals in industrial management and technical know-how will be encouraged" (NESDB, 1971, P. 148). Whereas the Third Plan emphasised maximising the benefits of FDI through the use of local materials, there was also a new objective, namely the promotion of export industries: "During the Third Plan, the Promotion of the Industrial Investment Act will be improved by placing special emphasis on exports and imports substitution companies which utilise domestic raw materials and labour and can be established outside the metropolitan area" (NESDB, 1971, P. 149).

During the periods of the Third and Fourth plans (1972-1976) and (1977-1981), respectively, Thailand experienced the problems of trade deficit and recession mainly due to the oil crises. The implementation of the export-promotion policy was ineffective. The government clearly placed a higher priority on encouraging export industries as the subsequent Fourth Plan (1977-1981) set one of its industrial policies to "encourage and promote export-oriented industrial production in volume and in types of industrials through an overall revision of export promotion measures and efforts to find new markets for Thai exports" (NESDB, 1976, P. 196). At the same time, however, the Thai Government seemed to have recognised very well that its policy toward FDI was not adequate: "Foreign investment in the past concentrated on bringing foreign capital into the country without due regard to the strategy and the targets of the country's overall industrial development. Investment promotion policy for some industries had no clear-cut objectives. The cost-benefit analyses of investment projects are based on economic

grounds only, thus neglecting political and social considerations, the impact on the environment, the transfer of technology, the long-term effects on the development of economic and industrial structure and definite stipulations on the types of industries that will be reserved for domestic investors only" (NESDB, 1976, P. 192).

In the Fifth Plan (1982-1986), the government emphasised the export-promotion policy. The government declared its plan to restructure certain existing and new industries so as to increase efficiency, enabling them to become more competitive in foreign as well as domestic markets (NESDB, 1981). When it came to the measures toward FDI, the plan turned to emphasise technology transfer within foreign subsidiaries at it referred to certain measures to "encourage technology transfer to improve the skills of the Thai labour force in foreign business" (NESDB, 1981, p. 65). Moreover, the Thai Government had more urgent priorities than simply the issue of technology transfer. These priorities included such issues as industrial restructuring from import substitution to export orientation and decentralisation of business activity.

The Sixth Plan (1987-1991) did not specify industrial development separately from general development policies. It only indicated a general target to diversify industrial production (NESDB, 1988, P. 15). Urgent issues such as the development of infrastructure services, and the new issues of development of science and technology, natural resources and the environment gained greater attention.

The Seventh Plan (1992-1996), in contrast, produced a concrete scheme of industrial development by specifying six target industrials, and set up several measures to develop the industrial sector. One of the measures was to improve the technological capabilities of the industrial sector by encouraging subcontracting activities as well as promoting research and development schemes (NESDB, 1992, p. 55). In 1992, the government expenditure on social and economic services constituted 35 per cent and 24 per cent of the total, respectively. Defence expenditure accounted for 16 per cent, a small decline compared with late 1980s. On a functional basis, government expenditure has been concentrated on transport and communications, mainly road construction and housing, reflecting government priorities established under the Seventh five-Year development Plan (WTO, 1995).

Several policies that were considered to be important in the previous plans, including promotion of export industries, and small-scale and regional industries continued to be emphasised in the Eight Development Plan (1997-2001). There were also greater concerns for protection of environment and of intellectual property rights. "Supporting industries" including parts and components and packing, etc were also specified as industries to be promoted. During the Sixth and Seventh Plans (1987-1996), there were increasing foreign investment projects in intermediate and machinery-related industries, particularly for the production of electronic and automotive parts and components. The country's industrial structure has since then become more diversified with greater numbers of intermediate and capital goods enterprises. The export structure of the country has also changed. Computer parts and electronic and electrical products have become important export items for Thailand (NESDB, 1992).

During the Eighth Plan (1997-2001), the Thai economy plunged into recession. The country suffered a sharp economic downturn in 1997 and 1998 with a combination of currency and financial crisis. With hindsight, many argue that the crisis was the cumulative effect of a number of structural weaknesses, although it was triggered by a combinational of short-term events. Particularly, the structural weaknesses was the lost of competitiveness of Thai products in the world markets, and the failure of institutions in both the corporate and government sectors to adopt rapid changes in the era of globalisation. An Industrial Restructuring Programme (IRP), aimed at improving the long-term capabilities of 13 board industrial sectors, was initiated in 1998. But due to its modest scope and the continuing weak conditions of the economy, the impact of the IRP has been limited (NESDB, 1997; OIE, 2004).

At present, the Ninth economic Plan (2002-2006) is under implementation. The objectives specified in the plan are the promotion of economic stability and sustainability; establishment of a strong national development foundation; establishment of good governance at all levels of the Thai society; and reduction of poverty and empowerment of the people to cope with changes. In industrial development, enhancement of competitiveness is emphasised. Among the major elements under this heading are restructuring of different production and trade

sectors; upgrading the quality of infrastructure; improvement of productivity through the development of networks in different industrial sectors and linking agencies in public and private sectors; development of small and medium enterprises; cooperation with neighboring countries; improvement of the trade negotiation system; and promotion of science and technology and manpower development (NESDB, 2002; OIE, 2004).

The policy designed to promote regional diversification of investment has been implemented for decades. The degree of incentives varies according to location. Since 1993, BOI has granted promotion privileges to promoted firms located far away from Bangkok and neighboring provinces. The zoning has changed several times. A major change in BOI's spatial policy occurred in September 1987. The country was divided into 3 Zones: Zone 1 included Bangkok and Samut Prakan; Zone 2 comprised four neighboring provinces and industrial estates in Zone 1; and Zone 3 included 67 other provinces, which were designated as Investment Promotion Zones. The BOI further modified these 3 zones again in January 1989 and used them as criteria for granting fiscal incentives up until now. At present, Thailand is divided geographically into 3 zones, called "Investment Promotion Zone[5]" including, Zone 1, Zone 2 and Zone 3. Generally the promoted firms in Zone 1 and Zone 2 receive the promotion privileges with more conditions imposed. On the other hand, firms in Zone 3 are granted more privileges. In general, Thailand adopts a liberal policy towards FDI, with the exception of ownership restrictions in certain businesses. Government attempts to attract more FDI into the Thai economy and also ensure that the benefits derived from FDI are maximised and costs are minimised. Thus, various policy measures have been introduced to more effectively handle FDI. These are described below.

[5] Zone 1 Includes Bangkok, Samut Prakan, Samut Sakhon, Pathum Thani, Nonta Buri, and Nakhone Pathom. Zone 2 includes Ang Thong, Ayutthaya, Chachoengsao, Chon Buri, Kanchanaburi, Nakhon Nayok, Phuket, Ratchaburi, Rayong, Samut Songkhram, Saraburi, and Suphanburi. Zone 3 (Investment Promotion Zones) includes the remaining provinces plus Laem Chabang industrial Estate.

A) Policies about ownership and control

Not all business activities are open to foreign investment. Thailand, like some other countries, prefers to attract joint ventures of Thai and foreign capital rather than accepting 100 per cent foreign ownership. An Alien Business Law (National Executive Council Announcement No. 281) was announced in 1972 to limit legal ownership and control by foreigners in designated businesses in Thailand. However, the effectiveness of this law is undermined by many exemptions and exceptions such as export enterprises. For investment projects in agriculture, animal husbandry, fishery, mineral exploration and mining, or in the service sector, Thai nationals must hold not less than 51 per cent of the registered capital. For manufacturing projects, if the production is mainly for the domestic market, Thai nationals are required to own shares totaling not less than 51 per cent of the registered capital, except projects located in Zone 3 in which case foreign ownership will be considered by the BOI on a case-by-case basis. If at least 50 per cent of total sales are for export, foreign investors may hold a majority of the shares, and if at least 80 per cent of total sales are to be exported, they may hold all the shares (BOI, 1995). However, the law has proved to be redundant or at best ineffective since foreign investors were able to control the companies by using other means. As a result, the law had little effect on the level of FDI in Thailand.

B) Investment Incentives

Investment incentives have changed from time to time to support and follow the national Economic and Social Development Plans and government's policies. Incentive policies have evolved over time to favor labour-intensive, export industries, regional industries, research and development activities and, more recently, infrastructure development. At present, BOI incentives are given to investment projects that positively contribute to the balance of payments, resource and regional development, energy conservation, environmental preservation, technology transfer, employment, and the development of public utilities and infrastructure. An identical investment incentive package is offered to both Thai and foreign investors.

As shown in Table 3.1, there are various kinds of tax and non-tax investment incentives comprising of fiscal incentives, guarantees, protection measures and permissions. The

incentives would reduce production costs or raise profits of manufactures. The non-tax incentives include guarantees against nationalisation, competition from new state enterprises, state monopolisation, price controls, competing with imports by government agencies and permission to export. Other incentives are permission to own land, to bring in foreign technicians and foreign nationals to undertake investment feasibility studies and remit foreign currency abroad.

Table 3.1: **Thailand's FDI Incentive Measures in 1995**

Incentive Measures	Details of Incentives
1. Fiscal Incentives	
1.1 Import Duty on Machinery	
A. Projects located in Zone 1	No exemption, except projects which export not less than 80 per cent of total sales or locate their factories in industrial estates or promoted industrial zones. Such projects will receive a 50 per cent import duty reduction on machinery which is not included in the tariff reduction notification of Ministry of Finance and is subject to import duty greater that or equal to 10 per cent.
B. Projects located in Zone 2	50 per cent import duty reduction on machinery which is not included in the tariff reduction notification of Ministry of Finance and is subjects to import duty great than or equal to 10 per cent.
C. Projects located in Zone 3	Exemption.
D. Projects in Priority Activities	
located in -Zone 1 or 2	Same as B.
-Zone 3	Exemption.
1.2 Import Duty or Raw or Essential Materials	
A. Projects located in Zone 1	Exemption will be provided for one year to promoted projects exporting at least 30 per cent of total sales, covering only the raw or essential materials used in export products.
B. Projects located in Zone 2	Same as Zone 1
C. Projects located in Zone 3	Export Products: Exemption for a period of 5 years for projects exporting at least 30 per cent of total sales. Domestic Sales: 75 per cent reduction for 5 years, renewable on an annual basis, provided that raw or essentials comparable in quality are not being produced or are not originating within the Kingdom is sufficient quantity to be acquired for use in such activity. This does not include projects or factories in Laem Chabang Industrial Estates.

Table 3.1 (Continued)

Incentive Measures	Details of Incentives
1.3 Corporate Income Tax	
A. Projects located in Zone 1	No exemption, except projects which export not less than 80 per cent of total sales or locate their factories in industrial estates or promoted industtrial zones, in which case 3 years exemption will be granted.
B. Projects located in Zone 2	Exemption for 3 years, extendable up 7 years, for projects which locate their factories in industrial estates or promotion industrial zones.
C. Projects located in Zone 3	Exemption 8 years. The special privided as follows: 1. Reduction of corporate income taxable by 50 oer cent for 5 years, after the exemption period. 2. Double deduction from taxable income of water, electricity, and transport costs for 10 years from the date of first sales. 3. Deduction from net profit of 25 per cent of the costs of installation or construction of the project's infrastructure facilities.
D. Projects in priority activities located in Zone 1, 2 and 3	Exemption for 8 years, regardless of location.
E. Factory Relation to:	
-Zone 1 to Zone 2: excepting for activities activities specified in the Investment the Investment Promotion List	Exemption for a period of 3 years and for a period of 7 years if they relocate to industrial estates or promoted industrial zones.
-Zone3: excepting for activities specified in the Investment Promotion List	1. Exemption for 8 years. 2. Reduction by 50 per cent for 5 years after the initial exemption period. 3. Double deduction from taxable income of water, electricity and trasport costs for 10 years 4. Deduction from net profits of 25 per cent of the costs of installation or construction of the project's infrastructure facilities.
-Zone 1 and 3	Income tax holiday period will star from the day of the first revenue received from the relocated activities.

Table 3.1 (Continued)

Incentive Measures	Details of Incentives
F. Export Enterprises	Allowance to deduct from taxable corporate income an amount equivalent year, excluding the cost of insurance and transport.
G. Research and Development	Exemption period will be extended for 3 more years when combined with the existing corporate income tax exemption periods, the total period cannot exceed 8 years.
1.6 Export duty	Exemption for export enterprises.
1.7 Withholding tax	
A. Dividends	Exclusion of dividends derived from promoted enterprises from taxable income during the corporate income tax holiday.
2. Guarantees	Guarantees for promoted foreign-investors in Thailand: 1. Against nationalization 2. Against competition from new state enterprises 3. Against state monopolization of the sale of products similar to those produced by the promoted project 4. Against price controls 5. Against tax-exempt imports by government agencies or state enterprises 6. Permission to export
3. Protection Measures (subject to justifications and needs)	The following protections provided: 1. Imposition of a surcharge on imports at a rate not exceeding 50 per cent of the CIF value for a period not more than 1 year at a time 2. Import ban on competitive products 3. Authority by the Chairman to order any helpful actions or tax relief measures for the benefit of promoted projects
4. Permissions	Promoted firms are permitted the following right: 1. To bring in foreign nationals to undertake investment feasibility studies 2. To bring in foreign technicians and expert to work on promoted projects 3. To own land to carry out promoted activities 4. To take or remit foreign currency abroad

Source: Board of Investment, A Guide to the Board of Investment, 1995.
Note: a: Zone 1 - includes Bangkok, Samut Prakan, Samut Sakhon, Nakhon Pathom, Nonhtaburi and Pathum Thani (Bangkok and 5 provinces).

Notes for Table 3.1 continued...

b. Zone 2 - includes Ang Thong, Ayutthaya, Chachoengsao, Chon Buri, Kanchanaburi, Nakhon Nayok, Phuket, Ratchaburi, Rayong, Samut Songkhram, Saraburi, and Suphanburi (12 provinces).

c: Zone 3 (Investment Promotion Zones) encompasses the remaining 58 provinces the remaining provinces plus Leam Chabang Industrial Estates.

d: Priority activities include

1. Basic transportation systems
2. Public utilities
3. Environmental protection and/or restoration
4. Direct involvement technological development, and
5. Basic industries

The foreign investors are allowed to hold more shares than local investors for activities directly involved with technological development where it is not necessary to export.

e: In order to encourage industrial development in the regional area, BOI will grant promotion states to existing activities, which may or may not have been promoted, if they relocate from the central to the regional areas (from Zone 1 to Zone 2, or from Zone 1 or 2 to Zone 3). For projects facing environmental problems and required by the Ministry of Industry to relocate, the factory must relocate to an industrial estate or industrial zone and the former factory be closed down and all machinery moved to the new location. The new factory must be ready for operation within 2 years of receiving the promotion certificate. For other types of operation, the existing operation must employ not less than 100 people. Main production machinery must be moved to the new location, and the new factory must start operating within 2 years of receiving the promotion certificate.

f: BOI will grant additional privileges to promoted projects which invest in research and development activities in order to support the advancement of production technology, the improvement of product quality, and the development of new products.

The important measures are fiscal incentives, particularly exemption or reduction of import duty on machinery, raw or essential materials, and corporate income tax. Most of the fiscal incentives are provided to firms willing to locate outside the overcrowded Bangkok metropolitan area and nearby provinces in order to achieve the objective of rural industrialisation, and to firms producing for export. The remotest zone receives the most attractive incentives. Moreover, in order to encourage industrial development in the regional areas, BOI will grant promotion status to existing activities, particularly projects facing with environmental problems, if they relocate from the central to the regional areas. Relocation will receive the standard non-tax and tax privileges, as shown in Table 3.1. BOI has identified projects as priority activities: basic transportation systems, public utilities, environmental protection and/or restoration, direct involvement in technological development, and basic industries, and has granted them special privileges as can seen in Table 3.1. In order to raise the country's technological capability, BOI has offered the BOI promotion status to encourage greater research and development activities.

C) Investment Related Services

BOI has also performed the role as facilitator by providing investors with both pre-and-post-project services, including the following (BOI, 2005a):

(1) Establishing a new regional office in the Eastern Seaboard area, on the coastline to the Southeast of Bangkok, to encourage the investors to invest outside Bangkok.

(2) Upgrading regional offices to "mini BOI" by delegating greater authority to these offices to provide services to investors more closely and immediately.

(3) Developing a special unit called "BOI Unit for Industrial Linkage Development" (BUILD) to promote local subcontracting, instead of importing parts and components, though the provision of information and technical assistance. BUILD has been initiated to encourage the growth of supporting industries in Thailand, to strengthen linkages between finished product manufacturers and companies supplying components, parts and services, and to promote technical transfer from an overseas contractors to Thai parts suppliers.

(4) Setting up a centre to provide investment-related information and "matchmaking" services (BOI, 2005a).

D) Foreign Exchange Liberalisation

(1) Thailand's foreign exchange policies have become more liberal in recent years. The current foreign exchange control laws grant the Bank of Thailand the authority to administer foreign exchange controls for purposes of maintaining stable balances of trade and payments. Amendments made in 1991 to the foreign exchange control laws have relaxed the controls in the following manner (Economic and Social Commission for Asia and the Pacific, 1995):

(1) Foreign investment (either capital investment or loans) can now be brought into the country without having to register the funds.

(2) Control and restriction on the amount of foreign currency that will be brought into the country have been lifted.

(3) Foreign currency from export proceeds exceeding US$5,000 must be reported.

(4) Limits on remittances of business expenses such as payments for goods, services, interest, profits, and dividends have been lifted, though supporting documentation must be made available.

(5) Limits on the repatriation of principle sums, sales of securities, and investment funds upon liquidation of an enterprise have been lifted, though supporting documentation must be made available.

E) Double Taxation Treaties

As of January 1, 1999, Thailand has double taxation treaties with 40 countries as follows: *Europe*: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy, Luxembourg, the Netherlands, Norway, Poland, Romania, Spain, Sweden, Switzerland and the United Kingdom. *Asia Pacific*: Australia, Bangladesh, China, India, Indonesia, Japan, Malaysia, Mauritius, Nepal, New Zealand, Pakistan, the Philippines, Singapore, South Korea, Sri Lanka and Vietnam. Americas: Canada and USA. *Africa & Middle East*: Israel, Mauritius and South Africa. A bilateral tax treaty is an agreement between two countries establishing the rules by which the revenues of residents of each country are taxed. Treaties are necessary to avoid double taxation, where more than one country levies tax on the same revenue. Moreover, these treaties allow for reduced taxation on certain dividends, interest, royalty, and other payments, and include a tax credit system that operates where income is taxable in two

courtiers (Economic and Social Commission for Asia and the Pacific, 1995; US-ASEAN Business Council, 2004).

F) Wages

In Thailand the legal minimum wage was first introduced in April 1973 at 12 baht per day in the greater Bangkok and was applied to even type and size of businesses in the non-agricultural sector. In October 1974 the minimum wage law was extended to cover the whole country. Since then there have been many increases in the minimum wage rate up until now (See Table 3.2). The Minimum wages per day effective January 1, 1998, are fixed at rates depending on the location of the work place, as follows: For Bangkok, Nakorn Pathom, Nonthaburi, Pathum Thani, Phuket, Samutprakarn and Samut Sakorn the minimum wage is 162 baht. While minimum wage for Cholburi, Chiengmai, Nakorn Ratchasima, Phang-nga and Ranong was increased to 140 baht, for all other areas it was increased to 130 baht. The rates are subject to change from time to time (US-ASEAN Business Council, 2004).

Table 3.2: **Minimum Wage in Thailand, 1973 to 2003 (baht per day)**

Effective Date	Bangkok & Five Near by Provinces	Chonburi & Saraburi	Nakhon-Rachasima	Chiang Mai	Phuket	Ranong & Phangnga	All Other Provinces
15/04/1973	12[1]						
1/01/1974	16[1]						
14/06/1974	20						
1/10/1974	20	18	18	18	18	18	16
16/01/1975	25	18	18	18	18	18	16
1/10/1977	28	21	21	21	21	21	19
28/08/1978	28	21	19	21	21	21	19[2]
1/10/1978	35	28	25	28	28	28	25
1/10/1979	45	38	35	38	38	38	35
1/10/1980	54	47	44	47	47	47	44
1/10/1981	61	61	61	61	61	61	52
1/09/1982	61	61	61	61	61	61	52
1/10/1982	64	61	61	61	64	64	52
1/10/1983	66	63	63	63	66	66	56
1/01/1985	70	65	65	65	70	70	59
1/04/1987	73	67	67	67	73	73	61
1/01/1989	76	69	69	69	73	73	63
1/04/1989	78	70	70	70	78	75	65
1/04/1990	90	79	79	79	90	84	74
1/04/1991	100	88	88	88	100	93	82
1/04/1992	115	101	101	101	115	107	94
1/04/1993	125	110	110	110	125	110	102
1/04/1994	132	116	116	116	132	116	106
1/10/1994	135	118	118	118	135	118	110
1/07/1995	145	126	126	126	145	126	118
1/10/1996	157	137	137	137	157	137	128
1/01/1998	162	140	140	140	162	140	130
1/01/2001	165	143	143	143	165	143	133[3]
1/07/2001	165	146	143	143	168	143	133[3]
1/01/2002	162	146	143	143	168	143	133[3]
1/01/2003	165	143	143	143	143	143	133[3]
1/08/2003	169	150	143	143	168	143	133[3]

Source: Thailand Development Research Institute (2003).
Note: [1]excapt Nakhon Pathom. [2] except Phayao. [3] except Ang Thong (138 baht per day) Chachoengsao (137 baht per day), and Sing Buri and Narathiwat (135 baht per day).

G) Other Measures

Apart from the above-mentioned policies, other major measures that are currently in effect include the following (BOI, 2004a).:

(1) The protection of intellectual property rights though patent, trademark, and copyright laws.

(2) The Industrial Estate Authority of Thailand (IEAT)'s incentives to activities located in IEAT industrial estates. The industrial estates provide investors with all necessary services and utilities, in addition to already developed land, at a lower cost. Furthermore, the IEAT industrial estates have been regarded by the BOI as investment promotion zones, and all firms locating in them are allowed to receive promotion incentives.

(3) In regard to the employment of foreign nationals, according to the Alien Employment Act of 1987, all aliens are required to obtain a work permit prior to commencing employment and are prohibited from practicing types of occupations, except at the firms that have been granted BOI promotion or those in IEAT industrial estates.

(4) Land ownership: according to Land Code of 1954, aliens, including companies of which over 49 per cent of the equity share is owned by aliens, are prohibited to own land in Thailand, except the firms that have been granted BOI promotion or those locating in IEAT industrial estates.

3.3 Political Environment

3.3.1 Political Structure

Thailand has been governed by a constitutional monarchy since 1932, with the King as Head of State. Sovereignty is derived from the Thai people and is exercised through the National Assembly, the Council of Ministers and the Ministry of Justice (MOJ), consistent with the provision of the Constitution.

The country has a bicameral National Assembly with two categories of members, half elected by the people (the House of Representatives or Parliament) and the other half (the Senate) appointed by the King on the recommendation of the Council of Ministers (or Cabinet). Elections must be held every four years; nevertheless, elections may be called more frequently.

According to the 1992 amendment to the constitution, the Prime Minister must be an elected member of the House of Representative. The Prime Minister may take any steps necessary to preserve the stability of the throne, to maintain public order, and to ensure that the economy functions smoothly. In practice, however, high-level military officers play a major role in the government. The Bangkok Metropolitan Administration is administered by an elected governor and is divided into 38 districts. The country is divided into 76 provinces.

3.3.2 Government Agencies Towards FDI

The BOI is the principal government agency responsible for providing incentives to stimulate investment in Thailand. The Investment Promotion Act B.E 1977 officially governs the BOI. The BOI conducts extensive investment promotion activities both in Thailand and abroad. The agency is chaired by the Prime Minister, with Economic Minister, Senior Civil Servants, representative of major private sector organisations, and academics serving as board Members or Advisors. The day-to-day investment promotion activities are carried out by the Office of the Board of Investment (OBOI) under the Office of the Prime Minister. The BOI promotes projects which:

- Strengthen Thailand's industrial and technological capability;
- Use domestic resources;
- Create employment opportunities;
- Develop basic and support industrials;
- Earn foreign exchange;
- Contribute to the economic growth of regions outside Bangkok;
- Develop infrastructure;
- Conserve natural resources; and
- Reduce environment problems.

The BOI is empowered to grant a wide range of fiscal and non-fiscal incentives and guarantees to investment projects, which meet National Economic Development goals.

3.4 Legal Environment

In relation to FDI in Thailand the Alien Business Law, the Alien Employment Act, and the Immigration Act are the most relevant.

3.4.1 Alien Business Law

The extent of foreign participation in business activities in Thailand is governed by many different laws and regulations. The major law of relevance is the National Executive Council Announcement No. 281(1972), also known as "Alien Business Law (ABL)". The ABL, restricts the interests of aliens in certain business activities in Thailand. The Act serves to define an "alien", and identifies the scope of foreign participation in business in Thailand. Under the ABL, an "alien" is defined as: A natural person who is not of Thai nationality; A juristic entity that is not registered in Thailand; A juristic entity incorporated in Thailand with foreign shareholding accounting for one-half or more of the total number or value of shares; A limited partnership or ordinary registered partnership whose managing partner or manager is a foreigner.

The ABL divided the controlled business into 3 categories (see Appendix 3.1). Businesses in Categories A and B are closed to aliens. Alien enterprises that are granted promotional privileges by the BOI are permitted to engage in a Category B business. While businesses in category C (Appendix 3.1) remain open, Thai authorities grant permits to foreigners for work in these categories only when they are convinced that such new business could not be competently conducted by an organisation in which the majority ownership is Thai. The ABL does not apply to aliens who are covered by an agreement between the government and a foreign country, which excludes its operation. This is only one case, which is, the Treaty of Amity and Economic Relation, between the United States and Thailand.

At present, the government is considering possible amendments to the Alien Business Law, which are aimed at liberalizing domestic laws to bring them in line with global trends, and as part of Thailand's commitment to the World Trade Organisation and other global forums.

3.4.2 Alien Employment Act

The Alien Employment Act B.E. 2521 (1978) requires that all aliens obtain work permits prior to work, both paid and unpaid, in Thailand. Aliens engaged in work prohibited to them by Royal Decree (see Appendix 3.2) are liable to imprisonment for a term not exceeding 5 years or subjected to a fine of an amount ranging from 2,000 to 100,000 baht, or both. It's necessary for aliens to hold a non-immigrant or resident visa before a work permit will be issued. The permit will only be valid for the duration of the holder's non-immigrant visa. Besides, a foreign employee is required to state an address in the work permit. However, the Act does not prevent an alien from engaging in work in more than one field or for more than one employer (BOI, 2004a).

