INVESTMENT IN THE SEACEN COUNTRIES IN THE POST-CRISIS ERA: ISSUES AND CHALLENGES

Choon-Seng Lim, Vincent and Min B. Shrestha

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FOREWORD

Since the 1997 Asian financial crisis, some SEACEN countries have been unable to achieve pre-crisis levels of investments despite strong macroeconomic fundamentals. This study investigates the reasons for such a decline in investment from macro perspectives. This is of vital importance as investment is often seen as the engine of economic growth. While various micro issues such as investment regulations and practices are important determinants of investment, macroeconomic policies such as central banks' policies can exert a huge influence on investment decisions. This study, therefore, attempts to provide some macro-policy implications through empirical analysis.

In general, the findings of this research indicate that the determinants of investment are multi-faceted. The empirical evidence suggests that macro-financial variables such as interest rates and credit growth are important along with demand factors such as economic growth. Real interest rates in post-crisis are, in general, lower that the pre-crisis period but domestic credit over gross domestic product together with economic growth have been significantly higher during the pre-crisis period. This may suggest the importance of domestic credit in promoting desired and sustainable domestic investment. It is also observed that there are common factors in the policies implemented by the various countries to attract FDI inflows as long-term investment. These factors include good public governance, efforts to curb corruption, non-discrimination rules, good infrastructure, abundant and skilled labour force and access to free international trade.

This study which is a collaborative effort between The SEACEN Centre and the member central banks/monetary authorities, is divided into two major sections. Part I provides the integrative report and regional analysis authored by Dr. Choon-Seng Lim, Vincent and Dr. Min B. Shrestha, both Senior Economists at the Research Division of The SEACEN Centre and concurrently Project Leaders of this study. Part II consists of country chapters authored by country researchers from ten participating member central banks.

The SEACEN Centre wishes to thank Dr. Choon-Seng Lim, Vincent and Dr. Min B. Shrestha, for their efforts as Project Leaders and also the country researchers from participating member central banks for their valuable contribution in the preparation of their respective country chapters, namely, Mr. Donni Fadjar Anugrah, Economist at the Directorate of Economic Research and Monetary Policy of Bank Indonesia; Dr. Sang Gyoo Yoon, Senior Economist of the International Trade Team at the Research Department of The Bank of Korea; Daw May Marlar Maung Gyi, Assistant Director at the Research & Training

Department Centre of the Central Bank of Myanmar; Mr. Idwan Suhardi Hakim, Manager at the Economics Department of Bank Negara Malaysia; Mr. Pitambar Bhandari, Deputy Director of the Research Department of Nepal Rastra Bank; Ms Eloisa Tatlonghari-Glindro, Bank Officer at the Center for Monetary and Financial Policy, Bangko Sentral ng Pilipinas; Mr. Christian De Guzman, Ms Liew Yin Sze and Mr. Luk Man Chi of the Economic Policy Department of Monetary Authority of Singapore; Mr. K.M.M. Siriwardana, Deputy Director at the Economic Research Department of Central Bank of Sri Lanka; Ms Chen Wan Ru, Specialist of the Department of Economic Research at the Central Bank of the Republic of China (Taiwan); and Mr. Krist Dacharux, Ms Pornnapa Leelapornchai and Dr. Manop Udomkerdmongkol, respectively Economist, Senior Researcher and Senior Economist of the Monetary Policy Group of Bank of Thailand. The Centre also wish to thank Dr. Kwek Kian Teng, Professor of Economics, Universiti Malaya for giving valuable comments during the second workshop. The integrative report benefitted as well from comments and suggestions from Dr. Charles Harvie, Associate Professor, Director of Research and Director, Centre for Small Business and Regional Research, School of Economics, Faculty of Commerce, University of Wollongong, Australia.

The Centre also gratefully acknowledges the support of The SEACEN Centre's staff in completing this study. The views, conclusions and recommendations expressed in this Report are those of the authors and do not necessarily reflect those of The SEACEN Centre or its constituent member central banks/monetary authorities.

Dr. A. G. Karunasena
Executive Director
The SEACEN Centre

August 2009

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EXECUTIVE SUMMARY

Since the 1997 Asian financial crisis, some SEACEN countries have been unable to achieve pre-crisis levels of investments. Many reasons were cited by the literature and these include a shift in investors' perceptions, weaker exchange rates which make prices of imported investment goods more expensive, over-investment in various sectors of the economy, unsettled political and security conditions, weak financial systems and governance systems, implicit state guarantees and the 'hollowing out' effect where excessive outward foreign investment has reduced domestic investment.

This paper notes that the region has successfully implemented various policies related to investment such as liberalisation of the investment sectors, the promotion of the competitive sector, direct involvement of the government and privatisation to encourage investment. The study also highlights the importance of research and the infusion of capital and technology in promoting new investment. From a macro perspective, the study suggests that central banks can also play an important role in promoting investment. Marco economic factors such as real interest rates, the availability of domestic credit, exchange rate volatility are important determinants of investment. This implies that given the right economic fundamentals, to stimulate investment, central banks should *ceteris paribus*, adopt an expansionary monetary stance while heeding the inflation rate. The study also suggests the importance of the banking sector in the promotion of investment. As the financial sectors of the SEACEN countries are already liberalised, pro-active financial supervision can play an important role in ensuring financial stability in order to facilitate improved access to credit.

It is also noted that the current US mortgage sub-prime crisis will raise new challenges to the revival of private investment in the SEACEN countries. While the direct effect of the subprime crisis is through the external sector, its indirect effect through distressed and non-performing loans may result in self-reinforcement between the financial markets and the real economy.

PART 1: INTEGRATIVE REPORT

Part I: Integrative Report

Chapter 1

INVESTMENT IN THE SEACEN COUNTRIES IN THE POST-CRISIS ERA: ISSUES AND CHALLENGES[1]

by
Choon-Seng Lim, Vincent and Min B. Shrestha[2]

1. Introduction

Investment, whether domestic or foreign direct investment, is part of the aggregate demand and aggregate supply which can enhance future production capacities of the domestic economy. Since the 1997 Asian financial crisis, some SEACEN countries have been unable to achieve pre- crisis levels of investments, despite the return of interest rates to normal levels, and the general stability of macroeconomic conditions, including more prudent fiscal and monetary policies, more flexible exchange rates, substantial foreign exchange reserves and lower foreign debt. Other SEACEN countries, however, have witnessed strong growth in investment. Standard textbook arguments imply that the decisions to invest depend firstly, on the availability of finance through financial institutions and secondly, on domestic political stability, the degree of liberalisation of the external sector and the extent of development of domestic infrastructure. Investment is also said to be heavily determined by other macroeconomic policies as well as various investment regulations and practices.

Investment is important for at least three reasons (Chirinko 1993 & Brendt 1991) cited in Bisat and et.al 1996). Firstly, as investment is the engine of economic growth, physical and human capital are critical inputs in the production

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1. A large part of this paper is based on the country chapters. The authors would like to acknowledge all country researchers for their valuable contribution to this research project. They would also like to thank Dr. Junggun Oh, Director of Research, The SEACEN Centre and Dr. Kwek Kian Teng, Professor of Economics, Universiti Malaya for contributing valuable comments during the second workshop. The paper also benefitted from comments from Dr. Charles Harvie, Associate Professor, Director of Research and Director, Centre for Small Business and Regional Research, School of Economics, Faculty of Commerce, University of Wollongong, Australia.

2. Project Leaders and concurrently Senior Research Economists at The SEACEN Centre.

processes. Secondly, investment spending is highly correlated to technological advancement, innovation and R&D which are critical factor for spurring development. Thirdly, investment is often the most volatile component of the demand functions and an understanding of its behaviour could provide a basis for understanding business cycles. Furthermore, slower investment growth, which could be due to inefficient resource allocation may send negative perceptions about the state of the economy to foreign investors (Chhibber, Dailami, & Shafik, 1992 cited in Jongwanich & Kohpaiboon 2008).

Thus, in providing cross-country experiences, the complexity and divergent investment practices and policies in the SEACEN countries make this research a useful and practical guide to strategise how to promote investment in the SEACEN region. The objectives of this project is to investigate the major determinants of private investment and to investigate why post-crisis, some SEACEN countries are unable to achieve a higher level of investment. The issues to be covered include recent trends in domestic investment in the SEACEN countries; issues and challenges facing the SEACEN countries with respect to investment policies and the challenges in implementing an appropriate framework to encourage investment.

2. Salient Features of Post-crisis Investment in the SEACEN Countries

2.1 Investment Trends

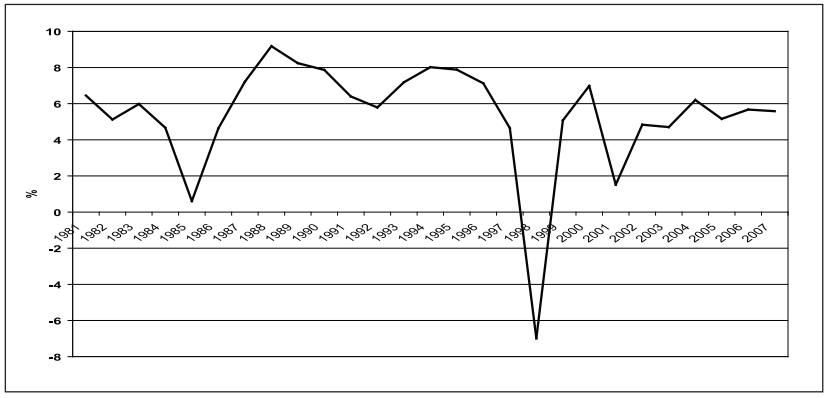
After a steep decline in economic growth following the 1997 Asian financial crisis, crisis-afflicted SEACEN countries experienced a remarkable V-shaped recovery (Chart 1). However, the subsequent average post-crisis economic growth rate has been much lower than the pre-crisis level, in particular that from the 1990s onwards. This, according to Muchhala (2007), was partly due to the significantly lower investment rates (see Chart 2). From the mid 1980s until just before the financial crisis investment was relatively high. For instance, the investment ratio was well over 30% for Indonesia, Malaysia Korea, Singapore and Thailand. However, immediately prior to the crisis, the same ratio went down to between 20-25% of GDP. For the same group of countries the average private investment to GDP ratio declined from 27.5% (1990-1997) to around 17.8% (2000-2006). [3] Even after ten years since the crisis, total investment, in particular private investment has never recovered to the pre-crisis level in the crisis-inflicted countries of Indonesia, Korea, Malaysia, the Philippines and

3. Some SEACEN countries are less affected. For instance, Taiwan's investment ratio did not significantly decline immediately post-crisis.

Thailand (Chart 3).[4] This suggests the crisis may have resulted in a long-term adverse effect (Lee & McKibbin 2006).

The slowdown in investment growth, however, is not a result of deficiency of savings. On the contrary, in general, savings in most SEACEN countries has only declined slightly, leading to a large excessive swing in the current account balances in the post-crisis era. With investment at a lower level, post-crisis, the region runs successive current account surpluses. This, in turn, enables countries in the region to become capital exporters (Coulibaly & Millar 2008), suggesting that Asia's excessive saving glut may be partly responsible for the current global current account imbalances (Bernanke 2005; de Rato 2006 and Coulibaly & Millar 2008). In general, as mentioned earlier, the decline in investment was precipitated mostly by a reduction in private investment, and was not caused by a slowdown in FDI inflows. This is because FDI flows, in general, have been relatively stable in the region (Chart 4).[5] Furthermore, for most emerging

Chart 1:Annual Percentage Change of Real GDP (Average)



Indonesia, Korea, Malaysia, the Philippines and Thailand

4. As early as 1936, Keynes (1936 cited Serven & Solimano 1989) has noted that private investment is intrinsically volatile as there is much uncertainty in investment returns.