The Alien Employment Act lists the occupations that may be undertaken exclusively by Thai nationals, and prescribes procedures to regulate alien participation in others. The substance of the law may be summarised as follows:

1. With a few exceptions, the law requires all non-Thai nationals who work in Thailand to have work permits issued by the Ministry of Labour.
2. The use of these work permits is restricted to the particular occupation, particular employer, and particular locality for which they are applied; any change in these restrictions will necessitate a new work permit.
3. Aliens working in companies promoted by the Board of Investment or who are in Thailand under special laws (such as the Petroleum Act of 1971) can be issued work permits, which are valid for the duration prescribed by such laws under which they were allowed to enter Thailand. Likewise, foreigners assigned to work in Representative or Regional Offices may readily obtain a work permit from the Commercial Registrar.
4. Aliens entering Thailand to work with promoted firms or under special laws, as above, may commence work immediately, but they should apply for a work permit within 30 days from the date of entry into the Thai Kingdom.
5. Within 15 days after the date of employment, transfer to a new locality, or separation of an alien employee, the employer is required to formally notify the pertinent government entity that issued the original work permit.

6. Aliens working in Thailand under special conventions between Thailand and other countries, including international organisations such as the World Bank, are exempted from obtaining work permits (US-ASEAN Business Council, 2004).

In the past, employment generation was a major policy objective of investment promotion (BOI, 1995). Estimated employment was therefore an important consideration for project approval and a determinant of tax incentives. Criteria were set in terms of the absolute number employed and were not necessarily consistent with the philosophy of maximising employment for the given level of scarce capital (Economic and Social Commission for Asia and Pacific, 1995).

3.4.3 Immigration Act

The immigration Act defines an "alien" to be a natural person who is not of Thai nationality, and "immigrant" to be any alien entering the Kingdom. The Immigration Act is supplemented with Ministerial Regulations and official notifications of the Immigration Bureau. An alien, who desires to enter the Kingdom for business or work, must apply for non-immigration "B (Business)" visa that will allow the alien to apply for a work permit authorising work in Thailand. In general, this kind of non-immigration visa will be granted for 90 days with no extension allowed. Nevertheless, an alien could extend the permission to stay for a one-year period, if the alien has obtained a work permit and satisfies the Immigration Bureau's internal criteria (BOI, 2004a).

It is possible to obtain permanent residence status of the holder of a special or regular non-immigrant visa who has remained in the Kingdom for a period in excess of 3 years, or is an investor who will bring not less than 10 million baht into the Kingdom. The individual must also satisfy certain internal criteria set by the Immigration Bureau each year.

3.5 Promoted Investment

Foreign investors as well as the domestic entrepreneurs can apply for investment promotion from the Thai government. The two organisations involved are the Board of Investment and Industrial Estate Authority of Thailand. Investors can apply for investment promotion with

either of these organisations. Whereas the promotion scheme of the Board of Investment is aimed at all kinds of firms that of the Industrial Estate Authority of Thailand (IEAT) is focused on firms in the industrial estates set up by the authority. Some industrial estates have a free trade zone or an export-processing zone, apart from the general areas, where the manufacturers can enjoy more privileges. That is, firms are exempted from import duties on imported materials as long as the operations in the zones continue. On the other hand, there is a limit on the period of receiving privileges for the firms located in the general areas of the industrial estate. This is also applied to the promotion system by the Board of Investment, which is aimed at helping businesses in the early period of operation[6].

Investors usually prefer the investment promotion scheme of the Board of Investment, as it provides more incentives compared to those for firms located in general areas of the industrial estate. One example of more attractive incentives is the longer period of exemption from corporate income taxes. This study, therefore, refers only to the investment under the promotion scheme of the Thailand Board of Investment for the 'promotion investment'. The lack of comparable data for firms promoted by the Industrial Estate Authority of Thailand was the other reason for its exclusion.

The list of activities promoted by the Board of Investment concentrates on manufacturing industry. Conditions for promotion were changed significantly in 1993. Previously, there were different requirements for different achieves with respect to minimum investment amount, equity participation and minimum export share. The requirement is now limited to only one condition, that is location. Under the present Export oriented industrialization (EOI) strategy, tariff incentives for FDI have been significantly reduced. However, non-tariff incentives include exemption on corporate income tax, exemption or reduction on import duties for raw material, and services such as obtaining visas and work permits for foreign businessmen, and factory operational licenses.

[6] Firms producing for export can apply for tax exemption on imported materials at the Customs Department after their promotion privileges expire.

3.5.1 FDI Policy Developments After the Asian Crisis

Post-crisis FDI liberalisation (1997-present) measures are as follows: liberalisation extended as part of the IMF-led reform package. Foreign Business Act of 1999 enacted, allowing full foreign participation in most manufacturing sectors. Condominium Act revised in 1998 to allow foreigners to wholly own buildings on two acres or less of land. Corporate debt restructuring advisory committee was established to monitor and accelerate debt restructuring. The ASEAN investment agreement was adopted in 1998. Bankruptcy court. Local content requirements were eliminated for vehicle assembly in 1999. Foreigners were allowed to own 100% of shares in promoted manufacturing projects since 2000. Local content requirements were eliminated for dairy products in 2003 (Tangkitvanich et al, 2004, p.245).

3.6 Conclusion

The policies toward FDI in Thailand at the national level reviewed in this chapter have so far been mainly aimed at stimulating foreign investment rather than in maximising the benefits of FDI. Even though the present five-year economic and social plan does address the issue of subcontracting activities, the policy measures are still far from adequate. However, Thai government encourages FDI, a policy that is supervised by the Board of Investment. The previous investment promotion policies, though successful, have been implemented for a long period of time. Thai policy-makers would be interested in good policy choices to encourage investors to invest in Thailand in the future.

Chapter 4 will present a review of literature on theoretical aspects of FDI and empirical studies of factors determining FDI. The literature review will provide the framework for the analysis undertaken in chapters 5 and 6.

CHAPTER 4

Literature Review: Theories and Determinants of Foreign Direct Investment

4.1 Introduction

Many different theories have been advanced to explain foreign direct investment (FDI), which leads to conflicting and inconsistent conclusions (Aggarwal, 1977). The importance of and growing interest in the causes and consequences of FDI have led to the development of a number of theories that attempt to explain why Multinational Corporations (MNCs) indulge in FDI (Moosa, 2002). The main purpose of this chapter is to review the theories of FDI in general, concentrating on the main strands of thought and to review empirical studies of FDI in general, and of FDI in Thailand in particular. These reviews will form the basis for methodology for the analysis of factors that determine Japanese FDI in Thailand. The theories of FDI are reviewed in section 4.2.The factors that determine of FDI as revealed by empirical studies are discussed in section 4.3. Empirical studies of FDI in Thailand are reviewed in section 4.4. A conclusion is presented in section 4.5.

4.2 Theories of Foreign Direct Investment

Until the 1960s foreign direct investment was considered exclusively a form of the international movement of capital. The traditional theory of international factor movements assumed that difference in the relative capital endowments among countries caused differences in the marginal efficiency of capital, and therefore in the level of interest rates. This led to flows of both portfolio and direct investment from capital rich to capital poor countries (Hennart, 1982). Today, FDI is commonly known as establishment and purchase of ownership and management of share assets (such as new plants or subsidiaries) in one country by a firm in another country. FDI entails control and retains the locus of decision making over the operations of the host country firm through the provisions of capital, technology, entrepreneurship, and access to markets as packages instead of their being made through the marketplace (Hymer, 1976). In fact, Hymer (1976) was able to demonstrate that the corporations' desire to control foreign operations was the central motive for direct investment

in his 1960 doctoral dissertation. Hymer (1976) viewed control by the foreign investor not only as a desire to determine the prudent use of assets but also as a strategic move to eliminate competition between the investing enterprise and enterprises in other countries. Buckley and Brooke (1992) state that the motives involved in the process of FDI and entry strategy into a foreign market vary according to characteristics of the entrant firm, its past relationship to the market, and the nature of the foreign market. Regarding the motives of FDI itself, a large volume of literature emphasises the home and host country factors separately. In addition, the factors may differ according to the types of industries. As one would expect the developed country investors and developing country investors may also have different motives (Chitrakar, 1995).

The FDI theories generally focus on the following main strands of thought: the product life cycle theory, the eclectic theory, internalisaion theory, the multinational enterprise theory, market imperfections theory, and other factors that determine FDI. These theoretical strands are discussed in the ensuring sections.

4.2.1 The Product Life Cycle Theory

The product life cycle theory offers an explanation for both FDI and trade (Vernon, 1966; Hirsch, 1976). It treats trade and investment as part of the same process of exploiting foreign markets. The product life cycle theory was the first major attempt to explain international trade and investment after the classical and neo-classical models, which were proven to be inadequate in the face of such anomalies as the Leontief paradox (Vernon, 1966). The product life cycle theory is based on the timing of innovation, scale economies, and the impact of ignorance and uncertainty in foreign markets. Until the early 1960s it was assumed that international trade and investments were mainly driven by economic factors. Technological changes and the rapid growth of MNCs made it apparent that the traditional theories based on economic advantage were no longer adequate in explaining trade patterns.

Vernon (1966; 1979) developed the product life cycle theory to explain the movement of production operations from one country to another in search of markets and lower cost production bases. It was introduced to explain market-seeking production by enterprises of a

particular nationality or ownership. It ignores resource based, efficiency seeking or strategic asset acquiring FDI. Vernon (1979) has divided the life cycle of a product into three stages. In the first (new product stage), the new product is innovated, produced and sold in the home market where there is a large domestic market and a high-income elasticity of demand. All the home countries usually are developed countries, which are technologically developed. The second stage is marked by the maturity and export of product to countries having the next highest level of income as demand emerges in these developed countries. Expansion of demand and growing competition in these markets eventuate to FDI of the innovator into these countries for local production of the product. At this stage, the home country is a net exporter of the product, while foreign countries are net importers. The third stage is characterised by a complete standardisation of the product and its production process, which is no longer an exclusive possession of the innovating firm to invest in developing countries to seek cost advantages. At this stage, the home country starts to import the product from foreign countries. The home country becomes a net importer, while foreign countries become net exporters. Thus, FDI takes place, as the cost of production becomes an important consideration, which is the case when the product reaches maturity and standardisation. Petrochilos (1989) suggests that the product life cycle is useful because it offers another interpretation of FDI, particularly for manufactured products that are characterised by advanced technology and high-income elasticity of demand.

In spite of some attractive features, the product life cycle theory is no longer considered useful in explaining FDI. Buckley and Casson (1976) suggested that it was limited to highly innovative industries and even contended that the theory is an oversimplification of the firm's decision-making process. They also pointed out that is was originally based on the American experience. Vernon (1971) also admitted that the product life cycle model did not capture the complex sociological, political, and idiosyncratic factors influencing investment behavior. American technological leadership is no longer a significant factor and many product innovations came from newly emerging countries like China, Japan, and Europe. Thus, the power of the product life cycle theory to explain the causes of FDI has declined.

4.2.2 Eclectic Theory

One of the most comprehensive theories of FDI is Dunning's (1981) eclectic, or systemic, theory of international production. Dunning's theory drew on all the main explanatory strands of theory since 1960, such as industrial organization, location, and international trade. It focused attention on a country's endowments and intangible assets, which serve to explain the international involvement of firms within that country. The eclectic theory covered every form of FDI, including the supply-orientated type for securing control of primary products, as well as the market-orientated type to provide import-substituting manufacturing goods.

Dunning (1981) stated that the propensity for a country's firms to engage in FDI is determined by three conditions: (1) The firm possesses, or can gain access to, ownership-specific advantages that its foreign competitors do not possess in the same degree or on the same terms. (2) The host country provides comparatively more location-specific advantages so that the firm finds it beneficial and profitable to locate at least part of its production facilities outside the home country. (3) The benefit of internalising these ownership-specific advantages is greater than any other means of exploitation, e.g. sell, lease, or license them to others. In the absence of any of these conditions the firm will tend to serve the foreign market through exports. On the other hand, the greater the degree to which the three conditions are met, the more likely a firm is to engage in FDI (Dunning, 1981).

The configuration of ownership, location, and internalisation advantages would vary according to the country-and-firm-specific characteristics and the precise nature of business activities. The greater their competitive advantages and higher the profits anticipated from exploiting these advantages in a foreign location, the more likely a business would undertake overseas production in perference to the alternative modes. Dunning (1981) classified the three types of advantages as follows:

4.2.2.1 Ownership-Specific Advantages

- Those due mainly to size and established position, product or process diversification, ability to take advantage of division of labour and specialisation; monopoly power, better resource capacity and usage.
- Proprietary technology, trademarks (protected by patent, etc., legislation).
- Production management, organisational and marketing systems; research and development capacity; human resource and experience.
- Exclusive or favoured access to inputs, e.g. labour, natural resources, finance, information.
- Ability to obtain inputs on favored terms (due e.g. to size or monopolistic influence).
- Exclusive or favoured access to product markets.
- Government protection (e.g. control on market entry).
- Access to capacity (administrative, managerial, research & development, marketing, etc.) of parent company at favoured prices.
- Economies of joint supply (not only in production, but in purchasing, marketing, finance, etc.).
- Multinationality enhances above advantages by offering wider opportunities.
- More favoured access to and/or better knowledge about information, inputs, markets.
- Ability to take advantage of international differences in factor endowments, markets; ability to diversify risks, e.g. in different currency areas, and to exploit differences in capitalisation ratios.

4.2.2.2 Location-Specific Advantages

- Spatial distribution of inputs and markets.
- Input prices, quality and productivity, e.g. labour, energy, materials, components, semi-finished goods.
- Transport and communication costs.
- Government intervention.
- Control on imports (including tariff barriers), tax rates, incentives, climate for investment, political stability, etc.
- Infrastructure (commercial, legal, transportation).

- Psychic distance (language, cultural, business, customs, etc. differences).
- Economies of research & development in production and marketing (e.g the extent to which scale economies make for centralisation of production).

4.2.2.3 Internalisation Incentive Advantages

- Reduction of costs (e.g. search, negotiation, monitoring) associated with market transactions.
- To avoid costs of enforcing property rights.
- Buyer uncertainty (about nature and value of inputs, e.g. technology, being sold).
- Where market does not permit price discrimination.
- Need of seller to product qualities of products.
- To capture economies of externalities and interdependent activities.
- To compensate for absence of futures markets.
- To avoid or exploit government intervention.
- To control supplies and conditions of sale of inputs (including technology).
- To control market outlets (including those which might be used by competitors).
- To be able to engage in practices, e.g. cross subsidisation, predatory pricing, etc., as a competitive (or anti-competitive) strategy.

4.2.3 Internalisation Theory

Internalisation theory of FDI is based on the market imperfections theory. Buckley and Casson (1976) are the major contributions to the development of this theory. According to this theory, FDI is an outgrowth of the bureaucratic desire on the part of multinational enterprise to integrate vertically. Internalisation is about imperfection in intermediate product markets. Intermediate products flow between activities within the production sector. Market imperfections generate transaction costs and these costs are often minimised for the sector as a whole by bringing interdependent activities under common ownership and control. Internalisation is the main reason why multi-plant firms exist and how they survive in competition with unit-plant firms. From this perspective, the multinational enterprise is just a special type of multi-plant firm (Buckley and Casson, 1976; Casson, 1992).

According to Buckley and Casson (1976; 1991), the internalisation theory is based on three postulates: (1) firms maximise profit in a world of imperfect markets by using their competitive advantages; (2) when markets in intermediate products are imperfect, there is an incentive to bypass them by creating internal markets. These involve bringing under common ownership and control the activities, which are linked by the market; (3) internalisation of markets across national boundaries leads to FDI and generates multinational enterprises.

Buckley and Casson (1991) suggested that the incentive to internalise depends on the relationship between four groups of factors: (1) industry-specific factors, namely the nature of the product, external market structure and economies of scale; (2) region-specific factors, namely the geographical distance; and culture differences between the regions involved; (3) nation-specific factors, namely the political and fiscal relation between the nations involved; (4) firm-specific factors, such as management expertise. However, the main emphasis is on industry-specific factors, and within the group the knowledge factor is considered to be of major importance, for several reasons. Firstly, knowledge provides a monopoly advantage, which can be exploited through discriminatory pricing by firm itself, rather than, for example, by licensing. Secondly, the production of knowledge requires long-term research and development. Furthermore, at any stage before project completion, the value of the knowledge obtained may be difficult to establish, if the firm were contemplating selling.

4.2.4 The Multinational Enterprise Theory

Buckley and Casson (1981) suggest that while exports naturally incur higher costs per unit than foreign production because of greater transportation cost and possible tariffs, foreign production involves a higher fixed cost of operations (e.g building a new plant). Casson (1989) explained the Multinational Enterprise theory in three ways; first the market-oriented investment is naturally oriented towards countries with large home markets, often in response to rapid market growth and tariff imposition. Much of this type of investment takes place in the advanced industrialised countries or in the large rapidly growing less developed countries and some in the newly industrialising countries. The second, raw material or extractive investment, has traditionally been the source of much contention between host and source countries. The third is cost reduction. Raw material control can be considered a subset of this motive but it

raised many other issues. Both the strategic elements and the risk reduction elements are also likely to be important. Two major groups can be distinguished, (a) labour cost reducing investment and (b) tax haven investment. In many industries labour is a major element of cost, and one, which can be reduced by the act of relocation. The cheap labour search has led to multinationals reorganising their operations so that the labour intensive stages can be relocated. A further form of cost reduction is that achieved by tax reduction, the extreme form of which is location of some activities in tax havens. According to the theory of the multinational enterprise, which is based on the theories of the market imperfections and Internalisation (Buckley and Casson, 1976; Dunning, 1977; 1993), the structure of equity ownership in foreign affiliates is determined by the need for effective control. Markusen (1984; 1995) suggests that firm-specific assets may lead a firm to locate production abroad rather than export.

4.2.5 Market Imperfections Theory

Kindleberger (1969) stated that foreign direct investment is determined essentially by advantages that allow a firm to operate a subsidiary abroad more profitably than the firm's competitors. These advantages may be classified in two broad categories: superior knowledge and economies of scale. Knowledge includes production technologies, managerial skills, industrial organisation, knowledge of product and factor markets. A common aspect of the advantages of superior knowledge is their character of public goods, that is the marginal cost for exploiting them abroad through direct investment is practically zero for the firm that owns the knowledge, or at least much lower than the cost that the local firm would incur in developing comparable knowledge. The Market imperfections approach (Kindleberger, 1969; Hymer, 1976) starts with the basic assumption that without market imperfections FDI would never occur. Hymer (1976) was the first economist to point out the structure of the market and the specific characteristics of investing firms, in explaining FDI. Kindleberger (1969) pointed out that established production plants in a foreign country necessarily have some disadvantages compared with local firms, and some advantages to which more than compensate the foreign firms for the costs of disadvantages faced by them in the foreign country. Among the comparative advantages which an investing foreign firm has or must have are the cheaper sources of financing, brand names, patented or non-marketable technology, marketing skills or

special access markets, managerial skills, government limitations on output or entry and economies of scale. In order to enable a firm to undertake FDI, these advantages have to be firm- specific and transferable to the subsidiaries. However, any one or more of the market imperfections advantages are a necessary but not sufficient condition for foreign operations of a firm. For example, a firm may have these advantages and yet could serve the foreign markets with exports or by licensing, renting or selling the technical, managerial or marketing skills (Agarwal, 1980).

4.3 Factors Determining FDI

Market Size and Growth of the Market

Balassa (1966) pointed out that a sufficiently large market allows for the specialisation of factors of production, and consequently the achievement of cost minimisation. The market, defined in terms of wealth and the level of development of the economy, is usually measured by GDP in empirical studies (Jianyu, 1997). Market size is one of the most important determinants in explaining FDI in the developed countries, for FDI flowing to these countries are usually capital, technology or/and human resource-intensive types which largely relies on large markets to achieve efficiency of resource allocation and to reap the economies scale. The empirical studies carried out by the economists, such as Bandera and White (1968), Scaperlanda and Mauer (1969) and Dunning (1981) all found a significant positive relationship between the level of GDP and FDI. Nevertheless, the GDP growth rate, rather than the absolute level of GDP, is more important in determining FDI flows to the developing countries (Root and Ahmed, 1979). Bandera and White (1968) found market size to be a significant determinant of the United States' FDI. As the market size grows to some critical value, which is usually approximated by GDP, foreign firms will start investing and will increase their investment with the expansion of the market size (Scaperlanda and Mauer, 1969; Torrisi, 1985).

Market size had already been shown to influence the U.S. direct investment in the EEC (Culem, 1988). Culem found a bigger market allows to capture more readily the benefits of large scale production; it is more attractive for foreign investors. For developing countries, Root and Ahmed (1979), Torrisi (1985), Schneider and Frey (1985), Petrochilas (1989) and

Wheeler and Mody (1992) also found that market size was a significant determinant of inward FDI. UNCTAC (1992) found evidence for the growth rate of GDP as a determinant of inward FDI once market size is taken into account. The level of FDI is positively related to the absolute size of a foreign market (Buckley and Casson, 1981; Dunning, 1993). A number of studies dealt with market size as a determinant of FDI. The market size hypothesis emphasises the necessity of large market size for efficient utilisation of resources and exploitation of economies of scale. A variant of the market size hypothesis used GDP or per capita GDP as an indicator of the host country's proven economic performance (Dunning, 1993).

The size of the market, typically represented by the level of GDP, appears to be important for FDI flows (Jun and Singh, 1996). However according to Jackson and Markoski (1996), market size and growth prospects do not appear to offer dominant location advantages as perceived by foreign direct investors. Markusen and Maskus (1999) found that host country market size is more important for local sales by multinationals than for their production for export sales. Clegg and Scott-Green (1999) has supported the hypotheses that both host country market size and growth variables have significant positive effects on FDI, with the market size hypothesis supported more strongly. Cheng and Kwan (2000) studied the effects of the determinants of FDI in 29 Chinese regions from 1985 to 1995, and found that the large regional market had a positive effect on FDI. Farrell and Gaston (2001) found that the market size of the host economy was extremely important. However, Farrell et al (2004) found that the market size of the host country was important, but not for all industries. Choong et al (2004) also supports the view that the greater the market size, greater FDI inflows are attracted by the recipient countries. The volume of FDI in a host country depends on its market size, which is measured by the sales of an MNC in that country, or measured by GDP to represent the size of the economy (Moosa, 2002).

Trade Barriers

FDI may be undertaken to circumvent trade barriers such as tariffs because FDI can be viewed as an alternative to trade. This means that open economies without much restriction on international trade should receive fewer FDI flows (Moosa, 2002). Economic theory suggests that the presence of trade barriers is an important factor behind the observed level of FDI. The

avoidance of existing or anticipated non-tariff barriers could also be an important factor behind the observed level of FDI. The avoidance of existing or anticipated non-tariff barriers has arguably been an increasingly important motive behind Japanese FDI (Wakasugi, 1994; Azrak and Wynne, 1995; Belderbos and Sleuwaegen, 1998; Barrell and Pain, 1999). Bajo-Rubio and Sosvilla-Rivero (1994) used a tariff rate variable and found that it has a positive and significant effect on FDI. Wang and Swain (1995) also used the tariff rate as a measure of trade barriers of the host country. They found that the effect was insignificant although the estimated coefficient was positive.

However, according to Jackson and Markowski (1996), the countries that have high tariffs and other barriers to trade appear to be less attractive to foreign direct investors. Aristotelous and Fountas (1996) found evidence of a significant inflow of FDI in anticipation of a trade barrier-free Europe. Clegg (1998) estimated that trade barrier reduction does not have a negative impact on FDI. The real-world impact of tariff barrier reduction is therefore difficult to predict because import-substituting FDI and efficiency seeking FDI cannot be segregated statistically. The impact of non-tariff barriers (NTBs) can be treated as analogous to that of tariff barriers, on the grounds that these are also segmented markets, and their reduction encourages rationalised and efficiency seek in FDI (Clegg, 1998). Barrier-free access means that firms can choose the most advantageous location with a higher degree of independence from the market-servicing decision (Clegg and Scott-Green, 1999). Lipsey (2000) concludes that countries that are more open to trade tend to provide and receive more FDI.

Trade (Exports and Imports)

The improved balance of payments situation depending on the expansion of exports may increase the attractiveness of the country concerned for foreign capital (Balassa, 1978). When a country faces growing trade deficits, it is expected to adopt more favorable policies to facilitate inflow of FDI (Fry, 1983). Fry (1983) and Torrisi (1985) stated that the role of trade balance in affecting the inflow of FDI is quite strong and found trade balance tends to result in more favorable attitude toward FDI. Bhagwati (1985) hypothesised that countries that follow an export promotion (EP) policy would be successful in attracting FDI compared to countries that follow an import substitution (IS) policy. Graham and Krugman (1993) state that, for some

industries, foreign investment is likely to be complementary to trade. Eaton and Tamura (1994) studied the relationship between Japanese exports and FDI and found that Japanese and U.S. FDI tended to follow exports. Exports in general, and manufacturing exports in particular, are a significant determinant of high investment inflows (Jun and Singh, 1996).

There is a widespread perception that open economies receive more FDI (Jun and Singh, 1996). Balasubramanyam, Salisu and Sapsford (1996) found that export promotion countries were relatively more successful in attracting FDI. They made an important contribution in identifying the relationship between FDI and trade strategy and the very impact of FDI in export promotion and import substitution. Although the relationship between FDI and trade has been examined by many researchers with increasing frequency, it is imperative for businesses and policy markers alike to understand the inter-linkages between trade and FDI. Pain and Wakelin (1998) investigated the time series relationship between manufacturing exports and FDI for a number of OECD economics. Pain and Wakelin found the evidence of heterogeneity in the linkages between investment and exports across countries, as might be expected given the diverse motivations that are known to drive investment decisions. Eaton and Tamura (1996) study the relationship between exports and foreign investment, using data on Japanese and US exports and FDI to 72 other countries between 1985 and 1990. Eaton and Tamura found that in both countries direct investment is favoured over trade with more distant countries.

There is some evidence that US FDI rises relative to exports as destination countries become more advanced. However, Japanese exports and FDI show the opposite pattern. Pfaffermayr (1994; 1996) also found evidence of a significant complementary relationship between exports and FDI for Austria, with causation in both directions. Graham's (1999) analysis showed that, like US investment, Japanese investment also has a significant positive impact on exports and imports. However, unlike US investment, Japanese FDI shows regional differences in trade creation. The level of exports from the home country of a multinational firm may be an indicator of the recipient country's market potential and attractiveness for FDI (Tuman and Emmert, 1999). Stone and Jeon (2000) found a significant and positive relationship between trade and FDI. A key element behind the decision to invest overseas is the relationship

between trade flows and foreign production (Farrell and Gaston, 2001). Aberg's (2001) study, examining the variation in the export creating effects of Japanese FDI in different countries, shows that FDI is more export creating in many of the East and Southeast Asian countries.

Exchange Rate

Aliber (1970; 1971) attempts to explain FDI in terms of the relative strength of various currencies. The countries with strong currencies tend to be sources of FDI, while countries with weak currencies tend to be host currencies or recipients of FDI. Aliber (1971; 1973) suggested that the main advantage enjoyed by a foreign investor is the additional confidence that investors have in securities denominated in selected strong and stable currencies, i.e., investors prefer to hold assets in currencies that are not exposed to the risk of exchange rate changes. Thus, an MNC with a strong and preferred parent country currency will have a lower cost of capital because of the lower exchange rate risk. The other reason for investors to prefer assets in a particular currency may be a result of the greater efficiency of the capital markets in that country (Ragazzi, 1973). Stevens (1977), Logue and Willet (1977) and Kohlhagnen (1977) considered that outward FDI should increase when the foreign currency was expected to appreciate, as foreign investing firms would wish to invest in real assets denominated in an ascending currency. In any event, a strong foreign (host) currency that is expected to appreciate might well induce the refinancing of FDI using funds from the home country. Cushman (1985) found very significant reductions in FDI associated with the expectation of an appreciation of the host currency. This implies that planned FDI is deferred when the host currency's exchange value is high, and when a rise is expected.

These short-term influences on the timing of FDI are distinct from exchange rate uncertainty. Froot and Stein (1991) emphasised the effects of currency movements on relative wealth (and thus the amount it may bid on asset) across countries and the consequences of this for FDI when international capital markets are subject to information imperfections. Froot (1991) states that, for example, a stronger yen may increase the dollar value of assets that easily be 'collateralised' and used for FDI. Bailey and Tavlas (1991) showed that exchange rate risk has an ambiguous effect on the FDI of a risk adverse firm. Lucas (1993, p. 393) contended that the exchange rate might have "a residual role with respect to exchange rate risk, for example, in

the determination of the value of repatriated profits or in threatening restrictions on such remittances". Goldberg and Kolstad (1995), using a model in which firms produce under constant marginal costs but make production decisions before the resolution of uncertainty, showed that increased exchange rate uncertainty led risk-adverse firms to alter its FDI in order to reduce risk.

Bajo-Robio and Sosvilla- Rivero (1994) and Wang and Swain (1995) both experimented with the exchange rate variable, without a great deal of success. Kosteletou and Liargovas (2000) found that in large countries with freely floating currencies, such as the USA, the UK and Japan, causality runs from the real exchange rate to FDI. The exchange rate is also an important determinant of FDI. If exchange rate changes merely offset price movements so that real purchasing power parity is maintained, the exchange rate movements would have little real effects. As such, exchange rate volatility creates both problems and opportunities for international firms, requiring them to manage the risk inherent in volatile exchange rates but also presenting the opportunity of moving production to lower cost facilities (Sung and Lapan, 2000). If the appreciation of the domestic currency persists, the MNC may find it useful to move abroad (Moosa, 2002). A flexible but strong exchange rate system is needed to successfully attract FDI (Kiyota and Utara, 2004).

Interest Rate

Iverson (1936) asserted that interest rate differences between countries are the cause of international capital movements. The indications are that most of the impacts of interest rate changes on FDI are temporary, affecting only the timing rather than real investment expenditure (Boatwright and Renton, 1975). Hymer (1976) attempted to show that firms will nearly always find it cheaper to borrow abroad because the basic interest rate abroad is at most equal to interest rate at home plus the costs of the barriers to movement of capital. The lower interest rate abroad will increase the amount of direct investment (Hymer, 1976). Kravis and Lipsey (1982) stated that the differences in the financial cost of capital to a multinational firm with affiliates in different host countries will be reduced if not eliminated by the opportunity of the parent to obtain marginal funds in the market. It follows that, other things being equal, and in particular the degree of risk aversion of investors, the lower the interest rate in a given host

country, the more funds are borrowed by foreign direct investors in that country rather than in their home countries or elsewhere, and lower may be expected the FDI flows towards that country which are recorded in the balances of payments. In other words, if actual FDI is defined as the total financial involvement of foreign investors in a host country, one must expect a positive discrepancy between actual and recorded FDI, which is a decreasing function of the interest rate in the host country.

Culem (1988) states that the investor can avoid any exchange risk by borrowing where the assets are located, that is in the host countries of their FDI. Otherwise, they can borrow in a third market where the interest rate is lower. Thus, the lower interest rate may attract FDI into the host country. Culem (1988) suggests the use of the nominal interest rate spread variable (host minus the home country) to capture the refinancing effect. This was found to exert the correct significant positive effect (given expression of the measure) on the dependent variable, FDI. If the home country cost of borrowing rises relative to that in the host, foreign affiliates will tend to increase their local borrowing, thereby reducing FDI stock and outflow. In this case, the corporate treasury function within MNCs mimics the external market for portfolio investment by exploiting short-lived international differentials. The predictions are that there is imperfect international capital mobility, and that interest rate differentials are not entirely compensated by expected changes in the exchange rate. Therefore, the effect of interest rate differences will impact upon FDI flows. Yang, Groenewold and Tcha (2000) found that the FDI inflow is positively related to the interest rate in Australia, reflecting the fact that higher interest rates in the host country, relative to those in the home country, make foreign investment in the host country more attractive.

Wage Rate

The theory of international location, as exemplified within Dunning's eclectic paradigm (Dunning, 1977; 1993), suggests that wage costs should exert a discernible effect on the location of production, although few studies record significance of this variable. Riedel (1975) found that a low labour cost was important in attracting FDI. Many survey reports confirm a positive relationship between the magnitude of FDI in a host country and the wage differentials between the host and the home countries (Agarwal, 1980). Dunning and Robson (1988) state

that investment is sensitive to immobile factors such as professional, technical and research manpower, similarly to low-cost labour. Precisely because the different production stages require completely different type of manpower, a single measure of manpower costs (i.e wage rate) will fail to explain aggregate FDI. Low labour-cost locations will attract routine production stages. Higher value-adding production will seek out skilled labour at medium labour cost. Administrative and research and development stages need locations with pools of professional and scientific manpower at higher labour costs. Therefore, the relationship of FDI flows with labour costs depends on the type of FDI taking place, and the expected sign of the labour-cost variable depends on the expected type of investment.

Coughlin et al (1991) found that the characteristics of the labor market affected the distribution of FDI, and the expected sign of the variable depends on the expected type of investment. Higher wage rates are expected to decrease FDI. Also Coughlin found another labour market characteristic that appears in all variants of the unemployment rate, which is a statistically significant and positive determinant of FDI. Thus, the unemployment rate is a signal of the availability of local labour that affects foreign investment. Lucas (1993) shows that a rise in the wage rate of the host country increases costs of production and hence discourages production and the use of capital, so that FDI will decease. However, if a rise in the wage rate encourages substitution of capital for labour, then FDI could increase (Lucas, 1993).

Moore's study (1993) on the determinants of Germany's manufacturing FDI also suggests a significant negative relationship between labour cost and FDI. Kumar (1994) found that low wage rates are one of the attractive features of countries that are export platforms for US FDI. Chen and Chen (1995) state that investment in low-wage countries is mainly driven by cost-cutting motives, whereas FDI in the US and Europe seeks to protect and expand export markets through local production. The standard hypothesis postulates that lower wage costs will encourage "efficiency-seeking" FDI flows (Jun and Singh, 1996). However, Chen (1996) found that wages did not affect FDI, and Head and Ries (1996) found that the effect of wages was negligible.

Chen and Ku (2000) suggest that defensive FDI seeks cheap labor in the host country with the objective of reducing cost of production. The high percentage of foreign investment undertaken in traditional sectors suggests that the labour supply and its price (wage rate) may have played a role in attracting FDI (Resmini, 2000). Cheng and Kwan (2000) studied the effects of the determinants of FDI in 29 Chinese regions from 1985 to 1995, and found that wage costs had a negative effect on FDI. Javorick and Spatareanu (2005) suggest that greater flexibility in the host country labour market in absolute terms or relative to that of investor's home country is associated with larger FDI inflows. Higher labour costs in the home country and the lower labour costs in the host country are associated with larger FDI inflows (Eichengreen and Tong, 2005).

Inflation Rate

The potential attractiveness of a market is also conditioned by inflation because inflation often leads to economic instability and reduces sales. Thus, firms will tend to avoid highly inflationary economies (Frey, 1984). Schneider and Frey (1985) state that a high inflation rate is a sign of internal economic tension and of the inability or unwillingness of the government and the central bank to balance the budget and to restrict money supply. Thus, a higher inflation rate makes foreign direct investors less inclined to engage in the country. Bajo-Rubia and Sosvilla-Rivero (1994) used the inflation rate as an indicator of macroeconomic instability and uncertainty. A lower inflation rate should provide a better climate for foreign investment, favoring FDI inflows. Schneider and Frey (1985) and Bajo-Rubia and Sosvilla-Rivero (1994) found that the inflation rate and FDI flows are negatively related. Elahee and Pagan (1999) found a strong positive relationship between FDI and the inflation factor, which at first look may seem counter-intuitive. Yang, Groenewold and Tcha (2000) found that Australia's inflation rate impacts negatively and significantly on the FDI inflows to Australia.

Country Risk

The concept of country risk is used instead of political risk, as the former encompasses the latter, also taking into consideration economic and credit indicators. Economic factors pose economic risk because adverse developments in economic indicators such as acceleration of inflation and depreciation of the currency can adversely affect the cash flows of the FDI.

Therefore, an economic or political measure, including changes in the "rules of the game" such as raising the level of taxes is included in the studies (Moosa, 2002). Aharoni (1966) revealed that executives rank political instability as the most important variable, apart from market potential. The risks of expropriation and government regulation of capital flows are central to the earlier empirical studies on FDI and political risk, by Basi (1963), Aharoni (1966), Bennett and Green (1972), Green and Cunningham (1975), Kobrin (1976, 1978), Levis (1979), Schneider and Frey (1985), and Root and Ahmad (1979). Bennett and Green (1972), Schneider and Frey (1985), Singh and Jun (1995), Globerman and Shapiro (2002) and Brada et al (2004) all add measures that reflect domestic political risk as an explanatory variable to economic characteristics of host countries, and they find that increased political risk significantly reduces FDI inflows. Bennett and Green (1972) found that the United States FDI abroad is not affected by political instability in the recipient countries.

The role of investment insurance guarantee plays a significant role in the study by Rock (1973), which finds a negative correlation between FDI and political risk in the first period when no guarantee exists, while in the second period when guarantee is available this correlation is absent. Kobrin (1978) studied and defined three types of political violence, of which conspiracy (assassination, coups, revolutions and general strikes) was significant and negatively related to FDI. Political instability is a complex phenomenon as (Kobrin, 1979, p.71) observed:

'The term "political risk" thus appears constrained from both an analytical and operational viewpoint. What we are, or should be, concerned with is the impact of events which are political in the sense that they arise from power or authority relationships and which affect (or have the potential to affect) the firm's operation. Not the events, qua events, but their potential manifestation as constraints upon foreign investors should be of concern'.

Schneider and Frey (1985) found a negative relationship between the number of political strikes and riots in host countries and FDI inflows. Nigh (1985) also found that, for developed countries, inter-country political events were more significant determinants of FDI than intra-country events. For developing countries, intra-country political events had a more robust

relationship with FDI. Nigh (1985) found a positive relationship between political rating and FDI in developing countries. Wang and Swain (1995) used a dummy variable to capture specific political events that may have had important impacts on FDI. Managing political risk is vital for the MNCs since efforts to sue the host government are sometimes frustrated by the doctrine of sovereign immunity (Buckley, 1992). Wheeler and Mody (1992) emphasise the role of economic and political risk in discouraging capital expenditures by foreign affiliates and found a broad principal component measure of administrative efficiency and political risk to be statistically insignificant. Wheeler and Mody found that geopolitical risk was apparently significant, but domestic socio-political factors appear to have a very small effect on FDI.

Lucas (1993) analyses the determinants of FDI flows to seven Southeast Asian countries, including Thailand, over the period 1960-87. Lucas found that, for Thailand political conditions reflected in dummy variables for specific periods provide a significant explanation for variation in FDI flows. Root (1993) contends that political risk results from the actions of government or holders of political authority of a nation although they may be influenced or even caused by economic conditions. Political stability is regarded as an important factor in the overall economic development of a country. Political risk is motivated by the fact that developing countries are competing with each other in attracting FDI, and it is likely that foreign investors would go to countries which has political stability (Barro and Sala-i-Martin, 1995). Lehmann (1999) found that country-specific risk, emanating from political and macroeconomic uncertainty, plays a significant role in explaining the distribution of foreign investment activity. The present global business environment shows threats or potential risks that could result from a variety of sources such as ethnic and religious violence, civil war, international terrorism, political repression and arms smuggling, illegal capital flight, a high degree of the political corruption, the possibility of trade restrictions and embargoes, and financial market instability (Ramcharran, 1999). Janicki and Wunnava (2004) found that a healthy investment climate characterised by political stability attract FDI into the host country.

Wang and Swain (1995) use dummy variables to capture specific political events that may have important impacts on FDI. According to Jun and Singh (1996), policy risk frequently influences the decision to invest in another country. Jun and Singh found that political risk is a

significant determinant of FDI flows for countries that have attracted historically sizable investment flows. However, reliable quantitative estimates of the qualitative phenomenon of political risk, particularly of those aspects of political risk that are viewed as a direct constraint by foreign investors, are difficult to obtain for extended periods of time (Jun and Singh, 1996).

Brewer (1993) looks at the imperfections in the markets and their effects on FDI that are caused by government policies. Brewer found that the connection between government policies and market imperfections and FDI are more variable and complex than previously recognised. As for government policies, antitrust (i.e., competition) policies can clearly become important factors that affect FDI (Brewer, 1993). Glass and Saggi (1999) confirmed that policies designed to influence FDI have the ability to shift profits across countries as well. Government policies can influence FDI by altering the relative attractiveness of the host country to foreign investors in a wide variety of ways. For example, policies promoting faster economic growth and exchange rate stability will arguably encourage FDI (Globerman and Shapiro, 1999). The country risks adversely influence FDI in the host country (Lutz-Baliamoune, 2004).

4. 4 Empirical Studies of FDI in Thailand

This section reviews the studies that attempt to test the determinants of FDI in Thailand. In section 4.4.1, the survey studies of determinants of FDI in Thailand are reviewed. Econometric studies of determinants of FDI in Thailand are reviewed in section 4.4.2.

4.4.1 Survey Studies of determinants of FDI in Thailand

Previous qualitative studies of the determinants or motives of FDI in Thailand are reviewed in this section. All of these studies have been conducted by questionnaire surveys and personal interviews. The first such attempt was the research work by Tambunlertchai (1975), which studied the behaviour of multinational corporations that received promotion privileges from the Thailand Board of Investment (BOI) in 1971. The study found that foreign investors produced products to serve the domestic market and to protect their market in the host country. This has implied that the factors attracting inward FDI were the size and growth of the domestic market, trade barriers including tariffs, availability of low-cost labour and natural resources that were scarce in the home countries. Tambunlertchai (1975) concluded that FDI had contributed

substantially to the growth of several manufacturing industries in Thailand. It brought in technology to produce new products and hence diversified the industrial activities in Thailand, since "the local entrepreneurs alone either did not possess the technical knowledge needed to enter certain areas of manufacturing or did not have the willingness to undertake the risks involved to produce those products" (p.290).

Tambunlertchai (1979) investigated 22 investment opportunities involving Japanese investors regarding Japanese-Thai joint ventures in manufacturing industries and found that host-market expansion, government incentives, avoidance of import barriers and availability and cheaper labour and raw materials were ranked as "very important" or "important". Tambunlertchai (1979) also examined the Thai location factors and found that the political stability, well-specified government policy of tariff protection, and growing demand for the products were attractive to Japanese investors to invest in Thailand. Tambunlertchai (1979) concluded that there were different determinants of Japanese FDI in different industries.

Sibunruang (1984) surveyed 57 BOI promoted manufacturing firms, out of which 24 were Japanese firms, in order to find out the motivating factors for Japanese firms to invest abroad as well locational factors. The very important motivating factors to invest abroad were market expansion, avoidance of tariff barriers or import restrictions, investment incentives and low wage in host countries. The motives of Japanese firms were also similar to other home countries, except where the host government protection policy appeared to be a very important factor only for Japanese investors because their FDI mainly served host countries markets. The reasons why the investors like to invest in Thailand as their host country are ranked as the following: government incentives, existence of suitable local partners, availability of cheap labour and adequate local demand. With regard to the Japanese firms, the most important locational factor is the availability of cheap labour, followed by adequate local demand, government incentives and political stability.

Suzuki (1986) interviewed the representatives of 65 Japanese manufacturing firms in Thailand. Applying the Eclectic theory, Suzuki found out why Japanese investors invest via FDI and why they chose Thailand as their host country for their investments. Suzuki separated the

determinants of FDI by Japanese firms into micro and macro factors. At the micro level, to get better access to expanding Thai markets, to gain benefits from cheap labour costs, and to secure the existing share of scale in Thai markets are ranked to be very important factors. Incentives provided by the Thai government are ranked as the most important macro factor. However, Suzuki did not include the other important macro factors such as exchange rates.

All the survey studies mentioned above emphasise on the motives or determinants of FDI at a particular point in time. Earmjitmetta (1989) is the first to analyse the determinants of FDI comparatively in three different periods of time: 1960-1971, 1972-1982 and 1983-1988. Earmjitmetta found that the motivating factors, which attracted the foreign investors to invest in Thailand, have changed over time. The first period (1960-1971) covers the time of the import-substitution strategy implemented by the Thai government. During this period, foreign investors focused in retaining and expanding their market share. In the second period (1972-1982), foreign investors were attracted by lower wage rates, privileges in the form of tax exemption and protection granted by the government, and the political environment in the host country. In the final period (1982-1988), foreign investors were interested in the privileges provided by the government and lower wage rates. Earmjitmetta also found that FDI in Thailand followed the product life cycle hypothesis, for example, investment was made to maintain or regain cost advantages and international comparative advantage. The major motive is the low cost of production whereby the foreign investors can take advantage to export back to the home country and/or third countries. Other motives are to use local natural resources and to gain the advantage of domestic demand.

Anuroj's (1995) study follows the direct relationship between the MNEs and the local firms in the manufacturing sector as a means of technology diffusion from foreign firms to local industries. Anuroj's main concern was the relationship between foreign firms and local industrial suppliers (backward linkages). Anuroj also investigated the relationship between foreign firms and local industrial customers (forward linkages). The study had a two-stage survey of mailing and interviewing which was conducted to supplement exiting data sources. Indices of linkage effects were developed and statistical analysis undertaken to determine the

extent and nature of linkage effects. He found that backward linkages did not occur automatically as a result of FDI.

Trillit (1995) examined 44 investment-related factors that were likely to encourage or discourage FDI in Thailand. The perceived degree to which each of these factors encouraged or discouraged investment in Thailand were compared and contrasted among senior executives of American, Japanese and European multinational companies operating in Thailand. A total of 140 respondents were considered for data analysis. The study found more encouraging factors among the forty-four factors than discouraging factors according to the perception of multinational companies from the United States, Japan, and Europe. With increasingly more emphasis on the private-sector involvement in infrastructure projects, and education and training programs, Thailand's future economic prospects and market potential looked more promising than ever for foreign multinational companies.

Pongsil (1998) aimed to investigate the determinants of foreign direct investment in Thailand. Pongsil found that foreign investors placed the greatest weight on Thai government incentives offered by the Board of Investment (BOI). The large domestic market, relatively low labour cost, and Thailand's geographic location were considered as other reasons to invest in Thailand. The significant impediments for investing in Thailand were strict regulatory control on expatriates, bureaucratic problems and insufficient infrastructure. Moreover, difficulties in business culture and shortage of skilled labour were presented as impeding factors that foreign investors encountered when investing in Thailand. This study has indicated that foreign investors need solutions for the problems of insufficient infrastructure and bureaucratic red tape, while suggesting that the government should educate Thai labour at all levels in order to improve the quality of workers.

Chandprapalert's (1999) study explored the motives and determinants of FDI and the MNEs' activities in Thailand. This study looked at the role of ownership advantages, location advantages, and internalisation advantages as set out in the Eclectic Paradigm. The study tested empirically some of the determinants and strategic motivations of FDI based on managerial perceptions using primary data. Based on the existing literature, several hypotheses were

developed regarding the components of the Eclectic paradigm and the motivational types of FDI. Responses of a total of 100 companies worthy of analysis were obtained. The data analysis in this study used simple and multiple regressions to analyse the data and test the hypotheses. The results showed that firm size, market potential, investment risk, market seeking, and resource seeking are the factors that influence U.S. firms investing in Thailand.

4.4.2 Econometric Studies of the Determinants of FDI in Thailand

Most of the research studying the determinants of FDI has used the published data and a variety of econometric techniques. These studies can be classified into several categories. The first category attempts to explain the determinants of the FDI at a particular point in time using the cross-section data. The second examines the multinational enterprise activity in a particular country, using time series data in order to answer how a firm decides which country to invest in and why FDI is more likely to take place in some industries. In this thesis we will attempt to identify the most important determinants of Japanese direct investment in Thailand over time. Therefore, in this review we will concentrate on the previous time-series studies of inward FDI into Thailand and some Southeast Asian countries.

Chunanuntatham and Sachchamarga (1982) studied the determinants of Japanese direct foreign investment in Thailand and focused on the role of foreign exchange rates. The model was estimated by ordinary least square (OLS) and Cochrane-Orcutt iterative method with both linear and log-linear functional forms. The direct investment flow is measured in both baht and yen terms to see whether the depreciation of baht vis-à-vis yen will induce an increase in Japanese direct foreign investment to Thailand not only in baht but also in terms of yen. Using annual data from 1966 to 1979 with the dependent variables being Japanese total direct investment inflow and the Japanese net direct investment in Thailand. The model is also estimated by OLS using annual data from 1970 to 1979 and Japanese investment inflow into five selected manufacturing sectors (industry, textiles, electrical appliances, machinery and transport equipment, and chemicals and paper) as the dependent variable.The explanatory variables in the model are the exchange rate, GDP of Thailand, and the relative price level of Thailand with respect to the Japanese price level, along with a time trend variable. The results showed that that a depreciation of the baht vis-a-vis the yen increases Japanese direct

investment flow into Thailand. The direct investment inflow is also explained by GDP of Thailand, the Thai price level relative to the Japanese price level, and a time trend variable. In most of the cases, the estimated coefficients of GDP had unexpected negative signs, while the relative price had the expected positive signs. Because this model excluded the other relevant variables such as tariffs and political factors, specification error occurred leading to unexpected negative sign of the coefficient for GDP.

Lucas (1993) examined the determinants of FDI inflows in seven East and Southeast Asian countries (Indonesia, Malaysia, the Philippines, Singapore, South Korea, Taiwan and Thailand) during 1960-1987. The adopted model was a derived from of the demand for foreign capital by a profit maximising, multiple product monopolist. The results varied from country to country. The important results were concluded as follows: except Taiwan, FDI inflows have been responsive to labour cost and cost of capital negatively and to export price positively, as hypothesised. Furthermore, FDI inflows are less elastic with respect to the cost of capital than to the wage rate. FDI inflows are more elastic with respect to aggregate demand in export markets than to the domestic demand. This study found that the size of the domestic market to be an important determinant. The estimates suggest that FDI inflows increased with high costs in the home countries. The cost structure in host countries did not affect significantly the level of FDI inflows in host countries. The political instability was also considered as one of the determinants of FDI.

Pupphavesa and Pussarungsri (1994) researched the empirical determinants of FDI flows into Thailand during 1970-1990. They tested the relationships between the net flow of FDI and market factors, tariff barriers, exchange rates of Japanese yen per U.S. dollar together with infrastructure variables. They found that the market size represented by GDP was positively related to FDI, while the exchange rate of the Japanese yen per U.S dollar representing the rising costs of production in Japan and in the NIEs were negatively related to FDI. But the other two variables, tariff barriers and infrastructure, were positively related to FDI. They added a dummy variable for Plaza Accord (Japanese Yen). The results showed that FDI shifted from the market-oriented motive to the cost-reduction or export-oriented motives because Japan and NIEs were faced with the problem of rising cost of production in their home countries. The appreciation of their currencies and rising wage rates contributed to the recent

flows of FDI to Thailand as well as other countries in the Southeast Asia. The multiplicative terms of the dummy variable and tariff and infrastructure variable were also significant. The coefficient of the multiplicative terms, the dummy variable and infrastructure variables are positive and significant. The significance indicates that infrastructure has become much more important in the second half of the 1980's due to the change in the nature of FDI. As foreign investors became more cost conscious, infrastructure facilitating business operations and improving the productivity of investment also became more important. The coefficient of multiplicative term for tariff rate was negative and significant. This result shows that the tariff has become an obstruction to FDI instead of a favorable factor.

Sirasoontorn (1997) researched the determinants of Japanese FDI in Thailand both in the short run and long run. The estimation methods consist of the ordinary least squares (OLS) and co-integration analysis and Error Correction Modelling (ECM). The models were estimated with data over the period from 1965 to 1992. The estimating results of simple model, by OLS, were satisfactory. Sirasoontorn found that the determinants of net Japanese FDI flow into Thailand follows the Location Theory, Currency Area Theory and Product Life Cycle Theory. According to the Location Theory, the main determinants are economic growth, trade barriers imposed by the government and the political instability of Thailand. Economic growth and trade barrier factors had a positive relationship with the Japanese FDI, while the political instability factor has had a negative effect. According to the Currency Area Theory, the depreciation of the baht against Japanese yen stimulated the Japanese FDI into Thailand. According to the Product life cycle Theory, the outcomes indicated that the net Japanese FDI flow was adversely affected by the relative user cost of capital in Thailand and Japan. But the relative efficiency wage of Thailand and Japan is not statistically significant. Among the long-run determinates of Japanese FDI, the study found that the trade barriers imposed by the government of Thailand, the exchange rate defined as price of yen in terms of baht, and the lagged Japanese capital stock were the most important factors, followed by political instability, the relative user cost of capital in Thailand and Japan, and economic growth of Thailand. The study found that the trade barriers, the relative efficiency wages in Thailand and Japan, and the political instability were the major short-run determinants of Japanese FDI in Thailand, followed by the relative user cost of capital and economic growth of Thailand.