5. With the exception of a few countries such as the Philippines, which saw increased volatility in FDI flows, FDI inflows have remained strong in the region due to the devaluation of the currency and domestic asset values, liberalisation to promote FDI in specific sectors and corporate restructuring process, the lifting of foreign ownership restrictions, particularly the banking sector.

countries, FDI forms only a small part of total investment (Guimaraes & Unteroberdoerster 2006).[6]

Chart2: Gross Capital Formation (% of GDP)

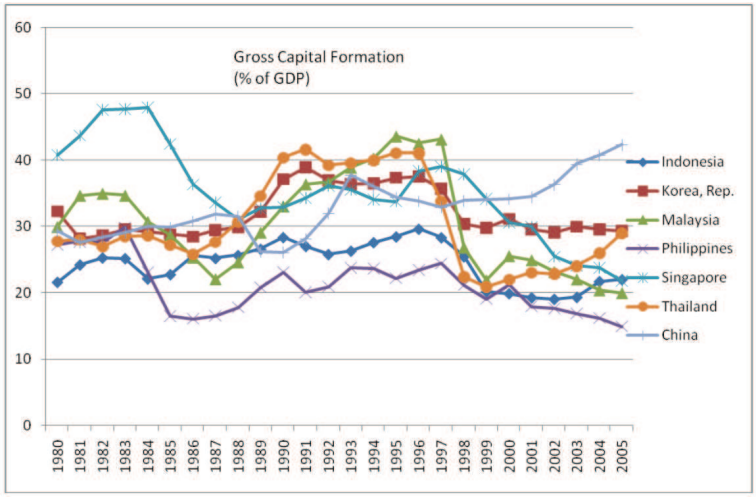
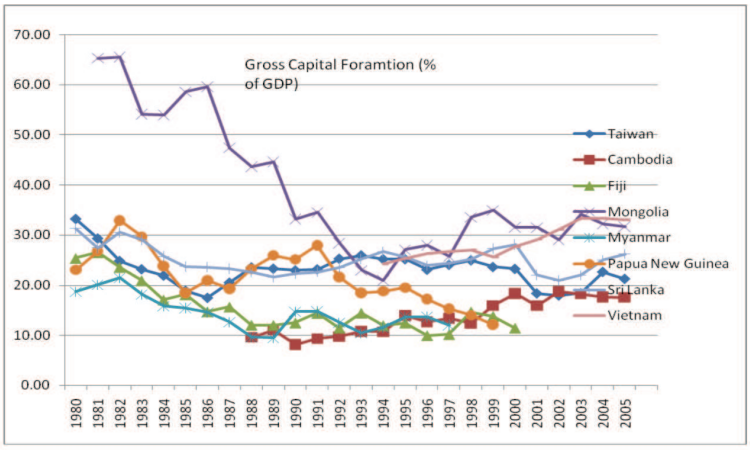


Chart 2 (con't)
Gross Capital Formation (% of GDP)



6. Kim and Seo (2003) find for the case of Korea, FDI, in fact, has helped to sustain domestic investment rather than crowd out domestic investment in the post-crisis era. This is supported by Desai, Foley, and Hines, Jr. (2005) where an analysis of American multinationals suggests that foreign investment exerts a positive effect on domestic investment. In a recent paper by Ndikumana and Verick (2008), they find that the FDI "crowded in" investment.

Chart 3: Private Investment (% of GDP): Average

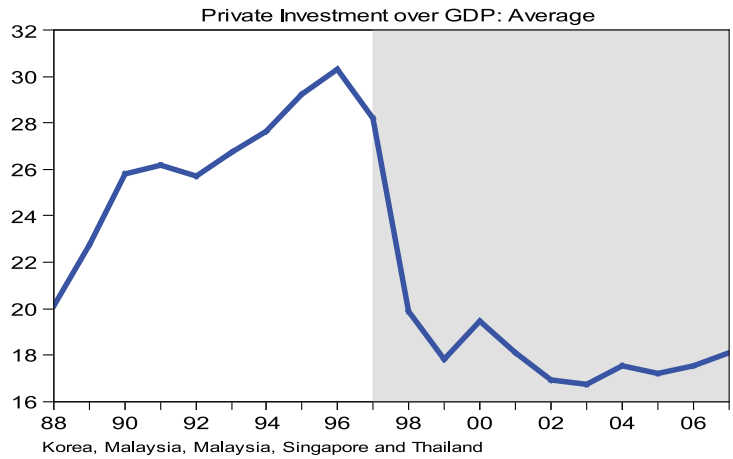
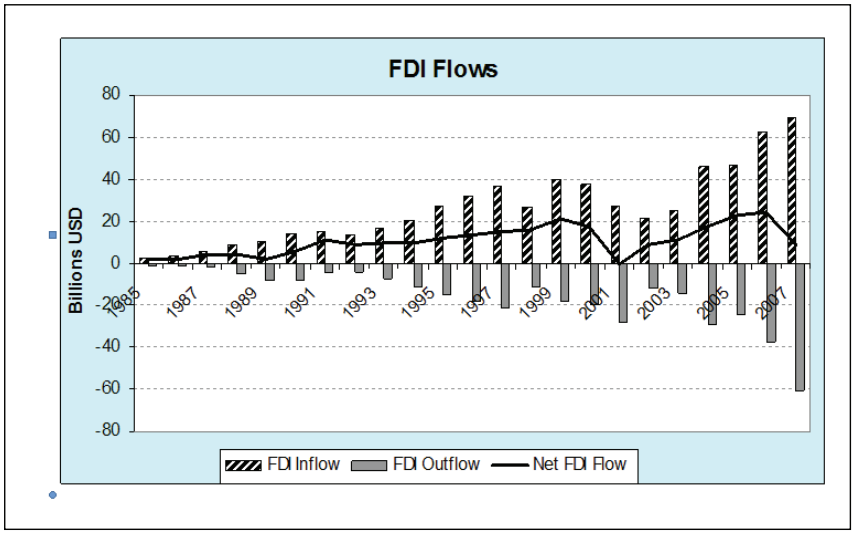


Chart 4: FDI Flows (% of GDP): Average



Cambodia, Indonesia, Malaysia, Nepal, Philippines, Singapore, Sri Lanka, Taiwan, Thailand and Vietnam Sources for Chart 1-3: IMF, IFS
Chart 4 : The SEACEN Centre

2.2 Possible Reasons for the Decline in Private investment Post-Crisis

A look at the literature suggests a few plausible reasons for the decline in investment post- crisis in some Asian countries. These include a shift in investors' perceptions,[7] weaker exchange rates which make prices of imported investment goods more expensive,[8]over-investment in the housing sector, low profitability and financial constraints affecting smaller firms (Guimaraes & Unteroberdoerster 2006, for Malaysia), unsettled political and security conditions, weak financial systems and governance systems (Green 2004, for Indonesia), cyclical decline in private consumption in 2003 and 2004, leading to lower investment in the automobile industry, abnormally high pre-crisis investment by the *Chebol* because of implicit state guarantees and the 'hollowing out' effect where excessive outward foreign investment has reduced domestic investment (Lim & Lim 2006, for Korea).

In one recent study on the possibility of a weaker financial system and devaluation of the exchange rate affecting investment post-crisis, Blalock, Bertler and Levine (2008) using Indonesian data for the pre-and post-crisis years, note that during the Asian financial crisis of 1997, Indonesia simultaneously faced both large currency devaluations and banking sector failures. They argue that the devaluation of the Indonesia rupiah resulted in an opposite effect on new investment. On the one hand, devaluation increased the price of imported investment goods but on the other, with devaluation, net exporting domestic firms benefitted from currency evaluation which enabled them to export.[9] However, they argue that the effect of the weaker Indonesian financial system on investment is much clearer. They note that during a financial crisis, banks' lending risk is

---

7. For instance, ADB (2007) argues private sector investors having experiences with heavy losses during the financial crisis, may be more concerned about risks and that they may have scaled back on what once would have been considered viable projects.

8. Others argue that policy-induced exchange rate depreciation is responsible for the low investment rate. For instance, the exchange rate is maintained at such a level (undervalued) to promote export-led growth and the accumulation of foreign reserves at the expense of depressing the domestic demand (Kinkyo 2007). Therefore, many studies have called for multilateral exchange realignments to achieve an orderly unwind of the global imbalances after the crisis (Eichengreen, 2005).

9. Prasetyantoko (2006) argues that a lower exchange rate worsened the balance sheet of firms that were indebted in short-term foreign liabilities nominated in foreign currency, and this in turn has discouraged these firms from investing For instance, Hong, Lee and Lee (2006, cited in Lee & McKibbin 2006) note that highly leveraged Chaebol in Korea have reduced their investments substantially after the financial crisis. Other reasons include bank restructuring and consequential limited access to credit, inability to raise funds through the issuing of shares in depressed domestic market, limited access to overseas borrowing through poor credit rating and existence of excess capacity (Harvie 2009)

likely to increase due to increased probability of borrowers becoming bankrupt as a result of the adverse economic conditions.

Capital investment would typically require obtaining credit from a struggling financial sector. Thus, private investment is likely to be affected during and after the occurrence of a financial crisis as the banking sector is likely to limit accessibility to credit to domestic firms.[10] Thus, deficiencies in the banking and financial system is one of the reasons for the decline in investment after the financial crisis (Green 2004). In this respect, Blalock, Gertler and Levine (2008) also argue that for the case of Indonesia, lenders were not able to clearly distinguish between insolvent borrowers (whose loans would go towards repayment) and those firms that legitimately needed funds for new investments. On the contrary, they note that domestic firms with a high percentage of foreign ownership can overcome the liquidity constraint by having access to overseas credit. Similarly, Yong (2006) also argues that post-crisis, non-tradable goods producers were unable to obtain financing both locally and abroad (they are usually small and medium firms which are slow in adapting to changes and restructuring compared to their larger export-oriented counterpart.)[11] Yong (2006) also notes that since the financial crisis, banks in the crisis-inflicted countries have generally, become more cautious in their lending activities because of stricter prudential regulation and supervision.[12] Lee and McKibbin (2006) also note post-crisis, there was a shift in perception which made banks more risk adverse after the financial crisis, resulting in them becoming reluctant to lend for investment purposes, especially to highly-leveraged corporate firms. In other words, the argument is that domestic financing opportunities are important determinants of private investment, post-crisis.

Another reason for the possible decline of investment post-crisis is over-investment prior to the crisis (Devakula 2003; Guimaraes & Unteroberdoerster 2006).[13] Devakula (2003) notes that " [w]ith about half of industrial capacity

10. In the case of Thailand, Jongwanich and Kohpaiboon (2008) note that restructuring of financial institutions was slow, resulting in a slowdown of bank credit.

11. Thus, the economic recovery was mostly driven by the growth of the tradable sector which was less constrained by the credit shortfall.

12. Guimaraes and Unteroberdoerster (2006) also argue that in Malaysia, financing constraints also affected smaller firms and those in the services sector. Additionally, Yong (2006) argues that in four countries, namely Indonesia, Korea, Malaysia and Thailand, post-crisis saw a decline in international bank flows, which was largely channeled to the local economy through domestic banks. This has reduced availability of bank funds.

13. For instance, in Thailand, Jongwanich and Kohpaiboon (2008) find that over 60% of new investment undertaken post-crisis is for replacement purposes instead of for expanding production capacity.

lying idle at the trough of the situation as a result of prior over-investment and demand contraction, there was very little incentive for firms to spend further on capital accumulation." For Malaysia, Guimaraes and Unteroberdoerster (2006) find that over-investment in the property sector appears to be responsible for the the marked boom and bust cycle of private investment of the last decade. Many research also consider Korea's pre-crisis investment levels excessive (Kinkyo 2007).[14] In particular, as reported by ADB (2000), there was a rapid expansion of private investment in public infrastructure projects due to the availability of new financial instruments and the globalisation of investment funds, especially in the last ten-years until 1996. Also, during the first half of the 1990s, there was a sense of urgency to invest in massive infrastructure projects as it was perceived that development was hindered by bottlenecks in power (e.g., the Philippines), transport (e.g., Thailand), water (most of Asia) and telecommunications (ADB 2000). That is, the decrease in the investment rate post-crisis in some SEACEN countries is a direct result of the need for a correction of the domestic-demand-driven growth prior to the crisis (Felipe, Kintanar & Lim 2006).

The World Bank (2007) note that one of the most important factors influencing private investment growth post-crisis is uncertainty. Post-crisis uncertainty in the form of higher volatility of export earnings has increased due to two reasons. Firstly, uncertainty has increased due to exports being highly dependent on cyclical electronics and high tech exports. Secondly, changes in comparative advantages due to increased competition from China. This can be explained by the fact that there is a window period of structural changes whereby firms seek to abandon markets which were no longer competitive to seek new markets shaped by investment opportunities created by China. In the short-run, such uncertainly makes firms less likely to invest as investment is often seen as "irrevisible". That is, once an investment is made, it is often seen as not easily reversible.[15] Related to IT exports, Lee and McKibbin (2006) argue one plausible reason for the decline of investment post-crisis is technological development. As a result of innovations and structural changes in the region there is a shift towards IT products and services, both of which are skill and knowledge based. This has somewhat reduced the demand for capital intensive investment and a lower investment rate is therefore justified. [16]

14. Among the reasons for the overinvestment is the dismantling of industrial policy in the early 1990s in Korea resulting in a lack of effective investment coordination (Chang (1998) cited in Kinkyo (2007)).

15. However, it is envisaged that in the long run, investment will see stronger growth.

16. However, the effect of technical progress on the investment ratio can be ambiguous. For instance, high technological goods tend to have a higher depreciation ratio and therefore a higher real investment ratio is warranted (IMF 2006).

Post-crisis saw an increase in outward foreign direct investment in several SEACEN countries, such as Korea, Malaysia, Singapore and Taiwan. There is, thus, a debate of whether outward foreign direct investment by residents reduces domestic investment as firms shift parts of their production abroad. In November 2002, Singaporean Deputy Prime Minister Lee Hsien Loong (who has since become the Prime Minister of Singapore) commented that "Southeast Asian countries are under intense competitive pressure, as their former activities, especially labour-intensive manufacturing, migrate to PRC (cited in Chantasasawat & et.al, 2004). The so called "Hollowing Out Effect" is expected to reduce domestic investment, especially because local labour intensive sectors cannot compete in terms of price competitiveness when compared to countries like China (Lim & Lim 2006).

There are also several other reasons cited in the literature for the possible decline in investment. Using convergence theory as a basis, Lee and McKibbin (2006) also argue that as the economy continues to grow, the level of capital stock would eventually reach its steady state, resulting in diminishing returns to new investment. Another related argument is that it is possible that the restructuring process that took place post-crisis has resulted in a more efficient allocation of resources, thus generating a greater rate of return for a given investment rate.[17] Thus the optimal investment rate post-crisis has gone down (ADB 2007) and there is, therefore, no need for a faster investment growth. The decline in total productivity is also cited as one possible reason. Total productivity estimation by the Asian Productivity Organization did indicate that productivity dipped a year after the 1997 financial crisis. Others (Guimaraes & Unteroberdoerster 2006) have argued that the weak investment post-crisis was broad-based due in part, to weaker firm-level fundamentals (valuation, profitability etc).[18]

There are, however, also counter arguments against the plausible reasons given above. For instance, as time passes, cyclical explanations become less likely (World Bank 2007). For instance, Lee and McKibbin (2006) note that over-investment could not be the root cause of the current low investment growth rate as given sufficient time after the financial crisis, adjustment would have occurred to bring investment into equilibrium (Table 1).

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17. Although it is indeed difficult to determine what is the "optimal" level of investment, the current level suggested that it is below what is deemed "appropriate" (Burton 2007).

18. Using firm-level data for Malaysia, this is also the findings of Guimaraes and Unteroberdoerster (2006). Herzer and Schrooten (2008) note that for the US, outward investment has in fact increased domestic investment. They argue that outward foreign direct investment and domestic investment is complementary as multinational firms are able to combine domestic and foreign production to reduce cost and thus increase the return to domestic investment, resulting in stimulating domestic investment.

Table 1
Likelihood of Selected Factors That May Cause the Decline in Private Investment Post-Crisis[19]

Factors	Probability
Over-investment pre-Crisis	Unlikely as time passes
Weaker Credit Growth post-crisis	Possibly
Ballooning Corporate Debts	Unlikely as time passes
Excess Capacity	Possibly
Exchange Rate Devaluation	Possibly
Shift in investors' perception	Likely
The China Factor	Possibly
Political & Economic Uncertainty	Likely

Utilisation capacity rate has since more or less returned to "normal" levels since the 1997 financial crisis and therefore is unlikely to provide the reason for the lower growth in investment (ADB 2007; World Bank 2007). The uncertainty created by the restructuring exercises of firms during the post-crisis period leads these firms to cut their investment also does not offer a convincing reason as the restructuring exercises complete their course. Corporate indebtedness has since also fallen significantly and banks in crisis-affected countries have also seen profitability increase and have achieved substantial improvements in capital adequacy and asset quality (World Bank 2007). In one panel study which includes eight SEACEN countries, Chantasasawat and et.al (2004) also note that outward foreign investment to China has "*investment-creating*" effects rather than "*investment-diverting*" effects on foreign direct investment to Asian economies. They argue, consistent with their observations, that there exists a growing production network where local companies are setting up production in China and other parts of the world and viewed as part of their integrated sophiscated global supply chain. In other words, China is viewed as complementary rather than an alternative site for business networks.

19. Other factors that could be included in the table are "changed government investment incentives", "changed institutional environment", "legal environment", "protection of intellectual property rights", etc. (Harvie 2009).

2.3. Major Policies Related to Investment [20]

2.3.1 Liberalisation and Investment Policies

Prior to the financial crisis, many SEACEN countries had liberalised their economies in order to promote FDI and domestic investment. As far back as the 1980s, SEACEN countries had liberalised their current and capital accounts as well as their financial sectors. The liberalisation of the current and capital accounts served two purposes. Firstly, to enhance competitiveness and, secondly, to attract foreign investors to invest in the domestic economies. The liberalisation of the financial sector included deregulation of the banking sector such as interest rate liberalisation and abolishment of credit ceilings. This was followed by the deregulation of the capital market and foreign exchange transactions as well as foreign direct investment. Liberalisation of these sectors resulted in freer capital flows and thus widened the doors for foreign capital inflows. Subsequently, complementary investment policies were introduced to promote FDI.[21] Another important area of development in the financial sector had been the development of specialised banks to provide liquidity to promote domestic private investment. These included the setting up of various types of financial institutions such as agricultural banks to provide credit to agriculture and small firms, industrial development banks for the industrial sector and development finance institutions which helped to expand financial markets (World Bank 1993). During the post-financial crisis era, there were further efforts to liberalise the financial sector, especially with regard to investment and capital flows. For instance, in Indonesia, Korea and Thailand, immediately post-crisis, their financial sectors were liberalised under the IMF-lead reform programme.[22] Korea, for instance had a fast-track liberalisation of trade and service policy after the financial crisis. This included reforms aimed at restructuring the financial sector, opening of the domestic markets, improving the standard of banking supervision, instilling greater transparency and liberalisation of capital flows.

Another important development following the liberalisation was the relaxation of FDI rules which allowed investment in sectors such as manufacturing, health and technology. Restrictions were clearly defined and implemented efficiently by a "Negative List". With some exceptions and with further liberalisation of the foreign exchange, restrictions were lifted on foreign ownership - in many

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20. Based on Country papers, unless otherwise stated.

21. In the same vein, domestic firms are also encouraged to migrate their labour-intensive manufacturing to reduce labour costs so as to enhance competitiveness, albeit with some restrictions in SEACEN countries such as Korea, Malaysia, the Philippines, Taiwan and Thailand.

22. This led to mergers and acquisition of domestic banks by foreign investors.

cases, up to 100%. For example, in Korea, a year after the crisis, the *Foreign Investment Promotion Act 1998*, permitted all types of FDI including the establishment of new businesses, mergers and acquisitions, the acquisition of newly offered and previously issued shares, and long-term loan investment. In Malaysia, revisions to the Industrial Coordinations Act (ICA) 1995 allow foreign investors to own up to 100% equity ownership depending on their export intensity. This was further liberalised in traditionally protected sectors such as telecommunication and financial services industries. In Thailand, the *Foreign Business Act 1999* (FBA) granted foreign investors the most favoured nation (MFN) treatment which allowed full ownership in most businesses. In Nepal, the *Foreign Investment and Technology Transfer Act 1992* amended in 1996 allowed for 100% foreign equity participation in all industrial enterprises with some exceptions and it provided priority access to infrastructural facilities when setting up industries. There are also explicit guarantees against nationalisation. For instance, in Myanmar, there are explicit legal guarantees against nationalisation provided by the *Foreign Investment Law*.

Post-crisis, in many instances, reforms were implemented with regard to ownership, mergers and acquisition, taxation and incentives. For example, foreign firms are often given national treatment with incentives such as tax holidays, concessionary corporate income tax, income tax waiver, duty exemptions for imported capital goods for a number of years. Realising that retained earnings are used for investment, incentives are given for retention and reinvestment of corporate earnings. Another "sensitive" area is the liberalisation of land acquisition by foreign investors. For instance, in Taiwan, under the *006688 Program*, various incentives were given such as land rent-free for first two years and subsequently with discount in rent up to the sixth year. Taiwan also approved the revisions to *the Statute of Industrial Upgrading*, offering tax incentives for the startup or expansion of a wider range of industries. In Indonesia, the government also streamlined regulations with regard to bank credit in land procurement and processing, and in Myanmar, land is available for leases up to 30 years, free of charge, provided the land is to be developed for agricultural production.

2.3.2 Promotion of Competitive Sector

Post-crisis, the SEACEN countries have implicit policies for promoting value-added industries consistent with economic growth. In Malaysia and Thailand, the focus is on the manufacturing sector while in Indonesia, the emphasis is on the manufacturing, wholesale and retail trading companies, (ASEAN 2003). In the case of Taiwan, investors are given investment tax credits and five-year tax holidays in the area of automation equipment and technology, resource recycling

and the pollution control equipment. Science-based industries, subjected to approval can also be exempted from import duties and value-added tax. For foreign firms setting up logistics centres for goods distributions, they are exempted from business income tax. In Malaysia, the further revisions to the PIA 1986 granting full tax exemptions were given to contract research and development (R&D) companies as well as MSC-status companies. Technology parks were established to encourage involvement in high technology, high value-added activities. Tax exemptions were given to attract investment into the selected services sub-sectors such as outsourcing and operational headquarters. In Singapore, the focus is to develop Singapore into a hub for research in biomedical sciences (including pharmaceutical manufacturing) and incentives given include provisions for investments and grants. In Korea, the government has provided cash grants for foreign investors to finance the construction of facilities or the purchase of equipment related to investment in selected sectors. In Myanmar, local private banks are encouraged to provide loans to selected agricultural projects on a preferential basis and it also established 18 industrial zones to promote manufacturing and processing sectors.

2.3.3 Simplification of Investment Procedures

In the SEACEN region, post-crisis, to promote FDI, the authorities have taken simple but yet effective steps to increase transparency and to cut down on bureaucratic procedures. The aims are to (1) reduce processing time; (2) simplify procedures for approval; (3) streamline documentation requirements; and, (4) reduce cost for investors. For instance, in Nepal, a seven-member Fast Track Committee (FTC) was set up to reduce red tape by allowing direct submissions of proposals by foreign investors to the Committee, which will then make a decision within two weeks from the date of submission. Before the setting up of the Committee, it took a long time for a proposal to be approved. In Korea, a "one-stop" service centre was set up for foreign investors and the Office of Investment Ombudsman was formed to resolve any conflicts or problems related to foreign investment activities. In Indonesia, much needed coordination and harmonisation on investment issues were enhanced between the central government and regional authorities on investment. In Malaysia, the Malaysian Industrial Development Authority (MIDA) was set up as the main one-stop agency and its functions include strategizing new industrialization development and the evaluation of applications for manufacturing licenses, tax incentives and duty exemptions. In Sri Lanka, the Board of Investment (BOI) (which was set up to replace the Greater Colombo Economic Commission), an autonomous statutory body, provides most of the required services for foreign

investors under one roof and which is also vested with a wide range of powers of tax relief and administrative discretion for larger or priority investors.