Jaovisidha (1998) studied European Union foreign direct investment in Thailand, using the Ordinary Least Squares (OLS) technique to estimate the coefficients. The study found that the larger domestic market, increasing value of Thai exports to EU, weakened Thai baht, increasing economic growth rates of EU countries, lower Thai tariff rates, and lower discount rates from the bank of Thailand, attracted FDI from EU into Thailand.

4.5 Conclusion

The literature review in this chapter was concerned with the theories of FDI and sought to distinguish the factors that encourage FDI into a host country. This chapter also summarised the literature on Japan's FDI into Thailand. The review of theories focused on the eclectic theory, the product life cycle theory, market imperfections theory, the internalisation theory, the multinational enterprise theory, and other factors that determine FDI. Empirical studies on FDI in Thailand were also reviewed. There are several studies that have attempted to examine the determinants of FDI in Thailand by applying qualitative methods, surveys and by employing the quantitative methods (econometric studies). The previous studies were concerned with the inflows of FDI and have tried to distinguish the influences that encourage or permit FDI into a country. These studies also deal with explaining the changing levels of FDI activity according to changing host country characteristics. Most of the studies tested hypotheses under the location advantages or demand-side determinants.

The literature reviewed in chapter 4 helps this thesis to identify the important macro level determinants of FDI into host countries. Although there have been some previous econometric studies of determinants of FDI in Thailand, there has been no recent study on the determinants of Japanese FDI in Thailand. Therefore this thesis will analyse the determinants of Japanese FDI in Thailand in a systematic way, taking into account the up to date literature and most recent data. The next chapter (chapter 5) will develop empirical models, based on the literature review in chapter 4, to analyse the determinants of Japanese FDI in Thailand over the period 1970-2003.

CHAPTER 5

Specification of Models, Hypotheses and Econometric Procedures

5.1 Introduction

The purpose of this chapter is to develop the models, describe data and data sources, and review econometric procedures, to analyse the determinants of Japan's foreign direct investment (FDI) in Thailand over the period 1970-2003. The models, variables and hypotheses in this chapter are based on the literature review presented in chapter 4. Section 5.2 presents the empirical models, variables and hypotheses. Section 5.3 describes data and data sources. Section 5.4 reviews the econometric procedures. Section 5.5 presents the conclusion.

5.2 Empirical Models of Determinants of Japan's FDI in Thailand

5.2.1 Models and variables

This section presents the models that will be employed to analyse the determinants of Japanese total and sectoral (manufacturing and services) FDI in Thailand over the period 1970 to 2003[7]. The selection of the variables in the models is based on the existing literature as reviewed in chapter 4. The variables that we have chosen for our models are as follows. FDI (total and sectoral) is treated as the dependent variable for the models. FDI is expected to be determined by the following independent variables: gross domestic product (GDP) of Thailand, the GDP growth rate in Thailand, tariff rate in Thailand, exports from Japan to Thailand, Thai baht/Japanese yen exchange rate, interest rate of Thailand relative to that of Japan, wage rate of Thailand relative to that of Japan, infrastructure development in Thailand represented by electricity production, investment in human capital in Thailand represented by secondary school enrolment, political risk in Thailand and the Asian crisis.

[7] Japanese FDI in Thailand's agricultural, mining and quarying sectors has been negligible, with negative FDI inflows (divestments) in certain years during 1970-2003. Therefore, we do not attempt to model Japanese FDI in Thailand's agriculral, mining and quarying sectors.

The models are specified as follows:

$JTFDI_t = f(GDP_{t-1}, GR_{t-1}, TAR_t, EXPJT_{t-1}, EXR_t, INT_t, WAGE_t, ELEC_t, SCH_t, PLK, AC);$ (5.1)

$JFDIM_t = f(GDP_{t-1}, GR_{t-1}, TAR_t, EXPJT_{t-1}, EXR_t, INT_t, WAGE_t, ELEC_t, SCH_t, PLK, AC);$ (5.2)

$JFDIS_t = f(GDP_{t-1}, GR_{t-1}, TAR_t, EXPJT_{t-1}, EXR_t, INT_t, WAGE_t, ELEC_t, SCH_t, PLK, AC);$ (5.3)

Where,

$JTFDI_t$ = total real foreign direct investment from Japan into Thailand (US$ million);

$JFDIM_t$ = real foreign direct investment from Japan to the manufacturing sector of Thailand (US$ million);

$JFDIS_t$ = real foreign direct investment from Japan to the services of Thailand (US$ million);

$GDP_{(t-1)}$ = real gross domestic product of Thailand in the previous year (US$ million);

$GR_{(t-1)}$ = real GDP growth rate of Thailand in the previous year (per cent);

TAR_t = average tariff rate of Thailand (per cent);

$EXPJT_{(t-1)}$ = real exports of Japan to Thailand in the previous year (US$ million);

EXR_t = real exchange rate between Thai baht and Japanese yen (baht per yen);

INT_t = real interest rate of Thailand relative to that of Japan (ratio);

$WAGE_t$ = real wage rate of Thailand relative to that of Japan (ratio)[8];

$ELEC_t$ = electricity produced in Thailand measured in billion kilowatt hours;

SCH_t = percentage of population that is in secondary school enrolment in Thailand;

PLK = the dummy variable for political risk in Thailand (PLK = 1 for 1973-1979, 1985-1987 and 1992-1993; PLK = 0 for other years);

AC = the dummy variable for the Asian Crisis and its aftermath (AC = 0 for 1970-1996; AC = 1 for 1997 on wards).

[8] Wage rate (WAGE) that may be relevant is the real wage in Thailand relatively to real wages in other alternative locations (other host countries in the region) for Japanese investment. But relevant data were not available.

5.2.2 Hypotheses

A large number of determinants of FDI and their hypothesised (expected) relationship with FDI were identified in the theoretical and empirical literature reviews presented in chapter 4. Given the selected number of major variables included in the models presented in section 5.2.1 above, the hypothesised relationship between each of the independent variable and Japan's total and sectoral (manufacturing and services) FDI in Thailand (referred simply as FDI) are explained below.

Real gross domestic product in Thailand, lagged one year (GDP_{t-1}), represents the market size of Thailand as perceived by Japanese investors. Thus, as real GDP in Thailand increases, Japanese FDI in Thailand is expected to increase. Hence a positive relationship is expected between GDP_{t-1} and FDI. Real GDP growth rate, lagged one year (GR_{t-1}), represents market growth of Thailand. A positive relationship between GR_{t-1} and FDI is expected.

Average tariff rate of Thailand (TAR) represents trade barriers in Thailand. Previous empirical findings are inconclusive as to the relationship between host country tariffs and FDI inflow to the host country; the relationship may be positive or negative. Hence, no *a priori* hypothesis is formed as to the relationship between TAR and FDI. Real exports of Japan to Thailand lagged one year ($EXPJT_{t-1}$) is included to test the hypothesis that exports precede FDI as lagged exports provides the potential Japanese investors the experience and knowledge about the Thai market. Thus, a positive relationship between $EXPJT_{t-1}$ and FDI is expected.

A depreciation of the Thai baht/Japanese yen real exchange rate (EXR), that is a real appreciation of the yen against the baht, will induce Japanese investors to invest more in Thailand. Hence, a positive relationship between EXR and FDI is hypothesised. Previous empirical studies provide conflicting evidence as to the effect (positive or negative) of the real interest rate of host country relative to that of home country and FDI inflow to the host country. Therefore, no *a priori* hypothesis is formed as to the relationship between the real interest rate of Thailand relative to that of Japan (INT) and FDI.

Previous empirical evidence mostly supports the hypothesis that an increase in the host country real wage rate relative to that of the home country decreases FDI inflow to the host country.

Therefore, a negative relationship is expected between the real wage rate of Thailand relative to that of Japan (WAGE) and FDI. Electricity production in (ELEC) and secondary school enrolment (SCH) in Thailand represent infrastructure and investment in human capital, respectively. It is hypothesised that both thesevvariables have a positive relationship with FDI.

The dummy variable PLK is included to capture the impact of adverse political events in certain years (see Appendix 6.13) in Thailand on Japanese FDI in Thailand. A negative relationship between PLK and FDI is expected. The dummy variable AC is included to account for the adverse impact of the Asian crisis and its aftermath (see Appendix 6.14) on Japanese FDI in Thailand. A negative relationship between AC and FDI is expected.

5.3 Data and Data Sources

Econometric estimation in this study uses annual time series data for the period from 1970 to 2003. The sample period and the data frequency are largely dictated by the data available for FDI. Therefore, we use the data for the period 1970-2003 for all the variables in our models. The data on FDI and the exchange rates were obtained from the Annual Economic Reports of the Bank of Thailand and International Financial Statistic. Total FDI is realised FDI, while FDI in manufacturing and services are based on investment approvals by the BOI. Nominal FDI values were converted to real values by deflating the nominal FDI by the overall GDP deflator. GDP and GDP deflator data were from International Financial Statistics (IFS). Electricity production, simple average tariff rates and secondary school enrolments data were obtained from World Development Indicators (WDI) of the World Bank. Wage rates were obtained from the International Labour Office (ILO), Year Book of Labour Statistics. Data on Japan's exports to Thailand were obtained from the Yearbook of Direction Trade Statistics of International Monetary Fund.

The magnitude of the Thailand's economy is measured by real gross domestic product (GDP) and the economic performance of Thailand by the real GDP growth rate. Tariff is the average tariff rate of Thailand faced by foreign exporters when they export to Thailand. The number of Thai baht per Japanese yen, adjusted for CPI in Thailand and Japan, measures the real exchange rate. For the real interest rate we use the annual average of the 30-day bank accept

bill rate (BB30). This series is used because it is considered to be the representative rate, which is market determined. Real wage rates are the average monthly earnings in Japan and Thailand, deflated by the respective consumer price indexes (CPI) obtained from International Financial Statistics (IFS).[9]

5.4 Econometric Procedures – Theoretical Issues

5.4.1 Stationary and Non-Stationary Time Series

The most important assumptions in regression analysis are that the mean and the variance of the error term remain constant over time and autocovariances depend on the time lag but not on time itself (Holden and Perman, 1994; p.51). Such an error term is known as *a white noise* and the time series is said to be *stationary*. If these conditions are violated, a time series is said to be *non-stationary*. Since the variance of a non-stationary series is not constant, the conventional asymptotic theory does not apply to such time series. Thus, the statistical inference from regression results, using the standard t- and F tests, may be misleading (Phillips, 1986). The OLS estimation tends to produce highly significant parameter estimates, linked with high values of the coefficient of determination, R^2, that may not be due to a true relationship between the variables but because the variables tend to move in the same direction.

To identify the problem of spurious regression in practice, the rule of thumb suggested by Granger and Newbold (1974) is often used. If $R^2 > DW\ d$ statistics, a spurious correlation may be present. This possibility increases if the error term is autocorrelated, as first pointed out by Yule (1926). While the OLS regression technique may still be applied to the non-stationary series, alternative-modeling strategies must be considered. A challenge of regressions using data in level form, mainly due to spurious regressions, began in the 1970s. The focus of attention began to shift towards the need to have properly specified models with dynamic structures (Banerjee et al, 1993).

[9] Data series used in the estimation of econometric models are given in Appendices 6.1 to 6.14.

The theoretical rationale for stationary time series is closely related to the characteristics of models with unit roots[10]. Therefore, prior to testing the models, the time series will be tested for the presence or otherwise of unit roots. The concept of unit roots and its consequences can be explained as follows:

If a variable Y_t is generated by the following process:

$$Y_t = Y_{t-1} + \epsilon_t \qquad (5.1)$$

where, Y_t is the value of the variable at time t ($t = 1, \ldots, n$) and it equals to its value in the previous period (Y_{t-1}) plus a random shock (ϵ_t), then the variance of the dependent variable $Var(Y_t) = Var(Y_{t-1}) + Var(\epsilon_t)$ goes to infinity as time goes to infinity.

After running the regression ($Y_t = \alpha + \delta Y_{t-1} + \epsilon_t$) the issue of whether the coefficient with the lag-dependent variable, δ is less than one or equals one is, therefore, critical. It has important economic and statistical implications. If the coefficient is less than one a time series follows a trend-stationary process and the effect of any shock to the series is gradually eliminated. However, if the coefficient with the lag-dependent variable equals one, the effect of the shock is permanent. It is incorporated in the error term, and consequently, the value of the dependent variable in Equation 5.1 increases by 'a shock'. The variable Y_t is said to have a unit root.

5.4.2 Unit Root Tests

A non-stationary data series can be transformed to a stationary series by differencing once, or bringing to become integrated of order one, $I(1)$. Thus, $\Delta Y_t = Y_t - Y_{t-1} = \epsilon_t$. This is not completely recommended as important parts of the potential relationship may be lost. As Granger (1990) suggests a better approach is to include in the model a sufficiently complex

[10] Testing for unit roots in time series has attracted a great number of theoretical and empirical studies. Good reviews of this literature can be found Banajee et al (1993), Hamilton (1994), Johansen (1995), and Hatanaka (1996).

dynamic specification, including lagged dependent and independent variables, so that the true relationship might be discovered (p.247).

Park (1990) and Inder (1993) also tested the models with a lagged dependent variable included as a regressor. Since the error term, ϵ_t is assumed to be independent and normally distributed, the first difference of Y_t is stationary and such a series is said to be a *random walk*. However, if the series needs to be differenced k times to become stationary, the series is said to be *I(k)* or a difference-stationary process (Maddala and Kim, 1998, p. 24). Thus, testing of the hypothesis $\delta = 1$ in the first order autoregressive equation, as specified above, is in fact testing for unit roots. The term 'unit root' refers to the root of the polynomial in the lag operator (Gujarati, 2003, p. 802). The most commonly used tests for the presence or absence of unit roots in time series data are derivatives[11] of the Dickey-Fuller tests (Dickey, 1976; Dickey and Fuller, 1979).

Dickey and Fuller (1979) designed a test for the hypothesis concerning the coefficient with the lag-dependent variable, under the assumption that the error terms are white noise processes. They derived critical values of the Dickey-Fuller statistics, tabulated by Fuller (1976, p. 373) for alternative model specifications, in particular the model without the constant term[12] (that is without drift), $Y_t = \delta Y_{t-1} + \epsilon_t$, with the constant term (a random walk with drift), $Y_t = \delta Y_{t-1} + \epsilon_t$, and a random walk with both drift and trend, $Y_t = \alpha + \beta T + \delta Y_{t-1} + \epsilon_t$. Thus, the test allows for checking whether the specific variable is trend stationary or difference-stationary (Nelson and Plosser, 1982; Schmidt and Phillips, 1992). In the empirical work, the common practice is to include the trend variable and/or successive differences in the model. However, Nelson and Plosser (1982) emphasise that the explicit inclusion of the trend variable (de-trending the series) is appropriate only if the variable is deterministic, that is fully predictable, rather than stochastic. Based on a number of empirical studies, Nelson and Plosser (1982) maintain that the difference-stationary process is applicable to most economic time series.

[11] The Dickey-Fuller tests were developed for simple random walks, while the derivates were aimed at detecting the presence of a unit root in a general integrated process of order (Phillips and Hansen, 1990; Said and Dickey, 1984; Phillips, 1987; Phillips and Perron, 1988).

[12] The error term is assumed to be a succession of independently and identically distributed random variables (Holden and Perman, 1994, p. 50).

The Dickey-Fuller (DF) test for the presence of unit roots or for order of integration is based on the estimation of the model that can be expressed as:

$$Y_t = \alpha + \beta T + \delta Y_{t-1} + \epsilon_t \qquad (5.2)$$

where the null hypothesis is that $\beta = 0$ and $\delta = 1$, against the alternative hypothesis $\delta < 1$. In testing the hypothesis of the existence of a unit root the critical values of the Dickey-Fuller unit root distribution rather than the standard normal distribution are used.

Holden and Perman (1994) pointed out that since in reality the values of the intercept and the coefficient with the trend variable are unknown, it is necessary to test jointly for these coefficients as well for the presence of a unit root. Dickey and Fuller, cited in Bera and Jarque (1981), developed the *Augmented Dickey-Fuller (ADF)* test, for both the coefficient with the trend and with the lag-dependent variable. The test involves the estimation of the unrestricted model, Equation 5.3, and the restricted model:

$$\Delta Y_t = \alpha + \beta T + \delta Y_{t-1} + \sum_{t-1}^{k} \varnothing_i \Delta Y_{t-i} + \epsilon_t \qquad (5.3)$$

where, $\Delta Y_t = Y_t - Y_{t-1}$, T is a time trend, and $\sum_{t-1}^{k} \varnothing_i \Delta Y_{t-i}$ represent the lagged terms, where k is sufficiently large to ensure that ϵ_t *is white noise, t=1, 2, ..., n.* The main purpose of adding the lag terms into the model is to allow for autoregressive moving average (*ARMA*) process and to remove the effects of serial correlation in the residual. Dickey and Fuller give evidence that both *DF* and *ADF* tests have the same asymptotic distribution; therefore, the same critical values can be applied.

Despite its widespread application, Dickey-Fuller methodology has its shortcomings. Firstly, it is limited to pure autoregressive integrated moving average, *ARIMA (1, 0, 0)* processes. Secondly, empirical evidence shows that with increasing importance of the moving average components, higher lags of ΔY_t are required as explanatory variables in the autoregressive correction, reducing the degrees of freedom and the power of the test (Schwert, 1989;

Agiakoglou and Newbold, 1992; Banerjee et al, 1993; Pesaran and Pesaran, 1997; Maddala and Kim, 1998). A review of the issues in unit root testing as well as some solutions and alternatives can be found in Maddala and Kim (1998). Schwert (1989) first presented Monte Carlo evidence to point out the size distortion problems of the commonly used unit root tests. Schwert emphasizes the importance of correct specification of the *ARIMA* processes prior to testing for the presence of unit roots.

Cochrane (1991) argues that a low power of unit root tests in small samples is due to arbitrarily small variance of random walk component. Cochrance shows that there are unit root processes whose likelihood function and autocorrelation functions are arbitrarily close to those of any given stationary processes and *vice versa*. Cochrance maintains that the results of unit root tests do not necessarily provide the answer to the question of which distribution theory provides a better sample approximation (p. 283).

Maddala and Kim (1998) pointed out that if, as it is commonly believed, the unit root tests are a precondition to cointegration analysis, they should be regarded as pre-tests. Therefore, instead of the 1 per cent or 5 per cent significance levels, much higher significance levels (say 25 per cent) are appropriate. The other argument is that if the null hypothesis of a unit root cannot be rejected at the 1 per cent or 5 per cent level of significance, it does not mean that the unit root null hypothesis is valid, thus, there is a nonzero probability that the process is a stationary process.

Since the introduction of the Dickey-Fuller tests, a number of modified testing procedures have been developed for unit roots where the serial correlation and some heteroscedasticity of errors are allowed (Said and Dickey, 1984; Phillips, 1987; Phillips and Perron, 1988). Phillips and Perron (1988) modified the DF test using a non-parametric method to account for serial correlation. They derived z-statistics when the assumption of white noise residuals is relaxed, thus the DF test is not valid. Both tests are founded on an asymptotic theory that requires the knowledge of how well the limiting distributions approach the finite sample distribution of the relevant statistic. Phillips and Perron assume that the error term in the DF specification $(Y_t = \alpha + \delta Y_{t-1} + \epsilon_t)$ follows a first order moving average process that can be expressed as:

$$\hat{\epsilon}_t = \varepsilon_t + \theta\epsilon_{t-1} \qquad (5.4)$$

where θ is the moving average component. It is assumed that ϵ_t is white noise. Phillips and Perron (PP) conclude that if θ is positive, in terms of the power of the test, the PP test is preferred. However, when the coefficient is negative the conclusion is not so straightforward. In order to make the decision, Phillips and Perron advise to get support from the diagnostic tests, more specifically, if the diagnostic statistics are significant, the PP tests may be more appropriate. Phillips and Perron also point out the advantage of the z tests in relation to potential problems stemming from the misspecification of the number of lags in the DF model, which is not required under the PP tests. However, if the coefficient of the moving average component is negative they warn that one should avoid employing the PP test.

Other modifications include Sargan and Bhargava (1983), Choi (1992), Leybourne (1995), Yap and Reinsel (1995), Elliott et al (1996), and Perron and Ng (1996). Some tests have been introduced that use stationarity rather than non-stationarity as a null hypothesis (Park, 1990; Tanaka, 1990; Leybourne and McCabe, 1994). Stock (1994)[13] pointed out that the reason there are so many unit root tests is that there is no uniformly powerful test for the unit root hypothesis.

A test for unit roots seems to dominate the Dickey-Fuller test (and others) in terms of power is the Weighted Symmetric (WS) test (Pantula, et al, 1994). The idea behind the symmetric estimators is that if a normal stationary process satisfies the eqution ($Y_t = \alpha + \delta Y_{t-1} + \epsilon_t$), where t = 2, ..., T, it also satisfies the equation: ($Y_t = \alpha + \delta Y_{t-1} + \epsilon_t$)[14].

It is apparent from the above discussion of potential problem of spurious regression, it is crucial to test time-series for non-stationarity. If non-stationarity can be rejected, standard regression methods can be applied safely. However, if stationarity is rejected, the data series

[13] A detailed discussion of these tests can be found in Maddala and Kim (1998).

[14] A detailed discussion of WS estimators in non-stationary can be found in Fuller (1976), Ch. 10.

may be either transformed to stationary, or cointegration relationships between the series may be investigated.

5.4.3 Cointegration

The concept of cointegration is in some way linked to the notion that if two variables are associated by a theoretical economic relationship, they will not part away in the long run. Such variables may drift apart in the short run because of seasonal effects or policy reasons, but the divergence must be stochastically bounded and, at some point, diminishing over time. From the practical standpoint the process of cointegration allows to identify the existence of equilibrium[15] between time series that are individually non-stationary.

Granger (1981, 1986) and Engle and Granger (1987) developed a test that can, potentially, maintain an underlying long-run relationship between two series that are not stationary and involved in regression at their level form. Even if two variables, such as X_t and Y_t are non-stationary, there may be a specific linear combination of these variables, expressed as $X_t - \alpha Y_t = u_t = I(0)$, that is stationary, where α is the cointegrating parameter and u_t is a random walk[16]. Consequently, their error terms are also expected to be linear related. Thus, instead of producing an increasing variance, their variance may be finite and the two series do not drift apart over time. In such situations it can be concluded that there is a long-run equilibrium relationship between the two variables, or that the series are cointegrated. The concept of cointegration is crucial to developing a correct economic model. As was mentioned earlier, the regression involving levels of non-stationary variables is sensible only if the variables are cointegrated. While testing for cointegration facilitates the identification of 'spurious' regression (Granger and Newbold, 1974), however, it does not discard potential information about long-run adjustments that the data may hold.

[15] An equilibrium state is defined, as one in which there is no inherent tendency to change. The long-run equilibrium is the equilibrium relationship to which a system converges over time. It involves a systematic co-movement among economic variable (Banerjee et al 1993, p. 2-3).
[16] For more detailed proof see, for instance, Banejee et. al. (1993, Ch. 5).

A number of techniques have been developed to test for cointegration. In essence, the testing involves examining whether the residuals have or have not a unit root. Because the process is similar to testing for unit root in a variable included in the model, it seems plausible to include DF and ADF among the testing procedures, although critical values for the tests are different. Other alternatives include the tests described below.

5.4.3.1 Cointegrating Regression Durbin-Watson (CRDW) Test

This test is based on the examination of the Durbin-Watson *(d)* statistic produced by the cointegrating regression. The null hypothesis is, however, stated as $d = 0$ rather than $d = 2$ as is the case with the standard DW test for serial correlation in rersiduals. The obtained d value is compared against critical values developed by Sargan and Bhargava (1983). Thus, if the null hypothesis is rejected, the two variables appear to have a steady long-run relationship, so they are cointegrated. Based on their empirical evidence, Engle and Granger (1987) claim that the DW critical values for cointegrating regression are not stable across various empirical studies[17]. However, they suggest that the ADF test performs better.

Engle and Granger (1987) recommend the estimation of a static cointegration regression that is, estimating a model that does not include any lags, and then, to employ a two-stage procedure, using the estimated coefficients from the cointegrating regression. Alternatively, all the short-run parameters can be estimated in one step simultaneously with other parameters in the model specification. Engle and Granger (1987) and Stock (1987) maintain that both methods provide consistent estimates.

Lagging variables and including them as regressors often has the same effect as providing a cointegrated set of regressor variables (Banejee, et al, 1993, p.167). It is, however, important that a possibility of transforming in such a way that the regressors are integrated of the same order as the regressed. As Banerjee, et al (1993) pointed out such a possibility is enhanced in a dynamic model as the probability of a cointegrated set being present is increased. Thus, the 'general to specific' modelling method is effective since the inclusion of several variables and

[17] Phillips and Ouliaris (1990) provide a theoretical analysis, highlighting the major features and differences and recommendations of various tests.

their lags as regressors increases the chances of obtaining a cointegrated set of regressors (p.168).

5.4.3.2 Error Correction Model (ECM)

As discussed, if two variables are cointegrated, there appears to be a long-run equilibrium relationship between them. Therefore, if we identify that two variables are cointegrated, the 'link' can be made between the short-run dynamics and the long-run equilibrium. This can be done by introducing past disequilibrium as explanatory variables in the dynamic behaviour of current variables (Maddala and Kim, 1998, p. 35). Maddala and Kim pointed out that the recent revival in the popularity of the ECMs has followed the demonstration by Granger and Weiss (1983) that if two variables are integrated of order 1, and are cointegrated, they can be considered as being generated by an ECM.

The essence of the Engle-Granger method rests on including the error correction variable estimated by the residuals from cointegration regression equation that may be viewed as the estimate of the long-run equilibrium error term. The technique may be best illustrated using the following specification:

$$Y_t = \alpha + \beta X_t + u_t \qquad (5.5)$$

So,

$$\Delta Y = \alpha + \beta_1 \Delta X_t + \beta_2 u_{t-1} + \epsilon_t \qquad (5.6)$$

where, Δ denotes the first difference, μ_{t-1} is the one-period lagged residual from the cointegration regression, and ϵ_t is the error term with the usual properties.

5.4.3.3 Engle and Granger Two-Step Procedure

As follows from the above discussion, if the long-run components are modeled as stochastic trends and if they move together, they can be cointegrated. The long-run movement of any two variables can be examined using the two-step method for cointegration proposed by Engle and Granger (1987). The first step examines whether each of the involved variables has a stochastic

trend. This is accomplished by conducting a unit root test on the concerned variables. Based on the conclusion of the test, with respect to the stochastic trend, in the second step, the residuals from the cointegrating regressions are examined for a unit root, in other words, whether there is a relationship between the stochastic trends in the variables. If the results of these tests indicate no unit root in residuals, however, given the presence of a root in each of the variables, it is concluded that the dependent and explanatory variables are cointegrated.

5.4.3.4 Johansen Maximum Likelihood Procedure

Whereas in the bivariate case the concept of cointegration is rather straightforward, in the multivariate case the prospect of several cointegrating vectors must be taken into account. If there is more than one cointegrating relationship between the variables, the Engle-Granger approach may generate biased estimates. In order to test for the possible presence of more than one cointegrating relationships, an alternative Johansen maximum likelihood method is applied.

The specification of the method in the level form can be written as:

$$Y_t = \alpha + \beta_1 Y_{t-1} + \ldots + \beta_{k-1} Y_{t-k-1} + \beta_k Y_{t-k} + \epsilon_t \qquad (5.7)$$

Or, in the error-correction form:

$$\Delta Y_t = \alpha + \beta_1 \Delta Y_{t-1} + \ldots + \beta_{k-1} \Delta Y_{t-k-1} + \beta_k Y_{t-k} + \epsilon_t \qquad (5.8)$$

where, α is the intercept that may not be included, depending on whether drift in considered: $\beta_1, \beta_2 \ldots \beta_{k-1}$ are the parameters to be estimated; ΔY_t is assumed to be an $I(0)$ vector; k is the number of lags that must be determined, and ϵ_t is the white noise error terms.

The test allows for restrictions being imposed on a single or all the cointegrating vectors, thus, equilibrium relationships. However, the mode of specification must be carefully considered when deriving the degrees of freedom for the test. In general, the degrees of freedom can be

determined as: *(p-v)* v_1. Where, p is the number of variables, v is the number of cointegrating vectors; v_1 is the number of fixed vectors.

Banejee et al (1993) emphasise that because the number of cointegrating vectors is unknown in empirical modeling, it should first be determined from the data. It is because of their potentially serious consequences for estimation and inference. They argue that under-estimation leads to the omission of empirically relevant error-correction terms, while over-estimation implies the non-standard distributions of statistics (p.262).

Johansen (1988; 1995) and Johansen and Juselius (1994) suggest that the hypothesis involving the cointegrating vectors can be tested using a likelihood ratio test that compares restricted and unrestricted estimations. Successive regressions are run and the maximised value of the log likelihood function is obtained. Johansen shows that the distribution under the null hypothesis is of the χ^2 form[18].

Holden and Perman (1994) suggest that if the model is specified in the vector autoregression *(VAR)* of Equation (5.7), and the outcomes of the likelihood ratio tests indicate the presence of cointegrating relationships between the variables and the presence of unit roots, in these circumstances the tests for unit roots may be omitted (p.89).

Hatanaka (1996) examined a large number of empirical studies that employed the Johansen ML method and recognises that the major difficulties facing researchers in applying the Johansen ML method are due to the possibility of structural breaks in the model. A comprehensive discussion of this test can be found, for instance, in Harvey (1990); Cuthbertson et al (1992); Hall et al (1992) and Hatanaka (1996).

5.4.4 Unrestricted Error Correction Model (UECM)

In the case of the Engle-Granger two-step procedure, Banerjee et al (1993) maintain that ignoring lagged terms in a static equation (the first step OLS estimation) may lead to

[18] Menon (1995) derived disaggregated elasticities, employing the Johansen Full-Information Maximum Likelihood procedure for estimationg cointegration vectors.

substantial biases in the estimation of the long-run parameters. In order to estimate the long-run relationships, Banerjee et al recommend an unrestricted error correction model (UECM) to estimate the long-run parameters. The general form of the UECM can be expressed as:

$$Y_t = \alpha + \sum_{i=1}^{\kappa} \beta_i Y_{t-i} + \sum_{i=0}^{\kappa} \gamma_i X_{t-1} + \epsilon_t \qquad (5.9)$$

where α is a constant, Y_t is a *(n x l)* vector of endogenous variable, X_t is a *(m x l)* vector of explanatory variables, and β_i and γ_i are *(n x n)* and *(n x m)* matrices of parameters.

In order to separate the short-run and long run relationships, Equation (5.9) is modified by including differences and lags as:

$$\Delta Y_t = \alpha + \sum_{i=1}^{\kappa-1} \beta_i^* \Delta Y_{t-i} + \sum_{i=0}^{\kappa-1} \gamma_i^* \Delta X_{t-k} + \delta_0 Y_{t-k} + \delta_1 X_{t-k} + \epsilon_t \qquad (5.10)$$

Where,

$$\delta_0 = -\left(1 - \sum_{i=1}^{k} \beta_i\right), \delta_1 = \left(\sum_{i=0}^{k} \gamma_i\right) \qquad (5.11)$$

The long-run relationship is represented by δ_1/δ_0. The long-run elasticity of Y with respect to X, for instance, can be derived by $\delta_1/-\delta_0$.

Hendry (1995) supported this method, using a large number of Monte Carlo studies[19]. In essence, the estimation of a model in this method starts with a sufficiently large number of lags in independent variables and then progressively simplifies the lag structure of the model. The advantage of the method is that it minimises chances of deriving spurious relationships while retaining long-run information (Athukorala and Jayasuriya, 1994; Athukorala and Rajapatirana, 2000). It is also considered to be superior in small samples as it offers an insight to the short-run and long-run responses in the same model. First, the unrestricted equations are estimated, using OLS method. Then, in light of the regression diagnostics, a more specific (parsimonious) model is gradually derived. The serial correlation test (Godfrey, 1978a; Godfrey, 1978b), normality test (Jarque and Bera, 1980; Bera and Jarque, 1981), and

[19] See Maddala and Kim (1998) and Athukorala and Rajapatirana (2000).

heteroscedasticity test (White, 1980; 1982) are employed to perform the diagnostic testing of the model.

5. 5 Conclusion

In this chapter, empirical models of Japanese FDI in Thailand, variables and hypothessised signs were specified first. Next, data and data source were discussed, followed by a review of theoretical issues in relation to econometric estimation of models involving time-series data. The review of econometric issues highlighted the need for preliminary testing of time series properties of data prior to determining an appropriate econometric procedure for the estimation of models.

In chapter 6, the empirical models specified in section 5.2 will be estimated and results are presented and discussed. Prior to the estimation of models, unit root tests of data series will be conducted in order to determine an appropriate econometric procedure for the estimation of models.

CHAPTER 6

Determinants of Japan's Foreign Direct Investment in Thailand: Empirical Estimation, Results and Discussion

6.1 Introduction

The main aim of this chapter is the estimation of the empirical models specified in Chapter 5 on the determinants of Japan's total and sectoral FDI in Thailand over the period 1970-2003. Prior to the estimation of models, time series of data used in the estimation of the models are tested for the presence or absence of unit roots. Results of unit root testing are presented and discussed in Section 6.2. The preferred econometric procedure for the estimation of the empirical models, chosen on the basis of the unit root tests, is specified Section 6.3. Estimation models based on the preferred econometric procedure are specified in Section 6.4. Results of model estimation are presented and discussed in section 6.5 Conclusions are presented in Section 6.6.

6.2 Unit Root Tests of Data Series

Prior to the estimation of the models, time series data for all the variables (in log form) were tested for the presence or otherwise, of a unit root, using the Microfit 4.0 Interactive Econometric analysis package (Pesaran and Pesaran, 1997). The Microfit 4.0 offers only two of the unit root tests: Dickey-Fuller (DF) test and Augmented Dickey-Fuller (ADF) test.

If the null hypothesis of a unit root test was accepted, that is if a series was found non-stationary, the unit root test was repeated with the first difference series. In order to make a statistical inference regarding the presence or otherwise, of a unit root, 95 per cent critical value is employed. If the absolute values of the ADF test statistics are above the 95 per cent critical value the hypothesis that the variable has a unit root was rejected.

The results of ADF unit root test are presented in Table 6.1. The variables that are *stationary* in the *level form* are Thailand's GDP growth rate (LGR), Thailand's tariff rate (LTAR), Thai

baht/Japanese yen exchange rate (LEXR), Thailand's wage rate relative to that of Japan (LWAGE) and Thailand's interest rate relative to that of Japan (LINT).

The variables that are *non-stationary* in the *level form* are Japan's total FDI in Thailand (LJTFDI), Japan's FDI in Thailand's manufacturing sector (LJTFDIM), Japan's FDI in Thailand's services sector (LJTFDIS), Thailand's GDP (LGDP), Japan's exports to Thailand (LEXPJT), Thailand's secondary school enrolment (LSCH), and Thailand's electricity production (LELEC). These variables, except Thailand's GDP (LGDP), become *stationary* in the *first difference form*. Thailand's GDP (LGDP) is non-stationary even in the first difference form. However, further differencing of this variable was not attempted as the power of the ADF test reduces with higher order differencing.

Thus, from the results of the unit root tests presented above it can be concluded that, with some exceptions, the null hypothesis of the presence of a unit root cannot be rejected for the majority of the variables. This leads to the conclusion that the majority of the variables in our models follow a difference stationary process.

Table 6.1: **Results of Unit Root Tests**

Variable	ADF(1)	95% Critical Value	Sample Period	NOB*	Conclusion
LJTFDI	-2.9067	-3.5562	1972-2003	32	Non stationary
*D*LJTFDI	-4.2975	-3.5615	1973-2003	31	Stationary
LJTFDIM	-3.21	-3.5562	1972-2003	32	Non stationary
*D*LJTFDIM	-4.466	-3.5615	1973-2003	31	Stationary
LJTFDIS	-2.6045	-3.5562	1972-2003	32	Non stationary
*D*LJTFDIM	-4.9784	-3.5615	1973-2003	31	Stationary
LGDP	-1.9207	-3.5562	1972-2003	32	Non stationary
*D*LGDP	-3.2188	-3.5615	1973-2003	31	Non stationary
LGR	-3.8105	-3.5562	1972-2003	32	Stationary
LTAR	-4.581	-3.5562	1972-2003	32	Stationary
LEXPJT	-2.1577	-3.5562	1972-2003	32	Non stationary
*D*LEXPJT	-3.8514	-3.5615	1973-2003	31	Stationary
LEXR	-3.9127	-3.5562	1972-2003	32	Stationary
LWAGE	-4.1576	-3.5562	1972-2003	32	Stationary
LINT	-3.7969	-3.5562	1972-2003	32	Stationary
LSCH	-1.3479	-3.5562	1972-2003	32	Non stationary
*D*LSCH	-5.0122	-3.5615	1973-2003	31	Stationary
LELEC	0.58129	-3.5562	1972-2003	32	Non Stationary
*D*LELEC	-4.4033	-3.5615	1973-2003	31	Stationary

Notes: The Dickey-Fuller regressions include an intercept and a linear trend.

ADF denotes the Augmented Dickey-Fuller-test.

NOB* = Number of observations.

"L" denotes logarithm of the variable.

6.3 Model Estimation Procedure

As shown in Table 6.1, five of the independent variables are stationary, but all three dependent variables and four of the independent variables are non-stationary in the level form. Two of the dependent variables and the four independent variables become stationary in the first difference form. If variables become stationary in the first difference form, it may be tempted to include those stationary variables in the difference form in the estimation of the relevant models. These may display short-run relationships between the dependent and independent variables, but would ignore any long run relationships among them. We are, however, reluctant to give up the identification and estimation of potential long-run effects, and prefer to include each of the variables in both the difference and level forms in the models to be estimated.

Thus, we employ the unrestricted error correction modeling (UECM) procedure (see sub-section 5.4.4) for the estimation of the models of Japan's total and sectoral FDI in Thailand over the period 1970-2003. The UECM procedure minimises the likelihood of arriving at spurious relationships while preserving long-run information. The economic theory motivation is that, in the same models both short-run responses and long-run adjustment of FDI to changes in economic and political variables can be derived. It is particularly superior for small samples, as is the case in this analysis. First, the unrestricted equations are estimated using the OLS method. Taking into consideration the regression diagnostics, more specific (parsimonious) models are gradually derived. Banerjee et al (1993, p. 167) suggested that 'lagging' variables and including them as regressors often has the same effect as providing a cointegrated set of regressor variables. Banerjee et al maintain that such a possibility is enhanced in a dynamic model as the probability of a cointegrated set being present is increased. Following *Banerjee* et al, the models were estimated with different lag structures.

In order to evaluate the appropriateness of the models, the results of standard diagnostic tests that are part of the regression output from Microfit 4.0 (Pesaran and Pesaran, 1997) were considered. These include testing for residual serial correlation (Godfrey, 1978a; Godfrey, 1978b), non-normality (Jarque and Bera, 1980; Bera and Jarque, 1981) functional form misspecification (Ramsey, 1969), and heteroscedasticity (White, 1980).

6.4 The UECM Models and Hypotheses

The following UECM models of Japan's total FDI and FDI into manufacturing and services sectors in Thailand, with variables in log form, were initially specified, based on Equations 5.1, 5.2 and 5.3 of chapter 5.

$$\Delta LJTFDI_t = \alpha_0 + \beta_1 \Delta LGDP_{t-1} + \beta_2 \Delta LGR_{t-1} + \beta_3 \Delta LTAR_t + \beta_4 \Delta LEXPJT_{t-1} + \beta_5 \Delta LEXR_t + \beta_6 \Delta LINT_t + \beta_7 \Delta L\ WAGE_t + \beta_8 \Delta LELEC_t + \beta_9 \Delta LSCH_t + \beta_{10} LJTFDI_{t-1} + \beta_{11} LGDP_{t-2} + \beta 1_{12} LGR_{t-2} + \beta_{13} LTAR_{t-1} + \beta_{14} LEXPJT_{t-2} + \beta_{15} LEXR_{t-1} + \beta_{16} LINT_{t-1} + \beta_{17} LWAGE_{t-1} + \beta_{18} LELEC_{t-1} + \beta_{19} LSCH_{t-1} + \beta_{20} PLK + \beta_{21} AC + \varepsilon_t \quad (6.1)$$

$$\Delta LJTFDIM = \alpha_0 + \beta_1 \Delta LGDP_{t-1} + \beta_2 \Delta LGR_{t-1} + \beta_3 \Delta LTAR_t + \beta_4 \Delta LEXPJT_{t-1} + \beta_5 \Delta LEXR_t + \beta_6 \Delta LINT_t + \beta_7 \Delta L\ WAGE_t + \beta_8 \Delta LELEC_t + \beta_9 \Delta LSCH_t + \beta_{10} LJTFDIM_{t-1} + \beta_{11} LGDP_{t-2} + \beta 1_{12} LGR_{t-2} + \beta_{13} LTAR_{t-1} + \beta_{14} LEXPJT_{t-2} + \beta_{15} LEXR_{t-1} + \beta_{16} LINT_{t-1} + \beta_{17} LWAGE_{t-1} + \beta_{18} LELEC_{t-1} + \beta_{19} LSCH_{t-1} + \beta_{20} PLK + \beta_{21} AC + \varepsilon_t \quad (6.2)$$

$$\Delta LJTFDIS = \alpha_0 + \beta_1 \Delta LGDP_{t-1} + \beta_2 \Delta LGR_{t-1} + \beta_3 \Delta LTAR_t + \beta_4 \Delta LEXPJT_{t-1} + \beta_5 \Delta LEXR_t + \beta_6 \Delta LINT_t + \beta_7 \Delta L\ WAGE_t + \beta_8 \Delta LELEC_t + \beta_9 \Delta LSCH_t + \beta_{10} LJTFDIS_{t-1} + \beta_{11} LGDP_{t-2} + \beta 1_{12} LGR_{t-2} + \beta_{13} LTAR_{t-1} + \beta_{14} LEXPJT_{t-2} + \beta_{15} LEXR_{t-1} + \beta_{16} LINT_{t-1} + \beta_{17} LWAGE_{t-1} + \beta_{18} LELEC_{t-1} + \beta_{19} LSCH_{t-1} + \beta_{20} PLK + \beta_{21} AC + \varepsilon_t \quad (6.3)$$

where, Δ is the first difference operator, L indicates logged values, t = 1, 2, ...T, T is overall time period, α_0 is the constant term, β_1 ..... β_{21} are coefficients to be estimated, and ε represents the error term.

Hypotheses

In accordance with the hypotheses formulated in sub-section 5.2.2 of chapter 5, expected signs of the coefficients of the models in Equations 6.1, 6.2 and 6.3 are specified as follows:

$\beta_1, \beta_2, \beta_4, \beta_5, \beta_8 \beta_9, \beta_{11}, \beta_{12}, \beta_{14}, \beta_{15}, \beta_{18}, \beta_{19} > 0;$

$\beta_7, \beta_{10}, \beta_{17}, \beta_{20}, \beta_{21} < 0;$

$\beta_3, \beta_6, \beta_{13}, \beta_{16} > 0 ? < 0 ?$

6.5 Results and Discussion

6.5.1 Estimated Model for Japan's *Total* FDI in Thailand

Several specifications of the model in Equation 6.1 were estimated with different lag structures for the independent variables. Most of the specifications produced unsatisfactory results. Finally, the preferred (parsimonious) model estimates for Japan's *total* FDI in Thailand as presented in Table 6.2 were chosen. The parsimonious model *excludes* the following independent variables included in Equation 6.1: Japan's exports to Thailand (LEXPJT), Thai baht/ Japanese yen exchange rate (LEXR), Thailand's real interest rate relative to that of Japan (LINT), Thailand's electricity production (LELEC), Thailand's secondary school enrolment (LSCH), and dummy variables for political risk in Thailand and the Asian crisis.

In the preferred estimation presented in Table 6.2, the values of R^2 and *adjusted* R^2 are satisfactory and F statistic is significant. The diagnostic test statistics indicate that there are no problems of serial correlation, functional form misspecification, non-normality or heteroscedasticity.

The coefficient for the lagged difference term for Thailand's gross domestic product ($\Delta LGDP_{t-1}$) is, as expected, positive, and significant. This indicates that in the short-run, Japan's *total* FDI in Thailand increases as the market size of Thailand expands, and *vice versa*. This is in conformity with the findings of Pupphavesa and Pussarungsri (1994) that Thailand's market size represented by GDP positively and significantly related to total FDI in Thailand. The

coefficient for the lagged difference term for Thailand's GDP growth rate (ΔLGR_{t-1}) is, contrary to expectations, negative, but it is insignificant. In the short-run, Japan's total FDI in Thailand is not responsive to the Thai GDP (market) growth rate. The coefficient for the difference term for Thailand's tariff rate ($\Delta LTAR$) is negative and significant. This shows that, in the short run, Japan's total FDI into Thailand decreases as Thailand's tariff rate increases, and *vice versa*. This finding is in agreement with that of Jaovisidha (1998) that higher tariffs in Thailand depress European Union's total FDI in Thailand. However, it is contrary to the finding of Sirasoontorn (1997) that Thailand's trade barriers positively and significantly affect Japan's total FDI in Thailand. The coefficient for the difference term for Thailand's real wage rate relative to that of Japan ($\Delta LWAGE$) is negative as expected and significant. This indicates that, in the short-run, Japan's total FDI in Thailand decreases in response to an increase in Thailand's real wage rate relative to that of Japan, and *vice versa*.

The coefficient for the lagged level term for Thailand's real wage rate relative to that of Japan ($LWAGE_{t-1}$) is negative as expected and significant. This indicates that, in the long run, Japan's *total* FDI in Thailand will decrease in response to an increase in Thailand's real wage rate relative to that of Japan, and *vice versa*. However, the coefficients for the lagged level terms for Thailand's GDP ($LGDP_{t-2}$), Thailand's GDP growth rate (LGR_{t-2}) and Thailand's tariff rate ($LTAR_{t-1}$) all turned out to be insignificant. This shows that, in the long run, Thailand's market size, market growth and tariff protection do not significantly influence Japan's total FDI in Thailand.

Table 6.2: **The Preferred Model Estimates for Japan's *Total* FDI in Thailand**

Dependent variable: $\Delta LJTFDI_t$

Variable	Coefficient	t-Ratio
$\Delta LGDP_{t-1}$	16.288	1.702*
ΔLGR_{t-1}	-0.137	-0.823
$\Delta LTAR$	-0.958	-1.895*
$\Delta LWAGE$	-0.413	-2.272**
$LJTFDI_{t-1}$	-0.670	-3.329***
$LGDP_{t-2}$	0.351	1.155
LGR_{t-2}	-0.709	-1.642
$LTAR_{t-1}$	-0.617	-0.709
$LWAGE_{t-1}$	-0.453	-1.802*
CONSTANT	2.368	0.601
R^2	0.60	
Adjusted R^2	0.43	
$F_{(9,22)}$	3.628***	
DW	1.786	
Lagrange multiplier test for 1st oder residual correlation:	$F_{(1,21)}$: 0.591 (p: 0.45)	
Ramsey's RESET test for functional form misspecification:	$F_{(1,21)}$: 2.954 (p: 0.10)	
Test for non-normality:	$\chi^2(2)$: 0.272 (p: 0.87)	
Test for heteroscedasticity:	$F_{(1,30)}$: 0.505 (p: 0.48)	

Note: - Numbers in parentheses are t-statistics. ***, ** and * indicate the significance at the 1 per cent, 5 per cent, and 10 per cent levels, respectively.

6.5.2 Estimated Model for Japan's FDI in Thailand's *Manufacturing Sector*

The preferred (parsimonious) model estimates for Japan's FDI in Thailand's *manufacturing sector*, as presented in Table 6.3, were chosen after estimating several specifications of the model in Equation 6.2 with different lag structures for the independent variables. The parsimonious model in Table 6.3 *excludes* the following independent variables included in Equation 6.2: Japan's exports to Thailand (LEXPJT), Thai baht/ Japanese yen exchange rate (LEXR), Thailand's real interest rate relative to that of Japan (LINT), Thailand's real wage rate relative to that of Japan (LWAGE), Thailand's electricity production (LELEC), Thailand's secondary school enrolment (LSCH), and dummy variables for political risk in Thailand (PLK) and the Asian crisis (AC).

In the preferred estimates given in Table 6.3, the values of R^2 and adjusted R^2 are satisfactory and F-statistic is significant at 1 per cent level. The diagnostic test statistics indicate that there are no problems of serial correlation, functional form misspecification, non-normality or heteroscedasticity.

The coefficient for the difference term for Thailand's gross domestic product (ΔLGDP) has the expected positive sign, which is significant. This indicates that in the short-run, an increase in Thailand's market size increases Japan's FDI into Thailand's *manufacturing sector*, and *vice versa*. As shown by the positive but insignificant coefficient for the difference term ΔLGR, in the short-run, Japan's FDI in Thailand's manufacturing sector is not responsive to Thailand's GDP growth rate. The coefficient for the difference term for the variable representing projectionist trade barriers in Thailand, tariff rate (ΔLTAR), though not statistically significant, carries a negative sign. This may be indicative of the fact that Thailand's tariffs do not cause Japanese firms to locate production facilities in Thailand in order to avoid tariff barriers.

The coefficient for the lagged level term for Thailand's GDP ($LGDP_{t-1}$) is positive and significant. This shows that, in the long run, and increase in Thailand's market size will significantly increase Japan's FDI in Thailand's *manufacturing sector*, and *vice versa*. This may also be due to either high multicollinearity between LGDP and LGR or because during the post-crisis period years FDI flows continued increase after GDP growth was negative territory or remained very low. The coefficient for the lagged level term for Thailand's GDP growth rate (LGR_{t-1}) is negative and significant. This indicates that in the long run, contrary to expectations, an increase in Thai GDP growth rate decreases Japan FDI in Thailand's manufacturing sector, and *vice versa*. This may also be due to either high multicollinearity between LGDP and LGR or because during the post-Asian crisis period the FDI inflows continued to increase despite negative GDP growth rates. The coefficient for the lagged level term for Thailand's tariff rate ($LTAR_{t-1}$) is negative and insignificant. This shows that, in the long run, Thailand's tariff protection does not significantly influence Japan's FDI in Thailand's manufacturing sector.

Table 6.3: **The Preferred Model Estimates for Japan's FDI in Thailand's *Manufacturing Sector***

Dependent variable: $\Delta LJFDIM_t$

Variable	Coefficient	t-Ratio
$\Delta LGDP$	35.713	3.744***
ΔLGR	0.247	1.353
$\Delta LTAR$	-1.123	-1.628
$LJFDIM_{t-1}$	-0.631	-4.117***
$LGDP_{t-1}$	0.668	2.192**
LGR_{t-1}	-1.576	-3.415***
$LTAR_{t-1}$	-1.048	-0.996
CONSTANT	1.708	0.373
R^2	0.57	
Adjusted R^2	0.45	
$F_{(7, 25)}$	4.692***	
DW	2.148	
Lagrange multiplier test for 1st order residual correlation:	$F_{(1, 24)}$: 0.886 (p: 0.35)	
Ramsey's RESET test for functional form misspecification:	$F_{(1, 24)}$: 1.533 (p: 0.23)	
Test for non-normality:	$\chi^2(2)$: 0.655 (p: 0.72)	
Test for heteroscedasticity:	$F_{(1, 31)}$: 0.138 (p: 0.71)	

Note: - Numbers in parentheses are t-statistics. ***, ** and * indicate the significance at the 1 per cent, 5 per cent, and 10 per cent levels, respectively.

6.5.3 Estimated Model for Japan's FDI in Thailand's *Services Sector*

Several specifications of the model in Equation 6.3 were estimated with different lag structures for the independent variables. Most of the specifications produced unsatisfactory results. Finally, the preferred (parsimonious) model estimates for Japan's FDI in Thailand's services sector as presented in Table 6.4 were chosen. This parsimonious model *excludes* the following independent variables included in Equation 6.3: Thai baht/ Japanese yen exchange rate (LEXR), Thailand's real wage rate relative to that of Japan (LWAGE), Thailand's real interest rate relative to that of Japan (LINT), Thailand's secondary school enrolment (LSCH), and dummy variable for the Asian crisis.

In the preferred estimates presented in Table 6.4, the values of R^2 and *adjusted* R^2 are satisfactory and F statistic is significant. The diagnostic test statistics indicate that there are no problems of serial correlation, functional form misspecification, non-normality or heteroscedasticity.

The coefficient for the difference term for Thailand's Thai tariff rate (ΔLTAR) is negative and significant. This indicates that in the short run, an increase in Thailand's tariff protection decreases Japan's FDI in Thailand's *services sector* and *vice versa*. The coefficient for the difference term for Japan's exports to Thailand (ΔLEXPJT) is positive as expected and significant. This indicates that in the short run, an increase in Japan's exports to Thailand increases Japan's FDI in Thailand's services sector and *vice versa*. The coefficients for the difference terms for Thailand's gross domestic product (ΔLGDP), GDP growth rate (ΔLGR) and electricity production (ΔLELEC) are positive as expected but are insignificant. Thus, in the short run, Japan's FDI in Thailand's in services sector is not responsive to Thailand's market size, market growth or infrastructure.