2.3.4 Concerted Efforts in Promoting Domestic Investment

There are also some concerted efforts among the SEACEN countries to promote domestic investment post-crisis. SEACEN countries which are part of ASEAN saw the setting up of the ASEAN Investment Area in 1998 which is to be fully implemented by 2010. The purpose of the ASEAN Investment Area is to (1) provide transparency in investment policies, rules, procedures and administrative processes; (2) provide a more streamlined and simplified investment process; and, (3) eliminate investment barriers and liberalising investment rules and policies in the sectors covered by the Agreement (ASEAN 2003). Post-crisis, there have been increased incidents of the signing of various bilateral and multilateral agreements among the SEACEN countries and with other countries to liberalise trade and investment. For instance, Myanmar signed various agreements with Philippines on 17 February 1998, Vietnam on 15 February 2000, China on 12 December 2001 and Lao PDR on 13 May 2003 respectively. As of September 2008, Singapore has signed or completed negotiations on 15 bilateral or plurilateral free trade agreements (FTAs).

2.3.5 Promoting Privatisation

Privatisation of major projects was further instituted during the post-crisis era. In particular, the private sector was given incentives to participate in major infrastructure projects. Privatisation also attracts foreign investors. For instance, in Korea, after the financial crisis, the *Private Participation in Infrastructure Act* (PPI) encourages and removes major impediments for the private sector to invest in the infrastructure sector such as transport, water, electricity and telecommunications (Noumba & Dinghem 2005). In Taiwan, various incentives are also given to firms participating in major infrastructural projects. These include tax-holidays, investment credit, import duty credits on construction machinery and equipments.

2.3.6 Direct Government Involvement

The government is also directly involved in the promotion of domestic investment in various bareas. For instance, in Korea in 2006, the Ministry of Finance and Economy implemented the *"Comprehensive Measures to Improve the Business Environment"* aimed at improving regulations and policies spanning the entire range of businesses from entry to exit. In Taiwan, various loan

programmes and credit guarantees were implemented in 2000 to encourage domestic investment. For instance, the National Development Fund of the Executive Yuan in accordance with the *Statute for Encouragement of Investment* is being used to provide equity or loan financing for certain sectors of the economy. The central bank has also participated with other agencies in schemes such as *Preferential Mortgage Loan Program*, and *Preferential Loans and Credit Guarantees for Traditional Industries Program*. In 2005, the Indonesian government released four policy packets in energy, monetary, fiscal, and investment aimed at promoting investment while in Myanmar, the government provides direct technical assistance in developing certain agricultural projects.

2.3.7 Promoting Small- and Medium Scale Enterprises

There are several reasons why post-crisis, the focus of investment promotion is on industries of small- and medium scale enterprises (SMEs). Firstly, they form the backbone of the economy for many SEACEN countries. Secondly, small and medium scale industries can normally adjust their strategies more easily, giving them flexibility in responding to shocks. However, given a higher degree of informational opacity, they are likely to experience a disproportionate share of loss of funding (Berger & Udell 1998). Thirdly, smaller firms have fewer close substitutes for bank loans (Hancock & Wilcox 1998) and monetary policy shocks associated with financial crisis affect the growth and investment of smaller firms more than larger ones (Gertler & Gilchrist 1992).[23] Fourthly, due to the credit crunch, many exporters miss the opportunity to earn larger profits following currency depreciation. Therefore post-crisis, to support the SMEs, major economic stimulus packages were introduced in many SEACEN countries. For instance, in Indonesia, the *Presidential Decree No.3, 2006* specifically mentioned support for small-medium businesses. In Korea, in 2004, a major stimulus package was introduced to enhance the competitiveness of the small-and medium-sized enterprises. In Malaysia, as far back as 1986, selected priority areas in the manufacturing sector were identified, including heavy and capital-intensive industries, reaource-based manufacturing industries, as well as small and medium industries (SMIs) deemed essential to develop inter-industry linkages. Taiwan also continues to implement the "Small- and Medium-Sized Enterprise Credit Guarantee Fund of Taiwan (Taiwan SMEG)" to provide credit guarantees for SMEs.

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23. However, the evidence for this is variable and ambiguous, being dependent upon country, sector and other circumstances (For example, SMEs in Taiwan faired relatively well whilst those in Korea faired badly, as indeed did large enterprises in Korea) (Harvie 2009).

3. Empirical Studies

3.1 Theoretical Investment Models

Keynes (1936, cited Serven & Solimano 1989) was perhaps the first economist to bring to attention the need of an independent investment function which relate investment to the prospective marginal efficiency of capital relative to opportunity cost of the invested funds. After Keynes, investment theory was linked to simple growth models such as the accelerator model, developed in the fifties and early sixties (Serven & Solimano 1989).

The **Accelerator Model**,[24] based on stable optimal capital-output ratio implies that as output increases, firms will raise their investment to maintain the capital-output ratio (ICOR). This necessarily implies a relationship between investment and changes in output. The main weakness of the model is that other important factors such as taxes and interest rate, that can significantly affect investment, are not explicitly included. The accelerator model also does not take into account profitability, expectations and cost of capital (Serven & Solimano 1989). The other weakness is that the model assumes firms will adjust to achieve its "optimal" investment without any lags. This is a highly unrealistic assumption as in the real world, there are adjustment costs and lags to acquiring investment goods. In addition, the model does not allow embodied and disembodied technology in the investment or capital stock. The **Flexible Accelerator Model** addresses some of the weakness of its predecessor by postulating that firms do take time to adjust their current capital stock. Therefore, according to the flexible accelerator model, it may take some time for a change in output to affect investment.

Jorgenson (1993) developed the **Neoclassical Model** based on the optimising behaviour of firms. It's main thesis is that firms will invest until its marginal product of capital is equal to its real user cost. The neoclassical model, by virtual of its association with explicit production function associates the desired capital stock of capital to variables such as the interest rate, the level of output, the price of capital goods and taxation policies. Hence, according to the neoclassical model, a gap can be created between the current and desired capital stocks as a result of decision and delivery lags (or implicitly adjustment costs), giving rise to the investment equation (Serven & Solimano 1989). The weaknesses of the neoclasical model are that it hinges on the unrealistic assumption of perfect capital markets and the model itself does not identify the optimal level of

24. Based on Brendt (1991 cited in Bisat and et.al 1996), unless otherwise stated. Brendt presents six models of investment.

investment. Additional weaknesses include the assumption of static expectations instead of rational expectations and that the delivery lags are introduced in an ad-hoc manner (Serven & Solimano 1989). Empirically, it may be difficult to test as it is hard to find a reasonable good proxy for the user cost of capital.

Tobin Q, another investment model introduced by Tobin (1969) is measured by the ratio of the firm's market value (as measured by the market value of its outstanding stock and debt) to the replacement cost of its physical assets. In this model, firms will continue to invest until the cost of investment is equal to the cost of a firm's plant and equipment. Indirectly, stock price can be a proxy for capital productivity and future profitability. In the Tobin Q model, the deciding factor for investment is the marginal Q (Serven & Solimano 1989). The main problem of the Tobin Q model is that both the market value and replacement cost of a firm's assets need to be accurately measured. The replacement cost of assets and the value of firms can be complicated by intangible assets such as brand reputation and untraded liabilities respectively. Another model, the **Time Series Approach** estimates investment by just using its past values, for instance, using an autoregressive model to estimate investment. The obvious disadvantage of this methodology lies in the limitation of the model itself as it lacks theoretical foundations. Meanwhile the **Cash Flow Approach** argues that investment is a function of the availability of the firm's internal funds which in turn depends on profits. The cash flow approach implies that the decision to invest depends on the firm's external values.

3.2 The Empirical Determinant of Private Investment

For empirical estimation of investment, in most developing countries, data such as Tobin Q and capital stock are not available (Ghura & Goodwin 2000). Therefore in practice, the neoclassical flexible accelerator model has been one of the most popular models of investment behaviour (Greene & Villaneuva 1991; Nabli 2007). According to Ghura and Godwin (2000), most empirical studies use a variant of neoclassical flexible accelerator model where the adjustment speed is influenced by a number of observable variables (Table 2). These variables include government investment, government investment, domestic credit, inflation, the real exchange rate, financial deepening indicators, external debt, the terms of trade and interest rates (Ghura & Godwin 2000).

The effect of **real economic growth** on private investment is straightforward.[25] Higher real economic growth indicates greater demand for

25. Some of the determinants mentioned below such as real economic growth may be endogenously determined by investment.

capital investment and more savings to finance investment (Greens & Villanueva 2001). In empirical work, a reasonable proxy for aggregate demand is GDP. **Domestic credit to private sector** is also expected to be positively related to investment as it reflects the importance of the availability of credit to finance investment. This is particularly relevant for developing countries where normally small and medium enterprises (SMEs) are only able to get financing directly through the banking system and not through open market debt (Acosta & Loza 2005). In connection to credit facility, greater financial deepening (ratio of board money to GDP) can contribute to lower cost of borrowing, as it signifies efficient intermediation of funds. Furthermore, the level of financial development has an accelerator-enhancing effect as it makes domestic investment more responsive to output (King & Levine 1993).[26] This is obvious as the financial system becomes more sophiscated, more loanable funds are likely to be easily available and cheaper as these funds are likely to be more efficiently allocated to meet demand (Ndikumana 2005).

Table 2
Selected Factors in Determining Private Investment[27]

Factors	Comments
Real GDP growth (+)	Positively related as higher real economic growth indicates greater demand for capital investment and more savings to finance investment. The nature of this relationship may be asymmetric, depending upon the size of economic growth (Harvie 2009)
Domestic Credit to private sector (+)	Positively related as it signifies the importance of credit facilities to promote private investment.
Availability of credit Financial deepening (+))	Positive relationship as it signifies efficient intermediation of funds.
Public investment (more likely +)	May be ambiguous. Public investment can either encourage or displace private investment. i.e., "crowding in" or "crowding out" effect.

26. Using a panel study, Ndikumana (2003) also note that domestic investment depends on the financial structure (whether it is bank based or stock-based).

27. Other factors include share prices (ability to raise price), extent of intellectual property rights, extent of market competition, etc (Harvie 2009)

Real interest rate (?)	May be ambiguous. Conventional wisedom notes that the relationship is negatively related but McKinnon-Shaw hypothesis implies this can be positive when interest rate is below market –clearing.
Inflation (?)	May be ambiguous. Positive relationship as a higher rate of inflation will lower the expected real interest rate thereby causing portfolio adjustment from real money balances to real capital, resulting in higher real investment (Ghura & Goodwin 2000). But higher inflation may signal greater uncertainty in the economy, depressing investment
Real exchange rate (?)	Ambiguous effect on the supply side. A real depreciation causes price of imported investment goods to rise but at the same time, it also increases profitability for the tradable sector. On the demand side, a real depreciation induces a reduction in the real wealth of private sector through price increases and hence a decline in spending.
Trade flows (+)	Likely to be positive as a larger trade flows indicates greater productivity and hence faster economic growth.
FDI Inflows (?)	Likely to be positive as FDI normally bring in new capital stock. However, the technology embodied in FDI may lead to technological obsolescence of traditional technologies used in developing countries.
FDI outflows China factor (?)	Ambiguous, depends on whether production is interconnected in global production networks or that the outflows completely displace private investment by residents.
Public External Debts/ Debt Service Ratio (-)	Likely to be negative due to crowding out effect and negative perception about the economy.
Human capital development (+)	Positive as human capital is an important input to productions
Uncertainty (-)	Political uncertainty and macro-financial variables uncertainty are likely to be negatively related to investment

The effect of the **exchange rate** depends on whether one considers the impact from the point of the demand or supply side (Serven 1989). On the supply side, imported capital goods would cost more when a real depreciation occurs but a real depreciation also raises profitability in the tradable sector, resulting in more domestic investment by the tradable sector. In other words, the "competitiveness effect" is enhanced though a depreciation of the exchange rate.[28] These two effects are particularly significant for open economies like SEACEN where (1) a large component of investment goods is imported (Ghura & Godwin 2000); and, (2) the effect on the tradable sector is likely to be significant for export-oriented economies. However, on the demand side, there is no ambiguity. Following a real depreciation, *ceteris paribus*, domestic demand is reduced following a decline in real wealth of the private sector due to the increase in the overall price level (Ghura & Godwin 2000). The reduction in demand leads to a slowdown of economic activities which affects investment spending (Froot & Stein 1991). Hence, the overall effect of exchange rate on investment is, therefore, ambiguous.