The coefficient for the lagged level term for Thailand's GDP growth rate (LGR_{t-1}) is significant at the 5 per cent level, but it is negative contrary to expectations as was the case in manufacturing FDI (See, page 110). This shows that in the long run, an increase in Thailand's GDP growth (market growth) decreases Japan's FDI in Thailand's *services sector*, and *vice versa*. The coefficients for the lagged level terms for Thailand's GDP ($LGDP_{t-1}$), Japan's

exports to Thailand ($LEXPJT_{t-1}$), Thailand's electricity production ($LELEC_{t-1}$) and Thailand's political risk are insignificant, indicating that in the long run, Japan's FDI in Thailand's services sector are not responsive to these factors.

Table 6.4: **The Preferred Model Estimates for Japan's FDI in Thailand's *Services Sector***

Dependent variable: $\Delta LJFDIS_t$

Variable	Coefficient	t-Ratio
$\Delta LGDP$	12.278	1.248
ΔLGR	0.182	1.069
$\Delta LTAR$	-1.016	-1.733*
$\Delta LEXPJT$	1.688	1.985*
$\Delta LELEC$	1.382	0.754
$LJFDIS_{t-1}$	-0.633	-3.469***
$LGDP_{t-1}$	-4.263	-0.819
LGR_{t-1}	-0.855	-2.185**
$LTAR_{t-1}$	-0.755	-0.834
$LEXPJT_{t-1}$	1.047	1.150
$LELEC_{t-1}$	1.775	0.725
PLK	-0.293	-1.297
CONSTANT	24.894	0.957
R^2	0.63	
Adjusted R^2	0.41	
$F_{(12, 20)}$	2.867**	
DW	2.215	
Lagrange multiplier test for 1st order residual correlation:	$F_{(1, 19)}$: 1.528 (p: 0.23)	
Ramsey's RESET test for functional form misspecification:	$F_{(1, 19)}$: 1.867 (p: 0.19)	
Test for non-normality:	$\chi^2(2)$: 1.401 (p: 0.49)	
Test for heteroscedasticity:	$F_{(1, 31)}$: 1.378 (p: 0.25)	

Note: - Numbers in parentheses are t-statistics. ***, ** and * indicate the significance at the 1 per cent, 5 per cent, and 10 per cent levels, respectively.

6.6 Conclusion

This chapter concentrated on the estimation of empirical models on the determinants of Japan's total FDI in Thailand and Japan's FDI in manufacturing and services sectors in Thailand over the period 1970-2003. Prior to the estimation of models, time series of data used in the estimation of the models were tested for the presence or absence of unit roots. From the results of the unit root tests presented it was concluded that, with some exceptions, the null hypothesis of the presence of a unit root could not be rejected for most of the variables. Thus, the majority of the variables in the models follow a difference stationary process. Hence, the unrestricted error correction modeling (UECM) procedure was employed to estimate the models of Japan's FDI in Thailand.

The results indicate that in the short-run, Japan's *total* FDI in Thailand increases as the GDP (market size) of Thailand increases, and *vice versa*. In the short-run, Japan's total FDI in Thailand is not responsive to the Thai GDP (market) growth rate. In the short run, Japan's total FDI into Thailand decreases as Thailand's tariff rate increases, and *vice versa*. In the short-run, Japan's total FDI in Thailand decreases in response to an increase in Thailand's real wage rate relative to that of Japan, and *vice versa*. In the long run, Japan's total FDI in Thailand will decrease in response to an increase in Thailand's real wage rate relative to that of Japan, and *vice versa*. However, in the long run, Thailand's GDP (market size), GDP growth rate (market growth) and tariff protection do not significantly influence Japan's total FDI in Thailand.

In the short-run, an increase in Thailand's GDP (market) size increases Japan's FDI into Thailand's *manufacturing sector*, and *vice versa*. In the short-run, Japan's FDI in Thailand's manufacturing sector is not responsive to Thailand's GDP growth rate or Thailand's tariff rate. In the long run, an increase in Thailand's GDP (market size) significantly increases Japan's FDI in Thailand's manufacturing sector, and *vice versa*. In the long run, contrary to expectations, an increase in Thai GDP growth rate decreases Japan FDI in Thailand's manufacturing sector, and *vice versa*. In the long run, Thailand's tariff protection does not significantly influence Japan's FDI in Thailand's manufacturing sector.

In the short run, an increase in Thailand's tariff protection decreases Japan's FDI in Thailand's *services sector* and *vice versa*. In the short run, an increase in Japan's exports to Thailand

increases Japan's FDI in Thailand's services sector and *vice versa*. However, in the short run, Japan's FDI in Thailand's in services sector is not responsive to Thailand's market size, market growth or infrastructure. In the long run, contrary to expectations, an increase in Thailand's GDP growth (market growth) will decrease Japan's FDI in Thailand's services sector, and *vice versa*. In the long run, Japan's FDI in Thailand's services sector are not responsive to Thailand's GDP, Japan's exports to Thailand, Thailand's electricity production or Thailand's political risk.

Chapter 7 will provide a summary of conclusions, policy implications and limitations of the thesis and directions for further research on FDI in Thailand.

CHAPTER 7

Summary and Conclusions

7.1 Introduction

This main aim of this final chapter is to draw conclusions from the findings of the analyses of the preceding chapters of the thesis, in relation to the trends, patterns and determinants of Japan's FDI in Thailand over the period 1970 to 2003. This chapter is organised as follows: Section 7.2 presents summary, conclusions and policy implications of the thesis. Section 7.3 discusses limitations of the thesis. Section 7.4 presents the directions for further research on FDI in Thailand.

7.2 Summary, Conclusions and Policy Implications

Following chapter 1 which was concerned with outlining the context of research and the specification of the research problem, objectives and significance of research, chapter 2 provided an overview of the trends and patterns of total foreign direct investment (FDI) in Thailand and Japan's FDI in Thailand's manufacturing and services sectors. This overview also provided background information for the analysis in the subsequent chapters of the thesis. Chapter 2 also reviewed the trends and patterns of FDI worldwide, FDI in the ASEAN region and Japan's FDI in Thailand. The sectoral composition of Japan's FDI in Thailand indicates that more than 50 per cent of FDI is undertaken in the manufacturing sector. Japan is the most important foreign investor in Thailand, followed by the United States, the European Union and Asian NIE countries. Beyond the Asian financial crisis of 1997-98, Thailand's FDI laws had a significant impact to attract more of the foreign investors. However, the foreign investment may decrease because of the world economic slowdown. Moreover, most of the investors turn to China and Vietnam because of larger domestic markets, and lower wage cost than Thailand.

Chapter 3 reviewed the Thai government policy concerned with FDI in Thailand. The effects of FDI were explored, as were the foreign investment policies, which have so far been adopted by governmental authorities. The chapter started with a discussion of Thai government FDI policy historical background and foreign investment promotion and guidelines under five year

economic plans. Then, reviews of the political environment including the policy structure and government agencies charged with FDI were presented. Next, the chapter provided an overview of the legal environment including alien business law, alien employment act, and immigration act. Finally, the promoted investment in Thailand was discussed. The policies toward FDI in Thailand at the national level reviewed in chapter 3 have so far been mainly aimed at stimulating foreign investment rather than in maximising the benefits of FDI. Even though the present five-year economic and social plan does address the issue of subcontracting activities, the policy measures are still far from adequate. However, to help Thailand remain an attractive investment site, the Thai government attempts to overhaul the foreign investment regime and investment promotion privileges, but there has been mixed success. Thai government Senate had undermined the efforts to liberalise the alien business law, which limits foreign investors access to many economic activities, and to relax the restriction on foreign ownership of land. Thai government policy is supervised by the Board of Investment. The previous investment promotion policies, though successful, have been implemented for a long period of time. Thai policy-makers would be interested in good policy choices to encourage the investors to invest in Thailand in the future.

Chapter 4 focused on a review of theories of FDI in general, concentrating on the main strands of thought and a review of empirical studies of FDI in general, and in particular in Thailand. These reviews were to form the basis for methodology for the analysis of factors that determine Japan's FDI in Thailand. Next, the factors that determine FDI, as revealed by and empirical studies of FDI in general and in Thailand were discussed. The literature reviews sought to distinguish the factors that encourage FDI into a host country. The review of theories focused on the eclectic theory, the product life cycle theory, market imperfections theory, the internalisation theory, the multinational enterprise theory, and other factors that determine FDI. There are several empirical studies that have attempted to examine the determinants of FDI in Thailand by applying qualitative methods, surveys and by employing the quantitative methods (econometric studies). The previous studies were concerned with the inflows of FDI and have tried to distinguish the influences that encourage or permit FDI into a country. These studies also deal with explaining the changing levels of FDI activity according to changing host country characteristics. Most of the studies tested hypotheses under the locational advantages

or demand-side determinants. The literature reviewed in chapter 4 helped this thesis to identify the important macro level determinants of FDI into host countries. Although there have been some previous econometric studies of determinants of FDI in Thailand, there has been no recent study on the determinants of Japanese FDI in Thailand. Therefore chapters 5 and 6 of the thesis focused on an analysis of the determinants of Japan's FDI in Thailand over the period 1970-2003 in a systematic way, taking into account the up to date literature and most recent data.

Chapter 5 developed empirical models, based on the literature review in chapter 4, to analyse the determinants of Japan's total FDI in Thailand and Japan's FDI in Thailand's manufacturing services sectors over the period 1970-2003. Chapter 5 specifically developed the models, specified hypotheses, and discussed data and data sources and econometric procedures to analyse the determinants of Japan FDI in Thailand. The review of econometric issues highlighted the need for preliminary testing of time series properties of data prior to determining an appropriate econometric procedure for the estimation of models.

Chapter 6 concentrated on the estimation of empirical models on the determinants of Japan's total FDI in Thailand and Japan's FDI in manufacturing and services sectors in Thailand over the period 1970-2003. Prior to the estimation of models, time series of data used in the estimation of the models were tested for the presence or absence of unit roots. From the results of the unit root tests it was concluded that, with some exceptions, the null hypothesis of the presence of a unit root could not be rejected for most of the variables. Thus, the majority of the variables in the models follow a difference stationary process. Hence, the unrestricted error correction modeling (UECM) procedure was employed to estimate the models of Japan's FDI in Thailand, in order to identify the significant determinants of FDI in the short-run and the long run.

The results of econometric estimation indicate that in the short-run, Japan's *total* FDI in Thailand increases as the GDP (market size) of Thailand increases, Japan's total FDI into Thailand decreases as Thailand's tariff rate increases and Japan's total FDI in Thailand decreases in response to an increase in Thailand's real wage rate relative to that of Japan. In the

long run, Japan's total FDI in Thailand will decrease in response to an increase in Thailand's real wage rate relative to that of Japan. In the short-run, an increase in Thailand's GDP (market) size increases Japan's FDI into Thailand's *manufacturing sector*. In the long run, an increase in Thailand's GDP (market size) significantly increases Japan's FDI in Thailand's manufacturing sector, while, contrary to expectations, an increase in Thailand's GDP growth rate will decrease Japan FDI in Thailand's manufacturing sector. In the short-run, an increase in Thailand's tariff protection decreases Japan's FDI in Thailand's *services sector*, while an increase in Japan's exports to Thailand increases Japan's FDI in Thailand's services sector. In the long run, contrary to expectations, an increase in Thailand's GDP growth (market growth) will decrease Japan's FDI in Thailand's services sector.

The empirical results show that Thailand's GDP (market size) is the most important positive determinant of Japan's total FDI in Thailand in both the short-run and long run, while it is the most important positive determinant of Japan's FDI in Thailand's manufacturing sector in the short-run. Japan's exports to Thailand positively and significantly influence Japan's FDI in Thailand's services sector in the short-run. The other important negative determinant of Japan's total and services sector FDI in Thailand in the short-run is Thailand's tariff rate.Thailand's real wage rate relative to that of Japan is an important negatrive determinant of Japan's total FDI in Thailand in both the short-run and long run. These results imply that, in order to attract FDI, including Japan's FDI into Thailand, the Thai policy makers should implement sound economic policies to expand Thailand's market size (real GDP) and to stimulate economic growth, continue to reduce tariffs and other barriers to international trade, and ensure to maintain lower real wage rates in Thailand's relative to FDI home ountries (including Japan).

It was found that Thailand's GDP growth rate negatively influences Japan's FDI in Thailand's manufacturing and services sectors in the long run. This finding is in contrast to theoretical expectations. However, this might be a result of the rising wage rate and the inadequacy of physical and human resource infrastructure in Thailand during the study period. Inadequately developed infrastructure is one of the major deterrents to Japan's FDI in Thailand at present. The Thai government should direct the FDI inflows of Thailand toward the projects that ensure

the transfer of technology, privatisation of infrastructure projects, and the private sector's involvement in education and industrialisation of Thailand.

However, recently the Thai government has been trying hard to attract foreign investment. For example, Thai government policy has been altered to encourage invest heavily in infrastructure projects such as roads and rail network, the new airport called Suvarnabhumi airport (new Bangkok International airport), electricity, and telecommunications. These indicate that the need for a better infrastructure to stimulate economic growth is being appreciated. Thus, Thai government should continue to play a role in ensuring that Thailand development objectives are met through greater FDI, including Japan's greater FDI n Thailand.

The Thai government should encourage foreign investment by decreasing administrative barriers and red tape. Also the government should create more state agencies and use high technology communications to help investors through the paper work, in order to promote FDI broadly. Moreover, the policy markers should be aware that the various policies towards FDI that will maximise the benefits of FDI, and minimise its costs, are the same those in relation to domestic investment. The investment policy should be to create an enabling business environment, facilitating the growth and development of all businesses, small and large, domestic and foreign.

7.3 Limitations of the Study

The main limitation of this study arises from the nature of data utilised in the estimation and analysis. The analysis in chapter 6 is based on secondary data and information from many different sources. Econometric estimation in this study used annual time series data for the period from 1970 to 2003. The data on FDI and the exchange rate were obtained from the Bank of Thailand. Tariff rate and Secondary school enrolments were obtained from World Development Indicators of the World Bank. Electricity production was obtained from World Development Indicators (WDI) online of the World Bank. GDP and Real GDP Growth rate were obtained from the International Monetary Fund (IMF). Exports were obtained from Direction of Trade Statistics Year Book of IMF Statistics Department. Wage cost were obtained from the International Labour Office (ILO), Year Book of Labour Statistics. When

the data were not directly available, either they were calculated from given data or proxy variables were used. A small number of data points were derived through interpolation or extrapolation in case of missing data.

7.4 Directions for Further Research

Further research may be conducted to study the determinants of FDI in Thailand from various source (home) countries such as Australia, the the EU, Asian NICs, and the USA. Research may be carried out on FDI in Thailand's manufacturing, services and other sectors, from these home countries. The results of such studies could improve the analysis of determinants of Japan's FDI in Thailand undertaken in this study. Another area for further research could be based on strategic as well as financial considerations or on what basis the foreign investors make the decision to invest abroad in the long term. Furthermore, the research may be extended to study the determinants of FDI in Thailand in general. Such studies might use the variables same as those used in this study or other variables, such as skilled labour, technology, R&D, geographic distances, cultural factors, as well as policy and institutional variables.

Appendix 2.1: **Inflows of Foreign Direct Investment in Thailand, Classified by Source Country[1/2/], 1970-2004 (Million Baht)**

Source Country	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Japan	322	264	341	708	750	424	424	804	687	246	903	1,407	1,037	2,432	2,588	1,532	3,049	3,269
(%)	36	33	24	44	20	24	26	37	61	22	23	22	24	30	27	35	44	36
United States of America	352	341	620	308	1,675	819	445	492	624	227	732	2,396	857	1,266	3,730	2,368	1,294	1,816
(%)	40	42	43	19	44	47	28	23	55	20	19	37	20	15	39	54	19	20
EU	79	89	245	315	380	192	323	484	232	336	548	788	1,552	2,125	470	476	594	986
Germany	11	7	18	21	13	13	82	90	-22	185	262	179	182	237	29	165	160	448
France	4	2	13	80	42	113	19	-6	2	-10	13	-3	17	46	90	143	91	133
United Kingdom	41	19	131	78	196	110	177	183	66	104	83	335	182	793	257	122	252	329
Netherlands	5	6	20	120	89	10	-6	58	44	-11	22	77	1,067	1,030	-58	-45	-56	74
Other	18	55	63	16	40	-54	51	159	142	68	168	200	104	19	152	91	147	2
(%)	9	11	17	20	10	11	20	22	20	30	14	12	36	26	5	11	9	11
ASEAN 3/	-2	19	40	15	98	10	-4	10	11	20	154	23	24	168	58	63	-26	10
(%)	-0	5	4	6	11	4	19	5	2	-0	11	16	-8	9	12	-24	5	6
NIEs	70	65	108	331	843	128	403	310	-210	292	1,403	1,354	207	1,476	1,514	-311	1,497	2,041
Hong Kong	69	47	88	249	490	60	88	198	-236	285	1,114	323	593	871	345	647	956	796
Korea, South	1	-11	1	2	3	13	10	7	10	29	10	0	0	21	5	-4	5	22
Singapore	-1	20	16	77	330	53	309	105	15	-24	277	1,019	-388	556	1,120	-1,125	403	536
Taiwan	1	9	3	3	20	2	-4	0	1	2	2	12	2	28	44	171	133	687
(%)	8	8	8	21	22	7	25	14	-19	26	36	21	5	18	16	-7	22	23
Others	70	30	73	-72	90	172	23	64	-209	7	138	446	654	758	1278	1088	500	922
(%)	8	1	4	-9	-6	7	-18	-2	-20	3	-4	-9	24	2	2	32	1	4
Total	**891**	**808**	**1,427**	**1,605**	**3,836**	**1,745**	**1,614**	**2,164**	**1,135**	**1,128**	**3,878**	**6,414**	**4,331**	**8,225**	**9,638**	**4,402**	**6,908**	**9,044**
(%)	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

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Appendix 2.1 **(Continued)**

Source Country	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Japan	14,608	18,762	27,931	15,593	8,680	7,733	3,091	13,856	13,250	39,120	60,477	18,560	35,493	61,144	27,299	33,644	27,578
(%)	52	41	43	30	16	18	9	28	23	33	29	14	31	35	61	43	83
United States of America	3,185	5,220	6,154	5,919	11,789	7,236	3,909	6,471	10,870	23,191	51,798	24,137	25,575	2,735	-10131	-7,285	-1,156
(%)	11	11	10	12	22	17	12	13	19	20	25	18	22	2	-23	-9	-4
EU	2,294	4,081	4,413	4,215	7,285	6,155	3,051	4,479	4,256	8,378	37,568	51,943	20,968	8,856	-17,873	985	2,765
Germany	621	818	1,150	843	618	634	743	951	1,064	2,035	4,073	10,973	4,003	1,429	432	3,368	6,714
France	281	393	682	1,246	1,670	1,989	977	1,795	761	-187	10,927	8,984	1,272	4,485	-484	-2,016	-6,863
United Kingdom	885	222	1,131	257	3,225	4,077	1,115	1,380	1,433	2,250	4,816	7,010	16,702	14,758	9,543	-2,097	7,316
Netherlands	289	1,629	650	747	689	749	-628	2,165	-1,025	3,700	13,836	24,584	-3,179	-16,633	-31,335	-486	-8,647
Other	218	1,019	800	1,122	1,083	-1,294	844	-1,812	2,023	580	3,916	392	-4,188	-28,449	-58,699	1,244	4,246
(%)	8	9	7	8	14	14	9	9	7	7	18	39	18	5	-40	1	9
ASEAN 3/	85	101	534	126	464	-10	334	707	952	819	1,379	1,319	1,044	1,319	-372	1,514	10,040
(%)	6	6	10	13	13	4	15	8	1	1	1	1	1	1	-1	2	30
NIEs	7,808	13,720	20,811	21,085	23,799	8,049	15,031	13,055	16,533	28,883	46,115	33,695	34,493	85,641	59,142	45,064	11,433
Hong Kong	2,795	5,716	7,027	11,566	14,549	4,898	8,004	6,948	5,444	13,535	16,571	8,862	13,355	7,265	1,086	14,167	2,281
Korea, South	305	254	488	296	262	369	323	308	628	772	2,799	204	-167	1,094	1,781	1,154	1,403
Singapore	1,572	2,688	6,136	6,469	6,767	1,545	4,630	3,394	6,969	9,851	22,673	20,048	15,019	72,212	53,130	26,469	3,128
Taiwan	3,136	5,062	7,160	2,754	2,221	1,237	2,074	2,405	3,492	4,725	4,072	4,581	6,286	5,070	3,145	3,274	4,621
(%)	28	30	32	41	44	18	45	26	29	25	22	25	30	50	132	58	35
Others	-16	3,814	4,852	4,451	1,674	14,649	7,825	11,319	11,611	17,305	12,551	4,938	-2,287	12,945	-13,136	3,607	-17,566
(%)	-6	2	-2	-4	-9	30	10	16	20	15	6	4	-2	7	-29	5	-53
Total	**27,964**	**45,698**	**64,695**	**51,389**	**53,691**	**43,812**	**33,241**	**49,887**	**57,472**	**117,696**	**209,888**	**134,592**	**115,286**	**172,640**	**44,929**	**77,529**	**33,094**
(%)	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Bank of Thailand (2004a; 2005).

Note: 1/ The figures cover investment in non-bank sector only.

2/ Form November 2000 onward, data on direct investment though non-resident bath account are more complete due to the change in the foreign transaction reporting form.

3/ Prior to 1999, ASEAN does not include Cambodia, Laos, Myanmar and Vietnam.

Appendix 2.2: **Inflows of FDI in Thailand, Classified by Sector, 1970-2004[1/2/] (Million Baht)**

Sector	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Industry	447	111	308	609	1,031	582	459	659	465	724	1,012	2,526	1,231	2,568	3,166	1,347	2,124	4,749
(%)	**50**	**14**	**22**	**38**	**27**	**33**	**28**	**30**	**41**	**64**	**26**	**39**	**28**	**31**	**33**	**31**	**31**	**53**
Food & sugar	46	13	5	27	237	82	30	62	17	52	91	157	-257	218	106	387	287	437
Textiles	139	35	178	433	378	193	159	416	127	-11	-2	-32	421	13	452	59	86	996
Metal & non metallic	12	16	3	3	118	22	5	3	33	33	48	179	124	1,022	78	-126	-23	365
Electrical appliances	18	28	46	37	112	110	129	126	190	351	448	624	666	394	1,045	279	617	1,137
Machinery & transport equipment	22	5	-27	15	58	2	-1	161	33	60	92	130	227	422	120	32	-15	160
Chemicals	79	-44	68	112	67	92	137	-2	66	73	213	147	107	350	283	487	484	868
Petroleum products	100	50	21	-33	-20	43	1	-141	68	127	2	1,247	-129	0	934	0	8	-16
Construction materials	4	3	9	8	27	7	0	4	-100	-29	1	13	9	19	6	38	5	6
Others	27	6	5	7	53	31	-1	30	32	68	117	62	64	129	142	190	674	797
Financial institutions	52	50	127	170	1,277	393	218	606	-6	-546	-173	674	-480	997	153	-1,254	510	443
(%)	**6**	**6**	**9**	**11**	**33**	**23**	**14**	**28**	**0**	**-48**	**-4**	**11**	**-11**	**12**	**2**	**-28**	**7**	**5**
Trade	234	303	333	447	226	545	436	306	348	341	751	480	699	1,698	1,892	1,076	1,784	853
(%)	**26**	**37**	**23**	**28**	**6**	**31**	**27**	**14**	**31**	**30**	**19**	**7**	**16**	**21**	**20**	**24**	**26**	**9**
Construction	94	223	316	133	97	169	152	227	190	294	783	1,277	737	742	1,066	1,582	1,235	1,349
(%)	**11**	**28**	**22**	**8**	**3**	**10**	**9**	**10**	**17**	**26**	**20**	**20**	**17**	**9**	**11**	**36**	**18**	**15**
Mining & quarrying	19	53	171	43	1,180	62	87	92	67	154	597	768	1,682	1,454	2,787	515	240	192
(%)	**2**	**6**	**12**	**3**	**31**	**4**	**5**	**4**	**6**	**14**	**15**	**12**	**39**	**18**	**29**	**12**	**3**	**2**
Agriculture	0	0	5	5	15	2	1	0	-18	5	210	8	16	48	68	77	202	286
(%)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**-2**	**0**	**5**	**0**	**0**	**1**	**1**	**2**	**3**	**3**
Services	45	70	131	82	-6	-22	247	249	77	151	461	577	257	589	319	531	670	749
(%)	**5**	**9**	**9**	**5**	**0**	**-1**	**15**	**12**	**7**	**13**	**12**	**9**	**6**	**7**	**3**	**12**	**10**	**8**
Investment	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Real estate	0	0	36	118	17	14	13	25	11	5	239	106	190	130	187	529	143	423
(%)	0	0	3	7	0	1	1	1	1	0	6	2	4	2	2	12	2	5
Others	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
(%)	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total	890	808	1,427	1,605	3,836	1,745	1,614	2,164	1,135	1,128	3,878	6,414	4,331	8,225	9,638	4,402	6,908	9,044
(%)	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100

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Appendix 2.2 **(Continued)**

Sector	1988	1989	1990	1991	1992	1993	1994	1995	1996
Industry	16,162	21,858	31,003	23,840	9,259	11,430	12,873	14,114	17,942
(%)	**58**	**48**	**48**	**46**	**17**	**26**	**39**	**28**	**31**
Food & sugar	1,065	1,962	1,605	1,543	1,284	974	1,091	973	1,143
Textiles	1,111	686	1,777	1,143	1,462	-227	869	941	1,247
Metal & non metallic	2,113	2,762	2,886	2,206	1,696	2,412	1,133	2,302	2,851
Electrical appliances	6,317	8,857	10,677	8,981	5,907	3,589	1,494	5,812	6,095
Machinery & transport equipment	631	1,103	2,475	2,298	1,084	1,566	299	3,597	2,749
Chemicals	1,061	2,819	4,318	3,850	1,624	5,107	838	2,333	4,632
Petroleum products	770	-1,190	3,029	-374	-6,929	4,843	782	-4,019	-6,332
Construction materials	26	85	12	146	375	111	129	626	88
Others	3,069	4,773	4,225	4,045	2,758	-6,942	6,238	1,549	5,470
Financial institutions	2,578	2,843	4,531	6,823	6,555	1,642	171	643	1,823
(%)	**9**	**6**	**7**	**13**	**12**	**4**	**1**	**1**	**3**
Trade	3,880	6,804	12,929	7,726	7,096	5,547	8,561	11,112	13,798
(%)	**14**	**15**	**20**	**15**	**13**	**13**	**26**	**22**	**24**
Construction	1,841	3,926	3,301	3,306	14,534	3,853	1,752	906	1,783
(%)	**7**	**9**	**5**	**6**	**27**	**9**	**5**	**2**	**3**
Mining & quarrying	473	575	1,139	2,073	3,126	3,176	1,310	1,419	490
(%)	**2**	**1**	**2**	**4**	**6**	**7**	**4**	**3**	**1**
Agriculture	315	603	763	598	-151	330	-158	232	51
(%)	**1**	**1**	**1**	**1**	**0**	**1**	**0**	**0**	**0**
Services	1,109	1,593	2,054	1,655	2,151	468	1,404	2,186	3,162
(%)	**4**	**3**	**3**	**3**	**4**	**1**	**4**	**4**	**6**
Investment	0	0	0	0	195	-405	3,670	-1,954	-540
(%)	**0**	**0**	**0**	**0**	**0**	**-1**	**11**	**-4**	**-1**
Real estate	1,419	7,109	8,421	3,619	9,699	17,592	11,863	21,246	19,054
(%)	**5**	**16**	**13**	**7**	**18**	**40**	**36**	**43**	**33**
Others	187	386	554	1,750	1,227	179	-8,205	-17	-89
(%)	**1**	**1**	**1**	**3**	**2**	**0**	**-25**	**0**	**0**
Total	27,964	45,698	64,695	51,390	53,691	43,812	33,241	49,887	57,472
(%)	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

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Appendix 2.2 **(Continued)**

Sector	1997	1998	1999	2000	2001	2002	2003	2004	Total 1970-2004
Industry	58,323	89,563	47,949	74,940	99,114	22,083	21,248	20,283	**616,101**
(%)	**50**	**43**	**36**	**65**	**57**	**49**	**27**	**61**	
Food & sugar	6,968	3,037	3,523	3,776	4,699	-3,136	4,007	7,402	43,911
Textiles	1,492	4,909	774	-168	2,518	1,047	1,492	-29	25,084
Metal & non metallic	6,607	14,092	9,862	-3,387	15,743	3,934	1,482	7,514	78,122
Electrical appliances	18,436	10,877	16,443	21,083	29,597	-3,232	-4,549	-4,568	148,177
Machinery & transport equipment	12,873	26,516	14,690	27,058	19,168	9,445	5,366	14,062	146,474
Chemicals	6,052	9,434	234	16,697	2,613	3,510	2,442	-99	71,053
Petroleum products	453	13,134	314	1,408	12,468	1,423	202	-14,650	7,595
Construction materials	-394	862	1,414	2,189	-155	951	-1,542	321	5,275
Others	5,834	6,702	694	6,284	12,463	8,140	12,348	10,328	90,409
Financial institutions	3,732	34,504	9,253	5,267	-9,118	-12,384	-10,253	-9,430	**42,391**
(%)	**3**	**16**	**7**	**5**	**-5**	**-28**	**-13**	**-28**	
Trade	33,957	42,645	39,384	2,090	42,610	20,249	19,444	-10,277	**280,305**
(%)	**29**	**20**	**29**	**2**	**25**	**45**	**25**	**-31**	
Construction	5,797	8,234	-5,853	-5	-140	150	1,340	2,251	**57,639**
(%)	**5**	**4**	**-4**	**0**	**0**	**0**	**2**	**7**	
Mining & quarrying	654	1,012	-1,587	-11,052	23,158	-4,167	-217	1,023	**32,764**
(%)	**1**	**0**	**-1**	**-10**	**13**	**-9**	**0**	**3**	
Agriculture	38	20	70	28	79	45	827	-422	**4,199**
(%)	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**-1**	
Services	9,079	11,475	18,207	18,697	6,922	27,416	-556	9,078	**121,275**
(%)	**8**	**5**	**14**	**16**	**4**	**61**	**-1**	**27**	
Investment	994	14,751	21,878	4,006	-2,124	-27,134	12,758	-8,394	**17,701**
(%)	**1**	**7**	**16**	**3**	**-1**	**-60**	**16**	**-25**	
Real estate	3,467	1,125	5,660	2,725	4,861	1,106	5,886	1,694	**128,730**
(%)	**3**	**1**	**4**	**2**	**3**	**2**	**8**	**5**	
Others	1,656	6,559	-368	18,589	7,277	17,564	27,053	27,289	**101,592**
(%)	**1**	**3**	**0**	**16**	**4**	**39**	**35**	**82**	
Total	117,696	209,888	134,592	115,286	172,640	44,929	77,529	33,094	**1,402,696**
(%)	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	

Source: Bank of Thailand (2004a; 2005). Note: 1/ The Figures cover investment in non-bank sectors only. 2/ Direct Investment = Equity Investment plus loans from related companies.

Appendix 2.3: **Foreign Investment Projects Approved and Value of Investment (in million baht) in Thailand, Classified by Source Country, 1987-2004**

Countries	1987		1988		1989		1990		1991		1992	
	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment
European Union	51	6900.6	111	26575.4	126	41222.3	97	37098.1	66	35239.7	38	83343
Japan	127	24829.2	265	77019.3	224	90633.3	180	69230.7	142	44908.3	88	49972
Hong kong	32	3215.8	86	11415.6	65	14429.5	67	183411.9	38	8677	20	3548
Singapore	18	1645.3	59	6924.2	47	10569.6	34	15115.2	32	15902.1	20	12247
Taiwan	102	7696.1	308	21498.4	214	22304.7	144	19567.2	69	14586.6	44	7393
USA	34	4431.4	106	17027.8	68	14122.5	72	27913.1	51	28849.1	29	31321
Others	262	19029.5	519	40433.1	431	94562	315	122615.1	196	128944.2	130	87566
Total	**626**	**67747.9**	**1454**	**200893.8**	**1175**	**287843.9**	**909**	**474951.3**	**594**	**277107**	**369**	**275390**
Countries	**1993**		**1994**		**1995**		**1996**		**1997**		**1998**	
	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment
European Union	85	19245	73	33998	98	58612	78	42575	85	87485	109	132688
Japan	125	68497	190	64276	284	196613	233	143693	219	146675	157	53914
Hong kong	25	3151	26	5308	23	6009	8	1675	9	1389	16	5064
Singapore	33	5905	54	14263	51	38055	41	41798	43	59028	49	10647
Taiwan	60	5328	88	11937	102	45098	61	69135	56	11931	69	10029
USA	42	10919	56	32915	59	64335	46	64780	60	88184	62	18646
Others	479	63307	686	88521	580	171336	478	158451	395	73698	185	56339
Total	**849**	**176352**	**1173**	**251218**	**1197**	**580058**	**945**	**522107**	**867**	**468390**	**647**	**287327**

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Appendix 2.3 (Continued)

Countries	1999		2000		2001		2002		2003		2004		Total 1987-2004	
	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment
European Union	73	36440	134	28768	79	23018.8	65	16259.3	62	24913	75	30430.2	1505	764811.4
Japan	185	26920	282	107382	257	83368.8	215	38398.3	260	97596.9	350	125931.8	3783	1509858.6
Hong kong	25	1899	31	6241	20	9709.8	5	1584.5	14	3590.7	23	14316.9	533	284635.7
Singapore	52	7003	84	19910	51	8985	40	33103.2	36	6729.6	74	18238.6	818	326068.8
Taiwan	86	7910	120	17632	50	6823.9	41	2705.9	57	13552.5	53	10606.8	1724	305735.1
USA	52	46217	72	37752	40	40131.4	37	11113.4	40	24573.8	37	30397	963	593628.5
Others	207	35843	391	61544	322	93899.3	318	59367.4	372	114625.5	615	370807.7	6881	1840888.8
Total	**680**	**162232**	**1114**	**279229**	**819**	**265937**	**721**	**162532**	**841**	**285582**	**1227**	**600729**	**16207**	**5625627**

Source: International Affairs Division, Board of Investment (BOI) (2004b; 2005b).
Note: All countries investment projects refer to projects with those countries capital of at least 10 %.

Appendix 2.4: ***Foreign Investment Projects Approved by Thailand BOI, Classified by Sector, 1990-2004 (Million Baht)***

Year	1990		1991		1992		1993		1994	
Sector	No.	Total Investment	No.	Total Investment	No.	Total Investment	No.	Total Investment	No.	Total Investment
Agricultural Products	70	19,775.50	55	6,536.80	22	1,382.90	44	4,186.80	52	5,700.40
Minerals and Ceramics	21	4,636.80	11	2,029.90	8	24,208.90	17	6,055.70	25	27,504.80
Light Industries/Textiles	184	27,964.10	83	13,850.00	52	4,917.50	106	10,732.60	73	6,043.20
Metal Products and Machinery	94	17,784.70	55	17,953.30	39	31,930.00	54	7,312.10	98	19,056.40
Electric and Electronic Products	110	25,766.40	105	23,960.50	76	8,996.30	91	16,867.60	126	32,634.40
Chemicals and Paper	47	34,565.30	40	30,919.70	34	153,920.50	29	11,493.20	93	39,152.00
Services	102	239,659.60	50	32,978.40	28	34,705.50	36	51,836.50	40	17,662.00
Total	**628**	**370,152.40**	**399**	**128,228.60**	**259**	**260,061.60**	**377**	**108,484.50**	**507**	**147,753.20**
Year	**1995**		**1996**		**1997**		**1998**		**1999**	
Sector	**No.**	**Total Investment**	**No.**	**Total Investment**	**No.**	**Total Investment**	**No.**	**Total Investment**	**No.**	**Total Investment**
Agricultural Products	69	10,768.30	54	8,379.90	48	7,568.70	50	11,777.00	49	11,265.00
Minerals and Ceramics	43	115,961.60	28	79,167.90	22	9,420.50	9	951.20	9	480.80
Light Industries/Textiles	50	7,703.70	30	3,866.60	46	8,334.20	76	13,250.80	73	8,942.10
Metal Products and Machinery	138	47,431.50	138	44,472.10	147	28,015.30	70	9,465.80	109	12,542.70
Electric and Electronic Products	139	40,181.40	115	69,832.00	97	30,123.50	133	59,458.70	143	57,287.90
Chemicals and Paper	130	170,891.40	89	88,789.20	88	131,807.30	66	43,427.90	69	41,547.50
Services	46	17,960.80	36	31,827.80	66	85,200.40	79	116,532.80	61	9,422.90
Total	**615**	**410,898.70**	**490**	**326,335.50**	**514**	**300,469.90**	**483**	**254,864.20**	**513**	**141,488.90**

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Appendix 2.4 (Continued)

Year	2000		2001		2002		2003		2004		Total 1990-2004	
Sector	No.	Total Investment	No.	Total Investment	No.	Total Investment	No.	Total Investment	No.	Total Investment	No.	Total Investment
Agricultural Products	72	23,127.60	54	8,379.90	48	7,568.70	50	11,777.00	49	11,265.00	786	149,459.5
Minerals and Ceramics	22	9,991.80	28	79,167.90	22	9,420.50	9	951.20	9	480.80	283	370,430.3
Light Industries/Textiles	112	23,937.30	30	3,866.60	46	8,334.20	76	13,250.80	73	8,942.10	1110	163,935.8
Metal Products and Machinery	195	26,122.80	138	44,472.10	147	28,015.30	70	9,465.80	109	12,542.70	1601	356,582.6
Electric and Electronic Products	185	71,613.20	115	69,832.00	97	30,123.50	133	59,458.70	143	57,287.90	1808	653,424
Chemicals and Paper	108	54,449.00	89	88,789.20	88	131,807.30	66	43,427.90	69	41,547.50	1105	1,106,534.9
Services	67	3,407.30	36	31,827.80	66	85,200.40	79	116,532.80	61	9,422.90	853	884,177.9
Total	**761**	**212,649.00**	**490**	**326,335.50**	**514**	**300,469.90**	**483**	**254,864.20**	**513**	**141,488.90**	**7546**	**3,684,545**

Source: International Affairs Division, Board of Investment (BOI) (2004b; 2005b).

Note: 1) Foreign Investment projects refer to projects with foreign capital of at least 10%.

2) New policy launched in August 2000 effects previous figures related to sector.

Appendix 2.5: **Total Foreign Investment Projects Approved by Thailand BOI, Classified by Factory Location, 1996-2004 (Million baht)**

Year	Zone 1		Zone 2		Zone 3		Total Zone1-Zone3	
	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment
1996	81	24,388.4	128	59,840	281	326,335.5	490	410,563.9
1997	96	17,856.6	128	66,119.6	290	300,470	514	384,446.2
1998	172	59,084.7	119	37,642.9	192	254,864.2	483	351,591.8
1999	188	39,307.7	142	32,615.9	183	141,488.9	513	213,412.5
2000	230	33,411.7	220	81,301.4	313	212,865.6	763	327,578.7
2001	153	36,545.7	271	111,354.9	151	617,22.3	575	209,622.9
2002	99	20,865.6	282	54,399	102	243,52.5	483	99,617.1
2003	138	75,547.1	308	109,614.1	117	27,427.4	563	212,588.6
2004	176	39,271.4	395	203,819.3	163	74,200.7	734	317,291.4
Total 1996-2004	**1333**	**346,278.9**	**1993**	**756,707.1**	**1792**	**142,3727.1**	**5118**	**2,526,713.1**

Source: International Affairs Division, Board of Investment (BOI) (2004b; 2005b).

Note: Zone 1- Bangkok, Samutprakarn, Patumthani, Nonaburi, Nakornpathom and Samutpakarn.

Zone 2- Samutsongkram, Rajchaburi, Nakornnayok, Suphanburi, Ang-Thong, Ayuttaya, Karnchnaburi, Chacheongsoa, Chonburi and Saraburi.

Zone 3- The remaining provines outside Zone 1 and Zone 2 P.

Appendix 2.6: **Net Inflows of FDI from Japan into Thailand, Classified by Sector, 1971-1974 to1990-1995**

	1971-1974		1975-1979		1980-1984		1985-1989		1990-1995		(1971-1995)	
	Investment	Share (%)	Investment	Share (%)	Investment	Share (%)	Investment	Share (%)	Investment	Share (%)	Investment	Share (%)
Industry	1,026.50	49.79	1,302.9	50.42	2,813.7	33.63	23,199.0	56.28	52,368.8	68.77	3,228.4	61.90
Food	227.80	11.05	110.00	4.26	-314.30	-3.76	912.8	2.21	2,610.3	3.43	141.86	2.72
Textiles	471.10	22.85	750.40	29.04	632.9	7.56	436.8	1.06	1,933.5	2.54	168.99	3.24
Metal & Non-metallic	41.40	2.01	27.60	1.07	1,081.7	12.93	3,633.6	8.81	7,513.4	9.87	491.91	9.43
Electrical Appliances	91.80	4.45	76.50	2.96	791.4	9.46	11,948.0	28.99	22,403.9	29.42	1,412.5	27.08
Machinery & Transpor	29.10	1.41	105.20	4.07	352.6	4.21	1,797.1	4.36	7,244.2	9.51	381.13	7.31
Chemicals & Paper	145.30	7.05	174.10	6.74	229.5	2.74	1,829.3	4.44	4,781.7	6.28	286.40	5.49
Petroleum Products	0.30	0.01	14.60	0.56	2.8	0.03	-10.20	-0.02	1,483.5	1.95	59.64	1.14
Constrution Materials	12.80	0.62	0.40	0.02	8.0	0.10	24.7	0.06	42.0	0.06	3.52	0.07
Other Industry	6.90	0.33	44.70	1.73	29.1	0.35	2,626.9	6.37	4,356.3	5.72	282.56	5.42
Financial Institutions	261.40	898.28	266.10	252.95	237.7	67.41	1,759.0	97.88	722.1	9.97	129.85	2.49
Trade	569.00	1,955.3	440.30	418.54	2,019.7	572.80	4,207.9	234.15	9,770.9	134.88	680.31	13.04
Construction	113.40	389.69	339.10	322.34	3,053.3	865.94	6,556.3	364.83	8,870.3	122.45	757.30	14.52
Mining & Quarrying	12.70	43.64	5.90	5.61	8.6	2.44	8.4	0.47	200.0	2.76	9.42	0.18
Agriculture	20.00	68.73	-17.90	-17.02	83.8	23.77	717.2	39.91	519.5	7.17	52.90	1.01
Services	58.70	2.85	246.10	9.52	150.4	1.80	4,773.0	11.58	3,700.0	4.86	357.13	6.85
Other	5.90	0.29	12.90	0.50	65.5	0.78	1,167.7	2.83	2,247.8	2.95	139.99	2.68
Total	2,061.70	100.00	2,584.10	100.00	8,367.2	100.00	41,220.8	100.00	76,151.6	100.00	5,215.4	100.00

Source: Bank of Thailand (2004a).

Note: The figures for investment in non-bank sector only, P-preliminary.

Appendix 2.7: **Japanese Investment Projects Approved by Thailand BOI, Classified by Sector, 1990 to 2004, (Number of Projects and Million baht)**

Year	1990		1991		1992		1993		1994	
Sector	No.	Total Investment	No.	Total Investment	No.	Total Investment	No.	Total Investment	No.	Total Investment
Agricultural Products	70	19,775.50	55	6,536.80	22	1,382.90	44	4,186.80	52	5,700.40
Minerals and Ceramics	21	4,636.80	11	2,029.90	8	24,208.90	17	6,055.70	25	27,504.80
Light Industries/Textiles	184	27,964.10	83	13,850.00	52	4,917.50	106	10,732.60	73	6,043.20
Metal Products and Machinery	94	17,784.70	55	17,953.30	39	31,930.00	54	7,312.10	98	19,056.40
Electric and Electronic Products	110	25,766.40	105	23,960.50	76	8,996.30	91	16,867.60	126	32,634.40
Chemicals and Paper	47	34,565.30	40	30,919.70	34	153,920.50	29	11,493.20	93	39,152.00
Services	102	239,659.60	50	32,978.40	28	34,705.50	36	51,836.50	40	17,662.00
Total	**628**	**370,152.40**	**399**	**128,228.60**	**259**	**260,061.60**	**377**	**108,484.50**	**507**	**147,753.20**
Year	**1995**		**1996**		**1997**		**1998**		**1999**	
Sector	**No.**	**Total Investment**	**No.**	**Total Investment**	**No.**	**Total Investment**	**No.**	**Total Investment**	**No.**	**Total Investment**
Agricultural Products	69	10,768.30	54	8,379.90	48	7,568.70	50	11,777.00	49	11,265.00
Minerals and Ceramics	43	115,961.60	28	79,167.90	22	9,420.50	9	951.20	9	480.80
Light Industries/Textiles	50	7,703.70	30	3,866.60	46	8,334.20	76	13,250.80	73	8,942.10
Metal Products and Machinery	138	47,431.50	138	44,472.10	147	28,015.30	70	9,465.80	109	12,542.70
Electric and Electronic Products	139	40,181.40	115	69,832.00	97	30,123.50	133	59,458.70	143	57,287.90
Chemicals and Paper	130	170,891.40	89	88,789.20	88	131,807.30	66	43,427.90	69	41,547.50
Services	46	17,960.80	36	31,827.80	66	85,200.40	79	116,532.80	61	9,422.90
Total	**615**	**410,898.70**	**490**	**326,335.50**	**514**	**300,469.90**	**483**	**254,864.20**	**513**	**141,488.90**

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Appendix 2.7 (Continued)

Year	2000		2001		2002		2003		2004		Total 1990-2004	
Sector	**No.**	**Total Investment**	**No.**	**Total Investment**	**No.**	**Total Investment**	**No.**	**Total Investment**	**No.**	**Total Investment**	**No.**	**Total Investment**
Agricultural Products	72	23,127.60	9	5,268.00	10	1,506.80	9	3,445.60	19	4,533.10	632	125,222.4
Minerals and Ceramics	22	9,991.80	4	1,801.00	5	1,487.00	8	1,890.80	7	1,095.20	239	286,683.9
Light Industries/Textiles	112	23,937.30	13	1,581.50	9	3,067.00	10	2,872.70	14	4,421.50	931	141,484.8
Metal Products and Machinery	195	26,122.80	90	19,911.40	99	14,819.20	113	50,971.60	150	51,239.30	1589	399,028.2
Electric and Electronic Products	185	71,613.20	83	18,387.50	61	15,272.50	60	18,515.20	74	32,262.20	1598	521,159.3
Chemicals and Paper	108	54,449.00	34	33,760.20	18	1,823.20	33	14,749.30	42	27,777.10	920	879,072.8
Services	67	3,407.30	24	2,659.20	13	422.60	27	5,151.70	44	4,603.40	719	654,030.9
Total	**761**	**212,649.00**	**257**	**83,368.80**	**215**	**38,398.30**	**260**	**97,596.90**	**350**	**125931.8**	**6628**	**300,6682.3**

Source: International Affairs Division, Board of Investment (BOI) (2004b; 2005b).

Note: Japanese Investment Projects refer to Projects with Japanese capital of least 10 %.

Appendix 2.8: **Japanese Foreign Investment Projects Approved by Thailand BOI, Classified by Factory Location, 1996-2004**

Year	Zone 1		Zone 2		Zone 3		Total	
	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment	Projects (No.)	Investment
1996	46	9,422.7	86	17,958.9	101	116,310.9	233	143,692.5
1997	44	7,287.0	73	28,359.6	102	111,028.0	219	146,674.6
1998	65	35,967.5	51	8,222.4	41	9,723.8	157	53,913.7
1999	70	7,334.3	67	9,213.4	48	10,372.1	185	26,919.8
2000	83	17,009.2	108	42,604.3	91	47,768.4	282	107,381.9
2001	54	15,104.2	150	59,530.9	53	8,733.7	257	83,368.8
2002	43	6,578.6	136	26,182.0	36	5,637.7	215	38,398.3
2003	59	36,979.1	160	53,390.8	41	7,227.0	260	97,596.9
2004	87	18,546.6	212	91,734.4	51	15,650.8	350	125,931.8
Total 1996-2004	**551**	**154,229.2**	**1043**	**337,196.7**	**564**	**332,452.4**	**2158**	**823,878.3**

Source: International Affairs Division, Board of Investment (BOI) (2004b; 2005b).

Note: Zone 1- Bangkok, Samutprakarn, Patumthani, Nonaburi, Nakornpathom and Samutpakarn.

Zone 2- Samutsongkram, Rajchaburi, Nakornnayok, Suphanburi, Ang-Thong, Ayuttaya, Karnchnaburi, Chacheongsoa, Chonburi and Saraburi.

Zone3- The remaining provines outside Zone 1 and Zone 2 Plus Laem Chabang Industrial Eatate.

Appendix 2.9: **Japanese Investment Projects Approved by Thailand BOI, Classified by Sector, 1996- 2004 (million baht)**

Sector	1996	1997	1998	1999	2000	2001	2002	2003	2004	Average 1996-2004
Agricultural Prodction	2,989.70	104	100.2	1941.5	12301.9	5268	1506.8	3445.6	4533.1	32,190.80
Minerals and Ceramics	63,540.30	5745.5	554	343	6375.2	1801	1487	1890.8	1095.2	82,832.00
Light Industries/Textiles	781.4	2583.7	1255.9	1574.9	6661.6	1581.5	3067	2872.7	4421.5	24,800.20
Metal Products and Machinery	19,716.90	22278.6	5507	4298	14248	19911.4	14819.2	50971.6	51239.3	202,990.00
Electric and Electronic Products	20,912.90	18065.2	32173.8	15150.9	38483	18387.5	15272.5	18515.2	32262.2	209,223.20
Chemicals and Paper	21,718.30	60604.6	2418.1	2781.5	28236.5	33760.2	1823.2	14749.3	27777.1	193,868.80
Services	14,033	37293	11904.7	830	1075.9	2659.2	422.6	5151.7	4603.4	77,973.50

Source: International Affairs Division, Board of Investment (BOI) (2004b; 2005b).

Note: Japanese Investment Projects refer to projects with Japanese capital of at least 10 per cent.

Appendix 2.10: **Foreign Investment Projects Approved by Thailand BOI, Classified by Source Country, 2000-2004**
(Unit: Million Baht)

Countries	2000		2001		2002		2003		2004		Total 2000-2004	
	Projects	Investment	Projects	Investment	Projects	Investment	Projects	Investment	Projects	Investment	Projects	Investment
	(No.)		(No.)		(No.)		(No.)		(No.)		(No.)	
European Union	134	28768.3	79	23018.8	65	16259.3	62	24913	75	30430.2	415	123389.6
Japan	282	107381.9	257	83368.8	215	38398.3	260	97596.9	350	125931.8	1364	452677.7
Taiwan	120	17632.3	50	6823.9	41	2705.9	57	13552.5	53	10606.8	321	51321.4
Singopore	84	19910.2	51	8985.3	40	33103.2	36	6729.6	74	18238.6	285	86966.9
USA	72	37751.8	40	40131.4	37	11113.4	40	24573.8	37	30397	226	143967.4

Source: International Affairs Division, Board of Investment (BOI) (2005b).
Note: All countries investment projects refer to projects with that countries capital of at least 10 %.

Appendix 2.11: **Foreign Investment Projects Approved by Thailand BOI , Classified by FDI Category, 1996-2004**
(Unit: Million Baht)

	1996		1997		1998		1999		2000	
	Projects (No.)	**Investment**	**Projects (No.)**	**Investment**	**Projects (No.)**	**Investment**	**Projects (No.)**	**Investment**	**Projects (No.)**	**Investment**
100 % Foreign	142	75,109	186	35,719	204	79,977	265	82,912	380	123,231
Joint-Venture	348	251,227	328	264,751	279	174,887	248	58,576	381	89,418
Total	**490**	**326,336**	**514**	**300,470**	**483**	**254,864**	**513**	**141,488**	**761**	**212,649**
	2001		**2002**		**2003**		**2004**		**Total 1996-2004**	
	Projects (No.)	**Investment**	**Projects (No.)**	**Investment**	**Projects (No.)**	**Investment**	**Projects (No.)**	**Investment**	**Projects (No.)**	**Investment**
100 % Foreign	315	106,679	273	53,434	305	104,487	377	127,942	2447	789,490
Joint-Venture	260	102,943	210	46,183	258	108,102	357	189,349	2669	1,285,436
Total	**575**	**209,622**	**483**	**99,617**	**563**	**212,589**	**734**	**317,291**	**5116**	**2,074,926**

Source: International Affairs Division, Board of Investment (BOI) (2004b; 2005b).

Note: 1) Total Foreign Investment (No. of Projects) is foreign investment projects with foreign capital of at least 10 %.