The effect of **public investment** on private investment is also ambiguous. The "'crowding out" effect can occur when domestic interest rate is raised and future tax burden increased if the government borrows to invest. That is, the public sector directly competes with the private sector for resources.[29] On the other hand, 'crowding in" can occur, especially when the government invests in infrastructural projects (Oshikoya 1994), which complement private investment. **Real interest rate**, by conventional wisdom is negatively related to investment as interest rate is a measurement of user cost of capital. However, the McKinnon-Shaw hypothesis implies that this relationship can be positive when the increased rate is below market –clearing (McKinnon (973) and Shaw 1973). According to them, raising interest rates when the interest rate is below the market-clearing level (to market-clearing level) increases the amount people are willing to hold as financial assets by decreasing the holdings of foreign assets and non-financial

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28. Authors like McCulloch (1989 cited in Acosta & Loza 2005) suggest that the linkages between the exchange rate and investment is through the rate of return of investment. When currency depreciates in real terms, both the asset price and the nominal gain of the investment fall.

29. A distinction should be made between "financial crowding out" and "resource crowding out" (Harvie 2009). "Financial crowding out" is only applicable if domestic firms have no access to external sources of funding (borrowing from overseas). In many instances, for firms in the region, accessing overseas sources of funding has been substantial and less costly than domestic sources of funding. However, "resource crowding out" is only applicable in the case of full employment where additional spending by the government requires reallocating scarce resources to the public sector and away from the private sector.

assets such as cash, gold, commodities, land, etc.[30] Hence, the domestic financial system is able to extend more loans to investors. In general, this implies an increase in the equilibrium rate of investment (Agrawal 2001).[31] As for the effect of i**nflation** on investment, the effect is also ambiguous. A higher expected inflation rate implies a lower real interest rate causing portfolio adjustment from real money balances to real income, resulting in higher investment (Ghura & Goodwin 2000) but higher inflation also implies greater uncertainty in the economy (Beaudry et al. 2001). **Trade flows** can also affect the rate of investment in developing countries. Empirical evidence shows trade openness appears to have the most consistent relationship with investment (Ndikumana 2000). This is in line with the fact that trade openness indicates greater productivity growth and hence faster economic growth (Edwards 1998). Hence, a positive relationship between the trade variable and private investment level is expected. [32]

Capital inflows in the form of FDI are also likely to be a factor influencing investment. However, its effect is also ambiguous. For instance, the inflow of FDI may increase the stock of domestically available physical capital and thus the economic growth of the recipient country, leading to greater private investment. However, according to Kim and Seo (2003), there is the possibility that the introduction of new technology which came along with capital inflows (FDI) may accelerate technological obsolescence of traditional technologies, thus crowding out domestic investment. Related to capital flows is the so called China factor. As mentioned earlier, there are two sides to this argument. Firstly, there is the argument that China has drawn foreign investments away from other developing economies. If this is the case, this is likely to cause private investment in the domestic economy to decline if FDI and domestic investment is complementary. In addition, domestic firms under pressure to compete with China may instead migrate part of their labour-intensive production to China, which is the "Hollowing Out Effect." However, there is also the possibility that the China effect may actually be beneficial to domestic firms. For instance, McKibbin and

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30. This implies that as the financial system becomes more sophisticated, more funds are channeled for productive investment. This has in part influenced macroeconomic policies in developing countries since the 1970s (Huang 2006).

31. This effect is enhanced if there is minimum taxation on financial intermediation and the open market to encourage competition among banks to lower the cost of intermediation. Thus the argument is in favour of "financial liberalisation" (Agrawal 2001). McKinnon (1993, cited in Algawal 2001) advocates real interest rates (on intermediate term bank deposits) in the range of 5-9%.

32. Kinkyo (2006) argues that the lower investment rate in Korea was due mainly to the effects of adverse terms of trade on corporate profits and cash flows. This is especially relevant for Korea where its exports are not diversified and are concentrated on a small number of exports and highly dependent on the supply of key production inputs.

Woo (2003) argue that FDI into China encourages greater investment in other Asian countries because production is richly interconnected globally.

As far as **public external debt** is concerned, the larger the debt as a ratio of GDP, the lower is investment. This is because the crowding out effect occurs when resources is used to serve foreign debt. Furthermore, a large external debt leads to agents anticipating a possibility of increase in future tax liabilities (Ghura & Goodwin 2000). Public external debt determines the country's long term sustainability and therefore, a large external debt is likely to have a negative impact on investors' expectations (Acosta & Loza 2005). However, according to Acosta and Loza (2005) a large public external debt may not necessarily be bad for investment as the credit rating of a country can be a more important indicator for foreign investors. Recent endogenous growth models have shown that **human capital accumulation** can be an important source of long-term growth as it can enhance productivity and technological progress which will eventually raise long-term profitability in an economy (Ghur & Goodwin 2003).

In addition, **uncertainty** in the form of political instability and macro-financial variables are likely to adversely affect investment. With regard to exchange rate volatility, private investment can also be adversely affected by the increase in volatility such as exchange rate volatility (Jongwanich & Kohpaiboon 2008).[33] An increase in exchange rate volatility may induce investors to seek "profit opportunities in short-term portfolio investments rather than investing in long term productive projects – especially when the investment contains more irreversible features" (Pindyck, 1991 cited in Aysan, Pang and Véganzonès – Varoudakis 2005).

3.3 Empirical Results

3.3.1 Empirical Evidence of Country Studies

For the empirical study, the country papers adopted the following base equation for estimating private investment. [34]

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33. For instance, an increase in exchange rate volatility can reduce FDI significantly (Dennis, Laincz & Zhu 2008). However, derivates can be utilised to hedge risks associated with exchange rate volatility, although they do act to firm transaction costs (Harvie 2009).

34. Due to data limitation, some of the variables discussed above are not included in this base model.

Real Private Investment = f(real gross domestic product, real domestic credit to private sector, real interest rate, real exchange rate/real exchange rate uncertainty[35]) + Country Specific Variables

Each country was then required to add to the equation country specific variable(s) unique to the country. In most country analysis, unit roots and cointegration tests were applied to the data. In general, the empirical analysis of the long-term estimation in the country chapters suggests that private investment is determined by a similar set of variables. In broad terms, real GDP and real credit growth are positively related to investment but real interest rates and real exchange rate are negatively related to investment.[36] The country papers of Nepal, Philippines and Thailand included the variable, public investment or a proxy of it. Interestingly, public investment signifies "crowding in" in Myanmar and Thailand and "crowding out" in Nepal and the Philippines. Three country papers, namely Philippines, Taiwan and Thailand included volatility of the exchange rate as an independent variable in their base equation. In the case of Taiwan, uncertainty of the exchange rate is found to be positively related to investment. One possible explanation offered by the paper is that as Taiwanese firms have been investing abroad, the increase in exchange rate volatility may deter these firms from investing abroad but instead could encourage them to invest locally. On the other hand, in the case of the Philippines and Thailand, the relationship between exchange rate volatility and investment conform to prior expectations. The Thailand paper also notes that exchange rate volatility appears to be highly correlated with economic and political uncertainties. The Malaysian paper finds that the degree of openness as measured by the ratio of gross exports to GDP is significant.

It is interesting to note that for Taiwan, the dummy variable included to take into account the period before and after the financial crisis is not significant. This confirms the fact that Taiwan was not seriously affected by the 1997 crisis. On the other hand, while the dummy variable is significant for Nepal, it does not conform to the general observation that Nepal was not significantly affected by the same crisis.

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35. Real exchange rate uncertainty can be proxied by the moving average of standard deviation or a GARCH model.

36. An appreciation of the exchange rate is negatively related to investment.

3.3.2 Panel Estimation

As an indicative conclusion, panel data from Indonesia, Korea, Malaysia, Philippines, Singapore, Thailand (the crisis afflicted countries) is estimated using the estimation technique of the two stage EGLS (with fixed effect cross-section SUR; to account for endogenity).[37] The estimations are also corrected with white cross-section, standard errors and covariance to ensure they are robust to heteroskedasticity across cross-sections or periods. The following variables, namely private investment, GDP (LRGDP), domestic credit (LRDC), interest rate (RINT), exchange rate (LREXE), direct investment abroad (LRDIA) , exchange rate volatility (VLREXE), a dummy variable to take into account pre- and post crisis (DUM) are used.[38] For selected independent variables interacting with the dummy variable are also included.

In line with the results of the country chapters, in general, real GDP and real domestic credit are positively related with real investment. The real interest rate is found to be negatively related to private investment. While it is not significant in Model 1, it is marginally significant at 10% level for Model 3. On the other hand, the real exchange rate is not significant at the 5 % level and thus suggests that it may not have a long-run effect on investment.[39] However, the volatility of exchange rate appears to have a negative effect and its effect increases post-crisis between 4~7 times when compared to pre-crisis period (Model 1 and 2). Over the full estimated period, investment abroad by residents has a relatively small negative impact on investment.[40] The dummy variable which takes into account the structural break was significant in all three models.

In general, the following can be observed from both the country chapters and the panel data:

(1) Real interest rate is a significant determinant. Its effect is, however, small in some countries. However, it is noted that post-crisis, real interest rates are, in general, lower than the pre-crisis period (Chart 5);

37. Annual data from 1989-2005 and the total polled (balance, with 90 observations). Please refer to EViews 6 manual for details.

38. All variables are in logs, except for interest rates and the dummy variables. Volatility of the exchange rate is derived from GARCH (1,1) model. The dummy variable is defined as 1989-1997 =1, elsewhere =0.

39. This is consistent with the observation of Lee and McKibbin (2006) who note that there is a limit support for the exchange rate effect on investment.

40. However, there are a few caveats. Firstly, only annual data was used. This has prevented the possibility of using a dynamic approach. Secondly, there is no breakdown of domestic investment into private and public investment for Indonesia Thirdly, the real exchange rate is based on the US dollar and price index.

(2) The financial system must continue to provide credit for investment purposes and this may imply a deeper and more diversified financial system can help promote investment. In general, domestic credit to the private sector has declined since the crisis (Chart 6);

(3) Real exchange rate volatility (uncertainty) appears to be an important factor for investment in the post-crisis era. Although volatility of real exchange rate did decline, in general the adoption of the floating exchange rate regime may result in volatility of the exchange rate in the longer run. Volatility has increased since 2004 (Chart 7).The effect on the exchange rate is, however, not consistent across countries, although in general, it indicates that a depreciation of the real exchange rate would lead to lower investment;

(4) Investment abroad by residents does play a small part in determining private investment. However, as residents begin to invest more abroad, this may eventually have a bigger effect on private investment; and,

(5) Real GDP is highly related to private investment, indicating that on a broad term, the slowdown in economic growth may be responsible for the lower investment post-crisis.

Chart 5: Average of Real Interest Rates

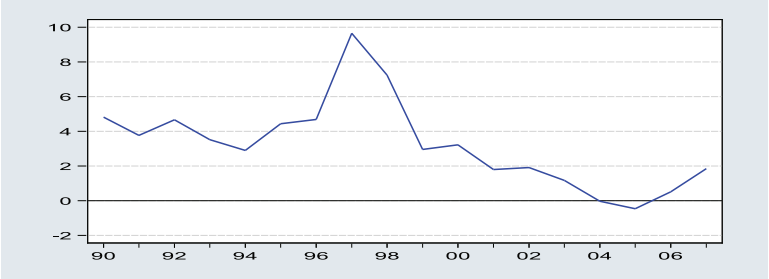


Chart 6: Domestic Credit to Private Sector /GDP (%)

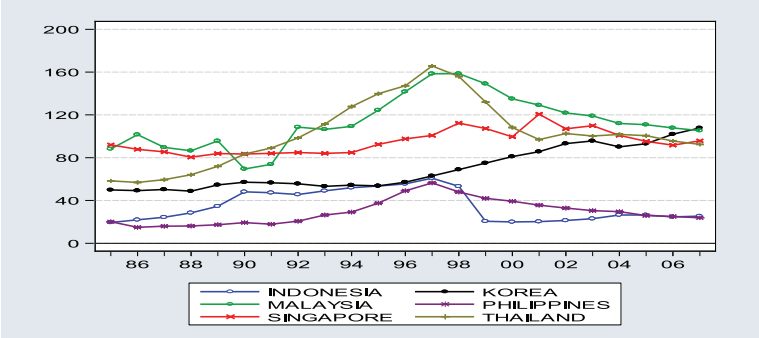
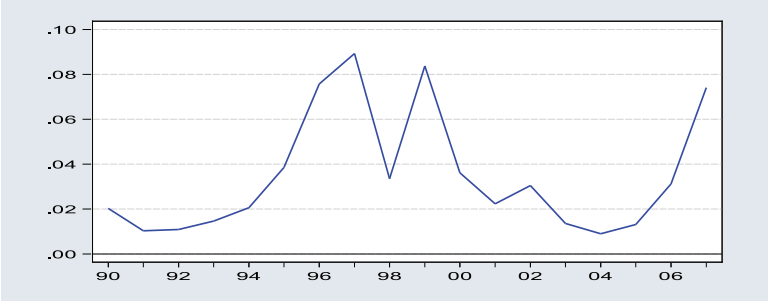


Chart 7: Average Volatility of Exchange Rate (GARCH (1,1))



4. Issues and Challenges Related to Private Investment Post-Crisis

4.1 Infrastructural Development

An analysis of the country papers indicates that although the issues are unique to each country, there are also some common elements (Table 3). One such challenge is slower infrastructure development during the post-crisis era.[41] In many SEACEN countries, basic infrastructure such as power supply, network roads and communication are important necessities to attract both domestic and foreign investment. Post-crisis, inadequate infrastructure, especially unreliable power supply still plagues some SEACEN countries. The post-crisis situation has hampered the development of infrastructural projects in the early years of economy recovery and in recent years, political uncertainty has either curtailed or postponed certain infrastructural projects. It is also noted that in most developing countries, private participation post-crisis in infrastructure has plummeted and has only started to pick up several years later, from 2004 onwards (Kerf & Izaguirre 2007). It is estimated that between the period 2006 and 2010, East Asia needs approximately US$200 billion annually for infrastructural development and maintenance of existing assets. There is, therefore, a challenge to find resources to finance these infrastructural developments (Asia Development Bank, Japan Bank for International Cooperation and World Bank) and to find ways to encourage greater private sector participation.

41. Infrastructural needs vary according to the stage of economic development. For instance, in Singapore, the development of the telecommunications services sector infrastructure plays a vital role for cross-border trade in services.

Table 3
Selected Issues Related to Investment in SEACEN Countries

	Issues	Comments
Indonesia	Inadequate new investment in the oil sector	New investment in oil sector discouraged by value-added tax and income tax.[42]
	Inadequate infrastructure and workforce	Generally inadequate infrastructure and educated labour to support new investment.
	Government bureaucracy and inconsistent government policies	The World Bank's survey indicates red tape in the application procedure to start new businesses.
Korea	Weaknesses in the production chain	Weaknesses especially concerning parts and materials manufacturing industry to support overall production.
	Enhancing technology capacity	A need to attract foreign high-tech component companies to operate in Korea.
Malaysia	Presence of excess capacity	Due to the sub-prime crisis, it may take some time before private investment recovers. Macro-economic policies need to remain supportive of the overall economic activity including maintaining a low interest rate environment and ensuring the private sector has continued access to financing.
Myanmar	Lack of credit access	Lack of credit availability to new investors.
	Overvalued exchange rate and existence of the parallel market	The wide gap between the official and parallel market creates uncertainty.
	Lack of capital and technology	A need to infuse of capital and technology to develop private investment
	Greater flexible interest rate policy	Implementation of interest rate policy to promote savings.
	Liberalising banking sector and the establishment of capital markets.	To enable private sector to obtain capital for investment.
	Streamlining approval procedures	To reduce approval time for FDI.
Nepal	Lack of infrastructure	Generally inadequate infrastructure and educated labour to support new investment.
	Channeling savings into productive activities and access to foreign credit	Banking sector needs to channel savings into more productive activities. Further liberalisation of the capital account to enable domestic firms to gain better access to foreign credit.
	Transparent and predictable policy framework	Transparent and predictable policy framework is needed to boost domestic and foreign investment.
	Reforming institutional framework and enhancing competitiveness;	To institute reforms in order to integrate globally and to identify the areas of comparative advantages and to enhance competitiveness; to diversify trade and identify domestic-resource based industrialisation could create strong backward linkages.
	Streamlining approval procedures	Setting up of a one window system to efficiently deal with investors.
	Uncertain political situation	Recent political instability is one of the factors that had discouraged new investment and FDI inflows.

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42. The cost involving in exploiting new fields has increased substantially.

Philippines	The diaspora of skilled Filipino workers	Even though Philippines ranks high in the quality of labour skills and managerial competence and service orientation, the workforce is dispersed globally.
	Channelling savings into productive investments	Greater challenge is to channel savings into productive investments.
	Need to revise the system of incentives and institutional structure	The system of incentives and institutional structure are slow to adapt to the changing needs of economic development in a more globally-integrated market.
	Reforms of fiscal management	Sustained reforms in fiscal management to boost confidence so as to reduce the perception of corruption and bureaucratic inefficiency.
Singapore	Further liberalisation of the economy service sector	Increasingly, efforts to further liberalise the services industries to make them more competitive.
	Enhancing the China/India effect	Take advantage to strengthen ties with China and India in order to leverage on the economic growth of China and India.
	Diversification and increased Research and Development (R&D)	Developing Singapore into a R & D and biomedical sciences centre research centre.
Taiwan	Enhancing the China effect	Strengthen ties with China and to maximise synergies with China.
	Improving infrastructure	The political rows between the ruling and opposition parties in recent years have curtailed government investment, including construction of power plants.
	Enhancing corporate competitiveness and R &D	Encourage Taiwan's enterprises to upgrade themselves and attract investment to build up their own brands and invest more in R&D.
	Taxation and further simplifications of procedures	To reduce time for approval for FDI and rationalise taxation.
	Signing of more Free Trade Agreements	Taiwan has to sign Free Trade Agreements (FTAs) with major trading partners in the future (such as U.S., Japan and Singapore.
	Environmental protection Issues	The lengthy environmental impact assessment (EIA) procedures may have postponed investment projects. Taiwan's government may propose new EIA procedures.
Thailand	Weakness in business sentiment	The Business Sentiment Index (BSI), compiled by the Bank of Thailand has fluctuated below the benchmark of 50 since 2004.
	Uncertain political situation	Since 2006, prolonged political tension has postponed many public investment expenditures on mega projects.

4.2 Uncertainty

Several papers also mentioned that increase in uncertainty post-crisis is partly responsible for the decline in the recovery of investment. Uncertainly can be manifested through bloated government bureaucracy, inconsistent government policies and political instability. [43]In some SEACEN countries, despite efforts to streamline procedures, because of government bureaucracy, there were delays in the approval for FDI, creating uncertainty. Inconsistent investment policies, for instance, between the central government and regional authorities also exist in some countries. Furthermore, there is also an element of time inconsistency whereby new policies appear to be inconsistent with older ones. Such inconsistency in content of investment policies increases the risk factor for investors. Furthermore, in some cases, there are frequent changes in investment policies. In addition, weakness and inconsistency in implementation and interpretation of investment policies lead to doubts and confusion among the investors.

Post-crisis, in several SEACEN countries, the political situation has also hampered new investment. This has several adverse effects. Firstly, uncertain political situations have a direct impact on the economic growth and macroeconomic stability. Weak business sentiments were reported in several of these countries that experienced political tension. Secondly, investors face greater potential risks in the event of possible shift in investment policies following a change in the government. Thirdly, as mentioned above, due to political uncertainty, many approved infrastructural projects in the pipeline which would have attracted investors, were not implemented. In a related issue, the World Bank (2007) through its Investment Climate Surveys reported that East Asian firms rated uncertainty as the biggest constraint on their operations. For instance, the surveys note that in some SEACEN countries, over 30% of the firms indicated that macroeconomic instability and economic policy uncertainty as their major concerns. Uncertainty in these particular surveys is defined as "macroeconomic instability and economic policy uncertainty." [44]

4.3 Liberalisation and Reforms

While liberalisation of investment policies has been going on as far back as the 1980s, there are several specific key areas that need further liberalisation for some SEACEN countries, for instance, the financial sector. In Myanmar, further liberalisation of the banking sector and interest rate policy is warranted

43. There were also considerable uncertainties in financial and global markets.

44. These may be due to episodes of "renewed volatility in exchange rates, interest rates and inflation that have occurred in the post crisis period" (World Bank 2007).

to promote better access of credit to local investors. Similarly, in Nepal, there is a need for further liberalisation of the capital accounts in order for Nepalese firms to gain greater access to foreign credit and enable them to integrate into the global economy. There is also a need to further enhance and diversify the capital market to ensure more specialised modes of resource mobilisation and allocation. This type of financing is important to support innovative but uncertain projects (World Bank 2007). In other countries, there is a need for the service sector to be systematically liberalised to attract new investment, as the service sector in this part of the world has been lagging (World Bank 2007). It is also necessary to continuously reform the fiscal sector to boost investors' confidence and to reduce perceptions of corruption and bureaucratic inefficiency. Several country papers have pointed to the need to liberalise and deregulate the tax structure further to encourage investment. For instance, in Indonesia, the oil sector which is an important source of economic growth is under-invested because the tax structure does not favour investment in oil exploration. Firms will be charged both value added tax (PPN) and income tax (PPh), even when the exploration is a failure.

4.4 Research & Development and Technologies

The country chapters also highlight the importance of research and the infusion of capital and technology in promoting new investment. Many SEACEN countries such as Korea, Singapore and Taiwan have actively pursued R&D in specific technological fields. For instance, Singapore has an explicit R & D framework and encourages R& D through its *Strategic Direction for Science and Technology Policy* (2006-10), and the *S&T Plan* 2010 of Singapore and in Taiwan, the *Small Business Innovation Research (SBIR) Program*, and the *Innovative Technology Applications and Service (ITAS) Program* are available. In both of these countries, funding covering part of the R & D expenses are provided to support industries in developing innovative and advance technologies**.** It is further recognised that only with innovation, can firms develop the technological capability to develop capital goods domestically and their own branding. Therefore, the issue post-crisis is to encourage domestic firms to innovate by investing in R&D without depending exclusively on technology transfers. This is especially important in newer but lucrative fields such as biotechnology and alternative energy.

4.5 The China Effect

China, in the last decade has been receiving record breaking FDI. This development, as discussed above raises concern that China is redirecting FDI

flows from the rest of the developing countries. Without any doubt, in recent years, domestic firms are shifting part of their production to China to take advantage of the cheaper labour cost there. While it is almost impossible to put a stop to such companies investing in China, the challenge thus is how to take advantage of the China factor to promote domestic investment flows. Globalisation has resulted in the network effect in which China is now being considered a "final integrator" of products (World Bank 2007). This implies that (1) intra-regional trade in production inputs has increased; (2) there is a need for SEACEN countries to continue to invest in R&D in order to continue to move up the technological ladder and promote higher value-added products; and, (3) domestic firms need to adopt the "*Blue-Ocean Strategy"* to create uncontested market space (Kim and Mauborgne 2005) and to develop niche markets to value add for investors.

5. Implications for Monetary Policy

The empirical evidence of the country papers indicates that in the long-run, private investment is determined by a set of common variables. In general, a reduction in the cost of capital, a rise in demand factors and financial availability stimulates private investment. Other factors include the exchange rate, its volatility and public investment. Real interest rate is found be to negatively related to private investment in most countries while domestic credit is positively related to investment. The empirical results of the macro-financial variables thus imply that a consistent framework can be implemented to promote investment (Table 4). In addition, given the results, it implies that the institutional set-up of the financial markets is an important feature determining the impact and transmission mechanisms of monetary and credit policy on investment. The evidence suggests the importance of the banking sector in the promotion of investment. As the financial sectors of the SEACEN countries are already liberalised, pro-active financial supervision can play an important role in ensuring financial stability to facilitate improved access to credit.