2) Joint-Venture (No. of Projects) is joint-venture projects between local Thai investors and foreign partners with foreign capital of at least 10%.

Appendix 3.1: Alien Business Law

The Alien Business Law 1972 (ABL) divided business into 3 categories as follows:

Category A- Closed to Aliens

1. Agricultural Businesses
    a) Rice farming
    b) Sale farming, including manufacture but excluding rock sale mining
2. Commercial Business
    a) Internal trade in local agriculture products
    b) Trade in real property
3. Service Businesses
    a) Accounting
    b) Law
    c) Architecture
    d) Advertising
    e) Brokerage or agency
    f) Auctioneering
    g) Haircutting, hairdressing, and beauty treatment
4. Other Businesses
    a) Building construction

Category B- Closed to Aliens unless Promoted by the BOI

1. Agricultural Businesses
    a) Cultivation
    b) Orchard farming
    c) Livestock farming including cocoon raising
    d) Forestry
    e) Fishery
2. Industrial and Handicraft Businesses
    a) Manufacture of flour, sugar, beverages, matches, ice and drugs
    b) Wood processing and wood carvings
    c) Cold storage
    d) Rice milling
    e) Manufacture of products from gold, silver, or bronze
    f) Manufacture of alms bowls and lacquer ware

g) Manufacture or casting of Buddha images
h) Silk combing, silk weaving, or printing press operation
i) Newspaper publication and printing press operation
j) Manufacture of products from silk, silk thread and silk cocoons
k) Manufacture of garments or footwear, except for export
l) Manufacture of plywood, wood veneer, clipboard or hardboard
m) Manufacture of lime, cement, or cement by products
n) Dynamiting or quarrying of rocks

3. Commercial Businesses
   a) Retailing of all products (excluding items in Category C)
   b) Sale mining products (excluding items in Category C)
   c) Sale of all types of food and beverage (excluding items in Category C)
   d) Sale of antiques, period antiques, or work of art
4. Service Businesses
   a) Tour agency
   b) Hotel business except hotel management
   c) Photography, photographic developing, and printing
   d) Laundry
   e) Tailoring
5. Other Businesses
   a) Domestic transportation by land, water, or air

Category C- Open to Aliens

1. Commercial Businesses
   a) Wholesale of all types of products except in items listed in Category A
   b) Export of all types of products
   c) Retail of machines, engines, and tools
   d) Sale of food beverage for the promotion of tourism
2. Industrial and Handicraft Businesses
   a) Extraction of vegetable oil
   b) Manufacture of textile products including embroidery, knitting, weaving, dyeing, and pattern printing
   c) Manufacture of glass containers including light bulbs
   d) Manufacture of writing and printing paper
   e) Manufacture of animal feeds

f) Manufacture of crockery

g) Rock sale mining

h) Mining

3. Service and Other Businesses

   a) All appropriate items not listed in Category A OR B

4. Other

   a) Construction not specified in Category A.

Source: US-ASEAN Business Council, 2004.

Appendix 3.2: List of 39 Occupations that are closed to Aliens (Royal Decree 1973)

A royal Decree in 1973 listed 39 occupations, which were then closed to aliens. This list has been amended on several occasions by subsequent Royal Decrees, the latest one in 1979.

1) Assessment, system planning, research planning, testing, and supervisory and advisory work in connection with construction and civil engineering, except work requiring specialized skills
2) Designing and preparing drawings of buildings and architectural structures including consultation, cost estimation, and construction supervision of the designs
3) Controlling, auditing, and accounting service, except occasional internal audit
4) Legal service and litigation
5) Clerical and secretarial work
6) Brokerage or agency work, except work connected with international trade
7) Auctioning
8) Shop front selling
9) Hawking of goods
10) Barbering, hairdressing, and beautician work
11) Tour guiding and tour promoting
12) Rice farming, animal husbandry, fishery, and forestry, except supervisory or specialist work
13) Nielloware making
14) Manual silk weaving
15) Manual cloth weaving
16) Manual silk product making
17) Tailoring
18) Thai language typesetting
19) Lacquerware making
20) Driving of motor vehicles or non-motorized vehicles and domestic aircraft piloting
21) Buddha image casting
22) Manual rice - paper making
23) Manual cigarette rolling
24) Hat making

25) Mattress and blanket making

26) Cloth and paper umbrella making

27) Shoe making

28) Wood carving

29) Knife making

30) Gem cutting and polishing

31) Making of gold, silver, and other metallic ornaments

32) Pottery or ceramics

33) Thai musical instrument making

34) Thai traditional doll making

35) Bricklaying, carpentry, and other forms of construction

36) Alms bowl making

37) Mat weaving and making of wares from national plant fibers

38) Stone inlay wares making

39) Manual labor

Source: US-ASEAN Business Council, 2004.

Appendix 6.1: **Japan's Total Real FDI in Thailand**

Year	Japan's FDI in Thailand[1] Million US$	Thai GDP Deflator[2] (Index)	Japan's Total Real FDI in Thailand[3]
1970	17	18.963	89.648
1971	14	18.804	74.452
1972	18	20.03	89.865
1973	38	23.809	159.604
1974	42	28.682	146.433
1975	25	29.719	84.121
1976	24	31.042	77.315
1977	45	32.892	136.811
1978	52	36.035	144.304
1979	42	39.167	107.233
1980	44	44.309	99.303
1981	64	48.019	133.281
1982	45	50.448	89.201
1983	106	52.289	202.720
1984	110	53.046	207.367
1985	56	54.2	103.321
1986	116	55.699	208.262
1987	128	57.699	221.841
1988	578	61.114	945.773
1989	731	64.852	1127.182
1990	1,096	68.596	1597.761
1991	612	72.538	843.696
1992	344	75.286	456.924
1993	306	78.286	390.874
1994	124	82.364	150.551
1995	557	86.967	640.473
1996	523	90.455	578.188
1997	1,348	94.131	1432.047
1998	1,485	102.826	1444.187
1999	489	98.69	495.491
2000	869	100	869.000
2001	1377	102.368	1345.147
2002	632	102.972	613.759
2003	816	104.968	777.380

Source: [1] Bank of Thailand (2004a).

[2] International Financial Statistics (IFS) (2005a).

Note: [3]Japan's Total Real FDI in Thailand =

[(Japan's Total FDI in Thailand) / (Thai GDP Deflator)] x 100

Total FDI values are realised FDI.

Appendix 6.2: **Japan's Real FDI in Thailand's Manufacturing Sector**

Years	Japan's FDI in Thailand's Manufacturing (Million US$)[1]	Thai GDP Deflator (Index)[2]	Japan's Real FDI in Thailand's Manufacturing[3]
1970	8.31	18.963	43.83
1971	2.10	18.804	11.17
1972	3.80	20.03	18.99
1973	14.25	23.809	59.85
1974	11.40	28.682	39.75
1975	8.33	29.719	28.04
1976	6.82	31.042	21.97
1977	13.75	32.892	41.80
1978	21.36	36.035	59.27
1979	26.73	39.167	68.24
1980	11.41	44.309	25.75
1981	25.25	48.019	52.57
1982	12.69	50.448	25.15
1983	33.35	52.289	63.78
1984	36.04	53.046	67.95
1985	17.00	54.2	31.37
1986	35.86	55.699	64.38
1987	67.25	57.699	116.55
1988	333.94	61.114	546.42
1989	349.89	64.852	539.52
1990	524.72	68.596	764.94
1991	281.47	72.538	388.03
1992	59.01	75.286	78.38
1993	79.86	78.286	102.01
1994	48.01	82.364	58.29
1995	157.59	86.967	181.21
1996	163.28	90.455	180.51
1997	676.42	94.131	718.59
1998	637.83	102.826	620.30
1999	174.00	98.69	176.31
2000	560.00	100	560.00
2001	790.93	102.368	772.63
2002	316.93	102.972	307.78
2003	224.60	104.968	213.97

Source: [1]Bank of Thailand (2004a).

[2] International Financial Statistics (IFS) (2005a).

Note: [3] Japan's Real FDI in Thailand's Manufacturing =

[(Japan's FDI in Thailand's Manufacturing) / (Thai GDP Deflator)] x 100

FDI in manufacturing is based on BOI approvals.

Appendix 6.3: **Japan's Real FDI in Thailand's Services Sector**

Years	Japan's FDI in Thailand's Services (Million US$)[1]	Thai GDP Deflator (Index)[2]	Japan's Real FDI in Thailand's Services[3]
1970	8.31	18.963	43.82
1971	10.85	18.804	57.70
1972	11.92	20.03	59.51
1973	22.8	23.809	95.76
1974	17.5	28.682	61.01
1975	15.8	29.719	53.16
1976	16	31.042	51.54
1977	29.17	32.892	88.68
1978	28.76	36.035	79.81
1979	9.16	39.167	23.39
1980	23.51	44.309	53.06
1981	31	48.019	64.56
1982	14.6	50.448	28.94
1983	53.3	52.289	101.93
1984	41.65	53.046	78.52
1985	31.15	54.2	57.47
1986	72.61	55.699	130.36
1987	54.24	57.699	94.01
1988	227.86	61.114	372.84
1989	362.63	64.852	559.17
1990	538.95	68.596	785.69
1991	298.93	72.538	412.10
1992	266.12	75.286	353.48
1993	201.59	78.286	257.50
1994	71.69	82.364	87.04
1995	381.06	86.967	438.17
1996	354.88	90.455	392.33
1997	663.41	94.131	704.77
1998	841.11	102.826	817.99
1999	320.55	98.69	324.80
2000	393.88	100	393.88
2001	401.76	102.368	392.47
2002	375	102.972	364.18
2003	584.9	104.968	557.22

Source: [1] Bank of Thailand (2004a).

[2] International Financial Statistics (IFS) (2005a).

Note: [3] Japan's Real FDI in Thailand's Services =

[(Japan's FDI in Thailand's Services) / (Thai GDP Deflator)] x 100

FDI in services is based on BOI approvals.

Appendix 6.4: **Real GDP of Thailand**

Year	GDP ($US billion)[1]	GDP Deflator (Index)[2]	Real GDP[3]
1969	128.54	18.27	703.56
1970	147.40	18.96	777.30
1971	153.40	18.80	815.78
1972	170.10	20.03	849.23
1973	222.10	23.80	932.84
1974	279.20	28.68	973.43
1975	303.30	29.71	1020.56
1976	346.50	31.04	1116.23
1977	403.50	32.89	1226.74
1978	488.20	36.03	1354.79
1979	558.90	39.16	1426.97
1980	662.48	44.30	1495.14
1981	760.35	48.01	1583.45
1982	841.56	50.4	1668.19
1983	920.98	52.28	1761.34
1984	988.07	53.04	1862.67
1985	1056.50	54.2.0	1949.26
1986	1133.39	55.69	2034.86
1987	1299.91	57.69	2252.92
1988	1559.80	61.11	2552.29
1989	1856.99	64.85	2863.43
1990	2183.54	68.59	3183.20
1991	2506.63	72.53	3455.62
1992	2830.91	75.28	3760.21
1993	3165.22	78.28	4043.15
1994	3629.34	82.36	4406.47
1995	4186.21	86.96	4813.56
1996	4611.04	90.45	5097.61
1997	4732.61	94.13	5027.68
1998	4626.44	102.82	4499.30
1999	4632.13	98.69	4693.62
2000	4904.72	100.00	4904.73
2001	5123.42	102.36	5004.90
2002	5433.29	102.97	5276.47
2003	5938.88	104.96	5657.80

Source: [1] International Financial Statistics (IFS) (2005b).

[2] International Financial Statistics (IFS) (2005a).

Note: [3] Real GDP of Thailand = [(GDP of Thailand) / (Thai GDP Deflator) x 100

Appendix 6.5: **Thailand's Real GDP Growth Rate (%)**

Year	Real GDP Growth Rate (%)[1]
1970	4.95
1971	4.10
1972	9.85
1973	4.35
1974	4.84
1975	9.37
1976	9.90
1977	10.44
1978	5.33
1979	4.78
1980	5.91
1981	5.35
1982	5.58
1983	5.75
1984	4.65
1985	4.39
1986	10.72
1987	13.29
1988	12.19
1989	11.17
1990	8.56
1991	8.81
1992	7.52
1993	8.99
1994	9.24
1995	5.90
1996	-1.37
1997	-10.51
1998	4.32
1999	4.50
2000	2.04
2001	5.43
2002	7.23
2003	6.7

Source: Calculated from the Real GDP data given in the last column of Appendix 6.4.

Note: [1]Real GDP Growth Rate (%) =
[(Real GDP in current year – Real GDP in previous year) / (Real GDP in previous year)] x 100

Appendix 6.6: **Average Tariff Rate of Thailand**

Year	Average Tariff Rate of Thailand
1970	28.53
1971	28.52
1972	28.51
1973	28.50
1974	28.55
1975	28.55
1976	28.52
1977	28.44
1978	28.46
1979	28.76
1980	28.57
1981	28.35
1982	28.06
1983	28.58
1984	30.23
1985	27.65
1986	27.21
1987	26.62
1988	31.20
1989	38.50
1990	14.70
1991	25.02
1992	23.68
1993	25.00
1994	37.80
1995	21.60
1996	17.00
1997	17.00
1998	23.68
1999	23.42
2000	16.60
2001	19.54
2002	20.05
2003	20.66

Source: World Development Indicators (WDI) World Bank (various years).

Appendix 6.7: **Japan's Real Exports to Thailand**

Year	Japan's Exports to Thailand (US$ million)[1]	Japan's Export Price Index[2]	Japan's Real Exports to Thailand[3]
1970	449	114.3	392.83
1971	446	112.6	396.09
1972	523	109	479.82
1973	721	120.2	599.83
1974	951	160.9	591.05
1975	958	154.4	620.47
1976	1072	153.3	699.28
1977	1370	146.1	937.71
1978	1541	136.4	1129.77
1979	1701	151.2	1125.00
1980	1925	164.2	1172.35
1981	2243	166.2	1349.58
1982	1903	172.6	1102.55
1983	2508	162.3	1545.29
1984	2420	163.3	1481.94
1985	2047	160.9	1272.22
1986	2045	136.7	1495.98
1987	2982	129.8	2297.38
1988	5164	126.8	4072.56
1989	6811	132.4	5144.26
1990	9150	135.2	6767.75
1991	9446	127.9	7385.46
1992	10384	123.3	8421.74
1993	12317	113.4	10861.55
1994	14700	110.3	13327.29
1995	19719	107.9	18275.25
1996	18301	113	16195.58
1997	14615	115.1	12697.65
1998	9352	116.6	8020.58
1999	11358	104.9	10827.45
2000	13634	100	13634.00
2001	11873	103	11527.18
2002	13217	101.9	12970.56
2003	16043	97.8	16403.89

Source: [1] Statistics Yearbook, International Monetary Fund (IMF) (1981-2004).
[2] International Financial Statistics (IFS) (2005c).

Note: [3]Japan's Real Exports to Thailand =
[(Japan's Exports to Thailand) / (Japan's Export price Index)] x 100

Appendix 6.8: **Thai Baht / Japanese Yen Real Exchange Rate**

Year	Exchange rate: Thai baht per 100 Japanese yen[1]	CPI (Thailand)[2]	CPI (Japan)[2]	Real Exchange rate: Thai baht per 100 Japanese yen[3]
1970	5.8	16.5	31.819	11.19
1971	6.015	16.6	33.861	12.27
1972	6.91	17.37	35.861	14.27
1973	7.625	20.1	39.628	15.03
1974	6.975	24.95	48.804	13.64
1975	6.82	26.28	54.555	14.16
1976	6.8875	27.37	59.655	15.01
1977	7.585	29.45	64.522	16.62
1978	9.7275	31.788	67.239	20.58
1979	9.355	34.934	69.748	18.68
1980	8.995	41.817	75.173	16.17
1981	9.9	47.113	78.865	16.57
1982	9.265	49.59	81.023	15.14
1983	9.29	51.438	82.549	14.91
1984	9.955	51.883	84.454	16.21
1985	11.455	53.145	86.132	18.57
1986	15.7	54.124	86.666	25.14
1987	17.85	55.477	86.774	27.92
1988	19.77	57.588	87.357	29.99
1989	18.66	60.673	89.349	27.48
1990	17.705	64.282	92.083	25.36
1991	18.955	67.969	95.066	26.51
1992	20.33	70.733	96.708	27.8
1993	22.8	73.114	97.95	30.54
1994	24.595	76.801	98.642	31.6
1995	26.605	81.255	98.517	32.26
1996	9.268	86.025	98.65	10.63
1997	9.69	90.828	100.358	10.71
1998	31.64	98.167	101.017	32.56
1999	33.36	98.47	100.675	34.11
2000	37.21	100	100	37.21
2001	36.59	101.661	99.267	35.73
2002	34.33	102.275	98.358	33.02
2003	35.798	104.132	98.108	33.73

Source: [1] Bank of Thailand (2004b).
[2]International Financial Statistics (IFS) (2005d).

Note: [3] Real Exchange rate Thai bath per 100 Japanese yen =
[(Exchange rate Thai bath per 100 Japanese yen) / (CPI Thailand)] x CPI Japan

Appendix 6.9: **Thailand's Real Wage Rate Relative to that of Japan**

Year	Thai Wage rate in Manufacturing[1](US$)	CPI of Thailand[2]	Real Wage rate of Thailand[3]	Japanese Wage rate in Manufacturing[1] (US$)	CPI of Japan[2]	Real Wage rate of Japan[4]	Ratio of Thai to Japanese Real Wage rate[5]
1970	76	16.50	461	611	31.82	1920	0.24
1971	75	16.60	452	632	33.86	1866	0.24
1972	75	17.37	432	719	35.86	2005	0.22
1973	76	20.10	378	800	39.63	2019	0.19
1974	79	24.95	317	750	48.80	1537	0.21
1975	76	26.28	289	753	54.56	1380	0.21
1976	76	27.37	278	774	59.66	1297	0.21
1977	77	29.45	261	747.66	64.52	1159	0.23
1978	78	31.79	245	1019.64	67.24	1516	0.16
1979	87	34.93	249	1039.30	69.75	1490	0.17
1980	61.73	41.82	148	1078.64	75.17	1435	0.10
1981	69.02	47.11	146	1177.72	78.87	1493	0.10
1982	73.74	49.59	149	1082.33	81.02	1336	0.11
1983	74.17	51.44	144	1175.13	82.55	1424	0.10
1984	114.94	51.88	222	1230.43	84.45	1457	0.15
1985	104.05	53.15	196	1254.80	86.13	1457	0.14
1986	100.04	54.12	185	1812.33	86.67	2091	0.09
1987	90.01	55.48	162	2165.25	86.77	2495	0.07
1988	96.43	57.59	167	2486.61	87.36	2846	0.06
1989	116.57	60.67	192	2440.11	89.35	2731	0.07
1990	131.21	64.28	204	2431.20	92.08	2640	0.08
1991	144.53	67.97	213	2731.94	95.07	2874	0.07
1992	156.93	70.73	222	2941.89	96.71	3042	0.07
1993	163.43	73.11	224	3339.60	97.95	3409	0.07
1994	168.15	76.80	219	2707.23	98.64	2745	0.08
1995	200.44	81.26	247	2964.08	98.52	3009	0.08
1996	217.10	86.03	252	2608.04	98.65	2644	0.10
1997	189.23	90.83	208	2373.73	100.36	2365	0.09
1998	154.48	98.17	157	2212.29	101.02	2190	0.07
1999	156.21	98.47	159	2555.60	100.68	2538	0.06
2000	145.57	100.00	146	2719.79	100.00	2720	0.05
2001	136.49	101.66	134	2447.98	99.27	2466	0.05
2002	140.29	102.28	137	2364.01	98.36	2403	0.06
2003	146.61	104.13	141	2459.93	98.11	2507	0.06

Source: [1] International Labour Office (ILO) (1987-2004).
[2] International Financial Statistics (IFS) (2005d)

Note: [3] Real wage rate of Thailand = [(Thai wage rate in manufacturing) / (CPI of Thailand)]
[4] Real wage rate of Japan = [(Japan's wage rate in manufacturing) / (CPI of Japan)]
[5] Ratio of Thai to Japan wage rate = Real wage rate of Thailand / Real wage rate of Japan
[6] Wage rate are in US dollar in average of month per year.
Wage rate are in US$ per month.

Appendix 6.10: **Thailand's Real Interest Rate Ratio Relative to that of Japan**

Year	Thai Nominal Lending Rate (%)[1]	Thai Inflation Rate (CPI %)[2]	Thai Real Lending Rate (%)[3]	Japanese Nominal Lending Rate[1] (%)	Japanese Inflation Rate (CPI %)[2]	Japanese Real Lending Rate[4] (%)	Ratio of Thai to Japanese Real Lending Rate[5]
1970	11.70	-0.9	10.80	7.7	7.7	0	0
1971	11.59	0.44	11.15	7.593	6.4	1.193	9.35
1972	11.47	4.91	6.56	7.045	4.8	2.245	2.92
1973	11.39	15.46	-4.07	7.186	11.6	-4.414	0.92
1974	11.65	24.33	-12.68	9.113	23.2	-14.087	0.90
1975	12.40	5.3	7.10	9.099	11.8	-2.701	-2.63
1976	11.04	4.15	6.89	8.256	9.3	-1.044	-6.60
1977	10.89	7.58	3.31	7.562	8.2	-0.638	-5.19
1978	10.97	7.85	3.12	6.42	4.2	2.22	1.41
1979	12.958	9.93	3.03	6.368	3.7	2.668	1.13
1980	16.146	19.71	-3.56	8.345	7.8	0.545	-6.54
1981	17.208	12.7	4.51	7.864	4.9	2.964	1.52
1982	16.958	4.53	12.43	7.313	2.7	4.613	2.69
1983	15.208	4.67	10.54	7.128	1.9	5.228	2.02
1984	16.792	0.65	16.14	6.749	2.3	4.449	3.63
1985	16.083	2.42	13.66	6.6	2	4.6	2.97
1986	13.375	1.85	11.53	6.02	0.6	5.42	2.13
1987	10.708	2.48	8.23	5.208	0.1	5.108	1.61
1988	11.583	3.86	7.72	5.034	0.7	4.334	1.78
1989	12.25	5.5	6.75	5.287	2.3	2.987	2.26
1990	14.417	6	8.42	6.95	3.1	3.85	2.19
1991	15.396	5.7	9.70	7.53	3.2	4.33	2.24
1992	12.167	4.07	8.10	6.151	1.7	4.451	1.82
1993	11.167	3.36	7.81	4.41	1.3	3.11	2.51
1994	10.896	5.1	5.80	4.133	0.7	3.433	1.69
1995	13.25	5.77	7.48	3.506	-0.1	3.606	2.07
1996	13.396	5.85	7.55	2.658	0.1	2.558	2.95
1997	13.646	5.61	8.04	2.449	1.7	0.749	10.73
1998	14.417	8.1	6.32	2.321	0.7	1.621	3.90
1999	8.979	0.3	8.68	2.161	-0.3	2.461	3.53
2000	7.833	1.55	6.28	2.067	-0.7	2.767	2.27
2001	7.25	2.1	5.15	1.969	-0.7	2.669	1.93
2002	6.875	3.59	3.29	1.865	-0.9	2.765	1.19
2003	5.938	1.8	4.14	1.822	-0.3	2.122	1.95

Source: [1] International Financial Statistics (IFS) (2005e).

[2] International Financial Statistics (IFS) (2005d).

Note: [3] Thai Real Lending Rate = Thai Nominal Lending Rate – Thai Inflation Rate (CPI %)

[4] Japanese Real Lending Rate = Japanese Nominal Lending Rate – Japanese Inflation Rate (CPI %)

[5] Ratio of Thai to Japanese Real Lending Rate = Thai Real Lending Rate / Japanese Real Lending Rate

Appendix 6.11: **Secondary School Enrolments in Thailand**

Year	Secondary School Enrolments (% of the Age group)
1970	17.4
1971	26.2
1972	26.3
1973	26.6
1974	27.0
1975	25.1
1976	26
1977	27
1978	28
1979	29
1980	29
1981	29
1982	29
1983	29
1984	30
1985	30.5
1986	29
1987	28
1988	28
1989	27
1990	30.1
1991	33.3
1992	37.4
1993	42.4
1994	47.8
1995	54.1
1996	56.4
1997	47.62
1998	88
1999	83
2000	81.9
2001	83
2002	83
2003 [f]	83.78

Source: World Development Indicators, World Bank (1997; 2001; 2002).
f = forecast.

Appendix 6.12: **Electricity Production in Thailand**

Year	Electricity production (Billion Kilowatt hours)
1970	7
1971	5
1972	6
1973	7
1974	7
1975	8
1976	10
1977	11
1978	13
1979	13
1980	14
1981	15
1982	17
1983	21
1984	21
1985	24
1986	29
1987	29
1988	33
1989	38
1990	44
1991	50
1992	57
1993	63
1994	71
1995	80
1996	87
1997	93
1998	90
1999	90
2000	96
2001	102
2002	109
2003 [f]	97

Source: World Development Indicators, World Bank (1997; 2001; 2002).
f = forecast.

Appendix 6.13: **Dummy Variable for Political Risk in Thailand**[1]

Year	Political Risk Dummy
1970	0
1971	0
1972	0
1973	1
1974	1
1975	1
1976	1
1977	1
1978	1
1979	1
1980	0
1981	0
1982	0
1983	0
1984	0
1985	1
1986	1
1987	1
1988	0
1989	0
1990	0
1991	0
1992	1
1993	1
1994	0
1995	0
1996	0
1997	0
1998	0
1999	0
2000	0
2001	0
2002	0
2003	0

[1] During 1973-76, there was political unrest and violence, and unstable civilian governments. In October 1976, the right-wing military staged a coup against the civilian government, leading to an unstable political environment until 1979. 1985-87 was a period of political instability resulting from upheavals of military and bureaucracy against the government's attacks on their powers and privileges. During 1992-1993 there was a political crisis following the military coup in February 1991 that overthrew the civilian government, resulting in a bloody confrontation in May 1992.

Sources: Bungbonkarn (2002a; 2002b); Christopher and Phongpaichit (2005); Ongvilawan (2004); Suwannathat-Pian (2003).

Appendix 6.14: **Dummy Variable for the Asian Crisis and its Aftermath**

Year	Asian Crisis Dummy
1970	0
1971	0
1972	0
1973	0
1974	0
1975	0
1976	0
1977	0
1978	0
1979	0
1980	0
1981	0
1982	0
1983	0
1984	0
1985	0
1986	0
1987	0
1988	0
1989	0
1990	0
1991	0
1992	0
1993	0
1994	0
1995	0
1996	0
1997	1
1998	1
1999	1
2000	1
2001	1
2002	1
2003	1

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