In some SEACEN countries, exchange rate and its volatility are found to be relevant in influencing investment. Most SEACEN countries have adopted flexible exchange rates since the crisis and therefore, it appears that volatility of the exchange rate has a larger adverse impact on investment post-crisis (in the panel study).

Table 4
Monetary Policy and Private Investment

Expansionary Monetary Policy	Real Interest Rates	Opportunity Cost to Invest	Credit Availability	Exchange Rate 1/	Market Value of Existing Capital 2/	Demand Level
Impact	-	-	+	-	+	+
Effect on investment	Increase	increase	increase	increase	increase	increase

Based on Serven (1989) with modifications.
1/ There are some inconsistency among the country results.
2/ relative to its replacement cost signals an increase in investment (the Tobin Q ratio)

It is clearly noted that there is a virtual cycle between economic growth and private investment. Therefore to promote investment, one must also ensure that monetary policy is coordinated with other macroeconomic policies, in particular fiscal and tax policies. It is intuitive that a favourable taxation structure, *ceteris paribus*, will encourage investment. While empirical evidence in some countries suggests the possibility of crowding out of private investment, public investment can still have a critical role to play, in particular, in providing infrastructure and stimulating economic growth.

6. Conclusion

The country papers indicate that the determinant of investment is multi-faceted. The empirical evidence suggests that macro-financial variables, such as interest rates, credit growth are found to be important along with demand factors such as economic growth. Post-crisis, real interest rates are, in general, lower than the pre-crisis period but domestic credit over gross domestic product together with economic growth have been significantly higher during the pre-crisis period. This suggests that central banks in the region can play a significant role in simulating private investment by adopting *ceteris paribus*, an expansionary monetary stance taking into account the inflation rate. On attracting FDI inflows as long-term investment, that the authorities should implement various relevant policies as the key factors to attract foreign investors, remain universal. These factors include good public governance, efforts to curb corruption, non-discrimination rules, good infrastructure, abundant and skilled labour force and access to free international trade (OECD 2005).

The current US mortgage sub-prime crisis will bring new challenges to the revival of private investment in the SEACEN countries. Firstly, the global economic slowdown implies that the region's economic growth is affected. The SEACEN countries, being exporters are likely to see increased chances of an economic slowdown. Secondly, the impact of the crisis on the domestic financial markets remains uncertain. While in general, the financial sector of SEACEN countries remains robust, the SEACEN region, like most Asian countries is more likely to be affected by a severe recession in the U.S economy, which may resulted in distressed loans and thus may trigger a negative credit cycle (Khor & Kee 2008). This results in self-re-enforced mechanism between the financial markets and the real economy (Hildebrand 2008). Thirdly, the longer-term FDI flows from developed countries in the region may decline. However, they note that over the long run, capital flows can return in larger volumes when the region is perceived as a "safe haven'. In this regard, even though macroeconomic fundamentals remain strong, given the adverse economic conditions and the expected slowdown of business activities, private investment is expected to be severely affected until the crisis is resolved. In this respect, the coordination of macroeconomic policies is essential as fiscal policy can play a critical role in promoting domestic investment.

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Appendix A

Panel Regression Results

LPRI	Model 1		Model 2		Model 3	
Variable	Coefficient		Coefficient		Coefficient	
C	-0.385		-2.799	***	-2.935	***
DUM98	-0.475	***	-0.641	***	-0.648	***
?RINT	-0.004		-0.006	*+	-0.007	*
?LRGDP	0.931	***	0.973	***	0.992	***
?LRDC	0.145	**	0.292	***	0.281	***
?LREXE	0.427	*				***
?RDIA	2.680E-080		-4.520E-08		-2.870E-08	***
?RDIA*DUM98	-5.840E-09		.750E-08			
?VLREXE	-0.723	*	-1.254	***	-1.203	***
?VLREXE*DUM98	-4.365	***	-3.514	***	-3.386	***
R-squared	0.999		0.999		1.000	
Adjusted R-squared	0.9990		0.9990		0.9997	
S.E. of regression	1.1100		1.1086		1.0620	
Prob(F-statistic)	0.0000		0.0000		0.0000	
Mean dependent var	79.8520		65.1745		64.0686	
Sum squared resid	126.0200		93.4058		86.8410	
Durbin-Watson stat	1.3090		1.3417		1.3482	

Annual data from 1989-2005 and the total polled (balance, with 90 observations Are variables are in logs, except for interest rates and the dummy variables. Volatility of the exchange rate (VLREXE) is derived from GARCH (1,1) model. The dummy variable (dum 98) is defined as 1989=1997. LRPI= real private investment, RINT= real interest rates, RGDP= real GDP, RDC= Real credit growth, REXR =Real exchange rate, RDIA=Real direct investment abroad. Data source: IFS, IMF and country papers.

***, **, *: Significant at the 1%, 5% 10% levels respectively
*+: Maginally significant at 10% level.

PART II: COUNTRY CHAPTERS

Part II: Country Chapters

Chapter 2

INVESTMENT IN INDONESIA IN THE POST-CRISIS ERA: ISSUES AND CHALLENGES

by
Donni Fadjar Anugrah[1]

1. Introduction

Investment is an important economic activity as both domestic and foreign direct investments are very effective for generating employment, raising productivity and transferring skills and technology in support of more sustainable economic growth. The study of Chay and Roy (2006) stated the investment share to GDP is an important factor for economic growth, the reason being that high investments create high effective demand. Another reason is that high investments increase capital stock which in turn create high production capacity. Being aware of these advantages, regulations on investments in Indonesia had progressively improved along with the change in the domestic and global economic environments. The Investment Coordinating Board (BKPM), was established by the Government of Indonesia in 1973, to implement the government objective of enhancing investments in Indonesia.

Since the beginning of the 1990s, investments in Indonesia, had progressed favourably, supported by financial sector reform and foreign investment deregulation which promoted a more conducive environment for the development of the financial sector and investment activities Investments reached a peak in 1997, before dropping substantially in 1998 -1999 due to the Asian financial crisis. The discouraging economic conditions during the crisis period was exacerbated with political instability which heightened the country risk of Indonesia, subsequently driving capital out of the country.

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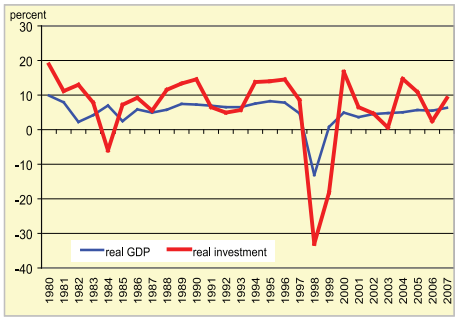
The economy has gradually improved since 2000 and regained investors' confidence. Subsequently, investment growth improved, supported by strengthened prudential measures in the financial sector aimed at maintaining monetary and financial stability as well as government reforms in several areas to support a better investment climate in the economy.

In recent times, issues on investments are becoming interesting. As different countries have different speeds of growth in investments, it is intriguing to examine the determinants of investments in developing countries and its role in economic development. This study investigates the determinants of investments in Indonesia, since it is crucial to understand factors that have significant influence on investment growth. The results of the study will derive lessons and policy implications to support government's efforts in stimulating investments. Since we focus on the long run factors of investment, we will apply the Engle Granger's method as an econometric approach. The Engle Granger's methodology requires stationary testing for each variable to obtain the order of integration.

2. Trend of Investment Since 1980

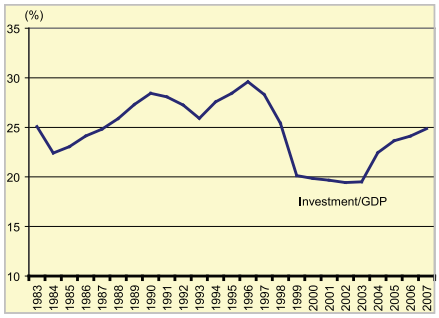
It has been well acknowledged that there is a close relationship between investment and economic growth. Before the occurrence of the crisis (1980-1996), the economy grew at 6.4% on average and during the same period, real investment grew at 9.7% on average, supported by strong and stable economic condition (Graph 1). High economic growth was accompanied by mounting investment activities and vice versa. In the pre-crisis period, Indonesia had been a very attractive market for foreign investors. Structural reforms implemented in early 1990s particularly, changed economic policies to be more market oriented, while private sector investments had taken over the role as the main driver of economic growth.

Graph 1: Economic Growth vs. Real Investment Growth



Source: Indonesian Board of Statistics (BPS), computed

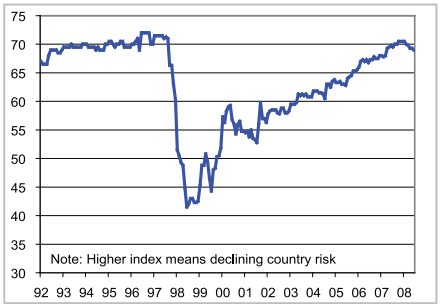
Graph 2: Investment/GDP



Source: Indonesian Board of Statistics (BPS), computed

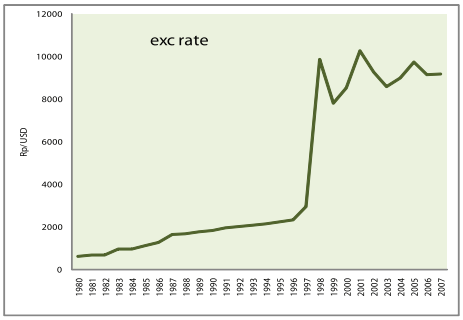
With the occurrence of the financial crisis in mid-1997, the situation reversed rapidly. The May 1998 social riot occurred in several cities of Indonesia and political instability exacerbated the poor economic condition. The subsequent sudden stop and massive capital outflows caused the rupiah exchange rate to depreciate substantially from Rp 2,450/USD in June 1997 to Rp14,900/USD in June 1998 (Graph 4). The inflation rate sky-rocketed to 77.63% (y.o.y) causing negative real interest rate of 29% in 1999 (Graph 5 and 6). Heightened uncertainties raised the risk for investment as indicated by the Indonesia Risk Index (Graph 3) and led to negative growth of investment in 1998-1999. Investments fell significantly from 29.6% of GDP in 2006 to 20.1% of GDP in 1999. It took several years for the investment climate to recover. Although the increasing trend of investment started in 2002, it was only in 2003 that the investment to GDP ratio started to trend upward (Graph 2).

Graph 3: Country Risk Index of Indonesia



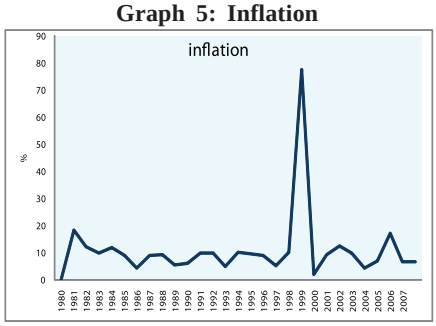
Source: International Country Risk Guide

Graph 4: Rupiah Exchange Rate



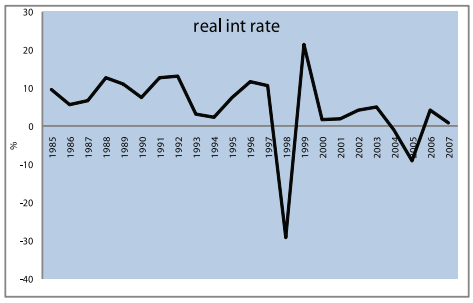
Source: Bank Indonesia

Graph 5: Inflation



Source: Indonesian Board of Statistics (BPS)

Graph 6: Real Interest Rate

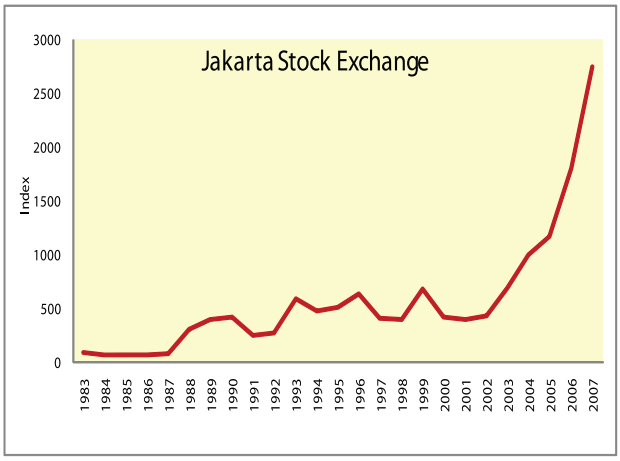


Source: Bank Indonesia, computed

Unwavering efforts by the Government to aid the recovery of the economy from the crisis were marked by continuous economic reforms and deregulation in several areas, aimed at improving corporate and public governance, strengthening institutional infrastructures, enhancing efficiency, maintaining financial and economic stability needed to improve the investment climate. Consequently, the economy gradually recovered from the crisis, with the average growth reaching 5.1% during 2000-2007 in an upward trend. Real GDP growth in 2007 attained 6.3% with inflation relatively stabilising at 6.59% and the rupiah strengthening to an average of Rp 9,164/USD in 2007.

The major factors contributing to the growth momentum were consumption and exports induced largely by more robust public purchasing power and rising consumer optimism. As the economy improved and became stable, investors' confidence strengthened as reflected in higher investment growth, both for domestic and foreign direct investments. Capital flows have also surged, particularly for short-term capital flows in the form of portfolio investments

Graph 7: Stock Price Index



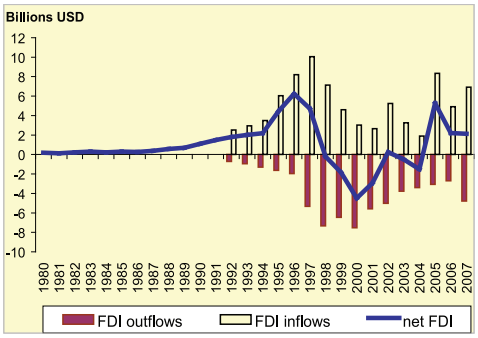
induced by attractive yields of rupiah assets. High portfolio investment flows, were among others, reflected in the steep upward trend of the Jakarta Composite Index which reached 2,745.83 in December 2007 (Graph 7). The favourable economic development resulted in a higher accumulation of international reserves reaching USD 56.9 billion at the end of 2007, or equivalent to 5.7 months of imports and official debt repayments.

2.1 Development of Foreign Direct Investment

Foreign direct investment (FDI) is an important component of foreign private capital to developing countries including Indonesia, as it has proven to be more sustainable and less easily reversible during a financial crisis than other forms of foreign investment.

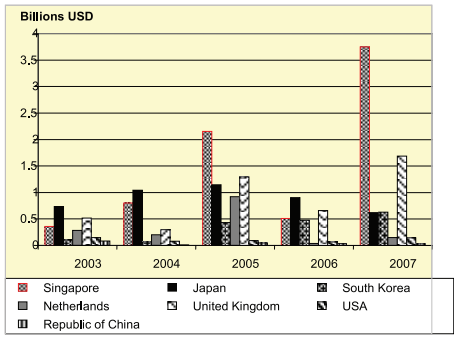
In the pre-crisis period, net FDI flows had constantly registered surpluses, reaching a peak of above USD 6 billion in 1996. This performance had been supported by the government regulation issued in 1994 permitting up to 100% foreign ownership in direct investment. As reflected in Graph 8, during the years 1995 to 1997, inward FDI increased sharply from about USD 6 billion to more than USD10 billion. The strong inward direct investment ended in 1997 with the onset of the Asian crisis.

Graph 8: Foreign Direct Investment



Source : BOP, Bank Indonesia

Graph 9: Major Foreign Investors in Indonesia



Source: Investment Coordinating Board (BKPM)

The 1997 financial crisis which exacerbated political and social instability, caused a significant decrease in inward foreign direct investment, resulting in net negative FDI flows. The largest negative net FDI flows of USD 4.5 billion was recorded in 2000 (Graph 8). Structural problems of financial governance, lack of credibility of the legal and judicial system, political uncertainty, and issues regarding regional decentralisation of power for approval of investments and imposition of regional taxes, together discouraged investors from making long-term commitments.

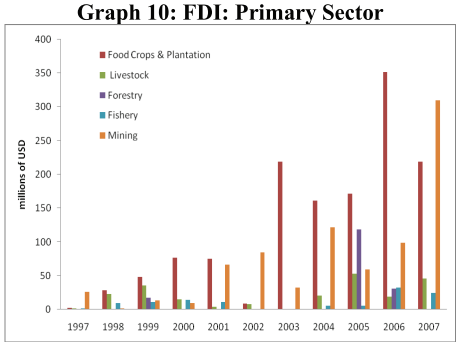
However, government efforts in implementing continuous structural reforms in various areas, including financial sector restructuring, have all contributed positively to creating a more conducive environment for investments. FDI inflows improved gradually and in 2005, net flows of FDI had begun to be positive reaching USD 5.3 billion with inward FDI accounting for 8.3 billion (Graph 8).

In order to identify major foreign direct investors in Indonesia, it is important to ascertain inward direct investment based on their country of origin. In recent years, Singapore has been the largest foreign investor in Indonesia, outperforming United Kingdom, Japan and South Korea (Graph 9). Meanwhile, China's role as investor in Indonesia remains relatively low.

By economic sectors, FDI in primary sectors in recent years, were dominated by investments in food crops and plantation sector as well as in the mining sector, especially in oil and gas. After the financial crisis, investments in the oil and gas sector garnered larger proportions in comparison to the other sectors. The share of investment in the oil and gas sector to total FDI inflows is around 50-70%. Meanwhile, in the secondary sector, FDI in the chemical &

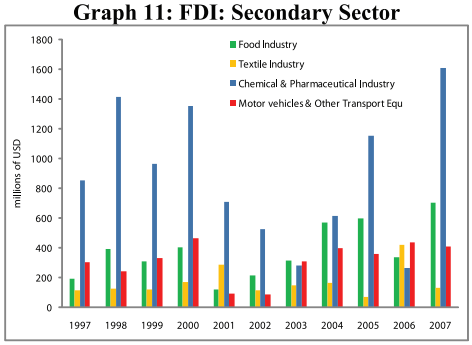
pharmaceutical industry remain the largest, exceeding investments in the food industry (Graph 11).

Graph 10: FDI: Primary Sector



Source: Indonesian Investment Coordinating Board (BKPM)

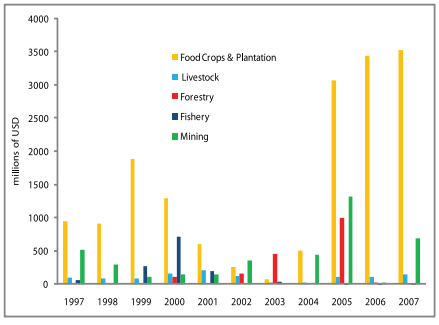
Graph 11: FDI: Secondary Sector



Source: Indonesian Investment Coordinating Board (BKPM)

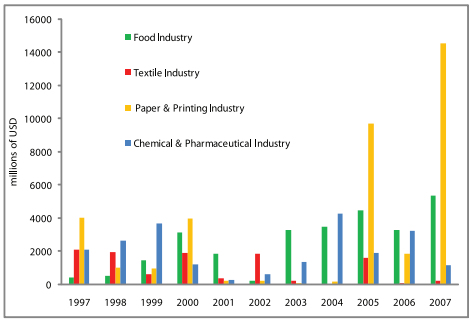
Similarly, domestic investments in food crops and plantation were the highest in the primary sector, followed by the mining sector. Domestic investments in the food and mining sectors were Rp3,528.8 billion and Rp691.4 billion respectively in 2007. In the secondary sector, the paper and printing industry was leading in domestic investments with a value of Rp14,548.3 billion, while investments in the food industry (Rp5,371.8 billion) came in second. This indicates that the food industry is a favourite target, for both domestic and foreign investors, considering the prospects of the food market in Indonesia with its large population.

Graph 12: DI: Primary Sector



Source: Indonesian Investment Coordinating Board (BKPM)

Graph 13: DI: Secondary Sector



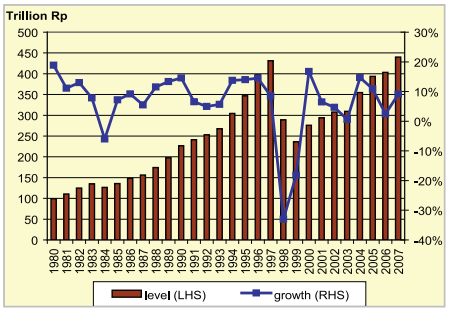
Source: Indonesian Investment Coordinating Board (BKPM)

2.2 Development in Domestic Investments

As was discussed in the previous section, investments in Indonesia grew at above 10% on average before the Asian crisis, reaching the highest level in 1997, before it shrank dramatically during the crisis period (1998-1999). Government policies to create and support a better investment climate to a certain extent, have successfully induced more investment activities since 2000.

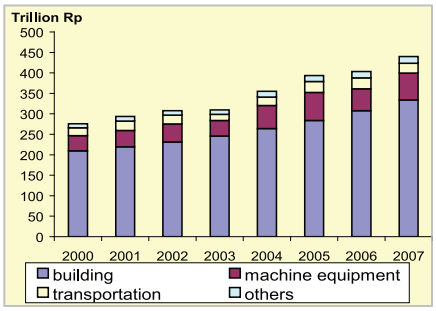
Total domestic investment (DI) as reflected in gross fixed capital formation had been in an expansionary phase during the 2000s, with the accelerated growth continuing to date. The average growth rate of investment during 2000-2007 reached 8.2%. In 2007, real investments grew by 9.2%, indicating that the value of investment has slightly surpassed the highest level reached before the crisis period (Graph 14). Prompt indicators, such as increased production of machinery and tools and more rapid growth in investment credit, provided further evidence of this investment growth. The positive trend of investment was also reflected in the leading investment indicators that pointed to prolonged expansion in the investment cycle.

Graph.14: Real Investment & its Growth



Source: Indonesian Board of Statistics (BPS), computed

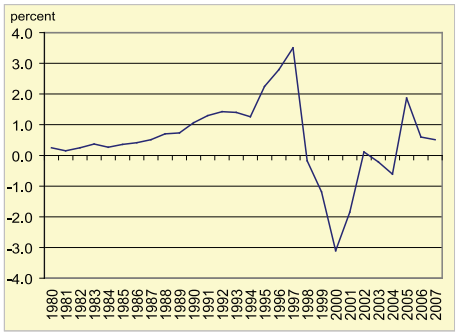
Graph 15: Real Investment by Component



Source: Indonesian Board of Statistics (BPS), computed

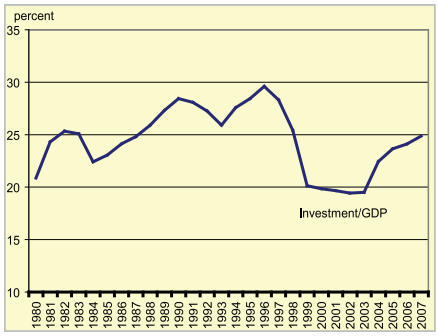
Disaggregating by component, about 76% of investments were in the form of building/construction, followed by investments in machinery & equipment (14%), investment in transportation (6%) and others (4%). In 2007, investment growth from non-building investments accelerated to 10.9%, exceeding the growth of building investments which grew at 8.6%.

Graph 16: FDI to GDP Ratio



Source: Bank Indonesia, computed

Graph 17: Investment Ratio (DI/GDP)



Source: BPS, computed

Investments have continued to make good progress in recent years and since 2003, the investment ratio (investment/GDP) has tended to increase, albeit still considered low. In 2007, the investment ratio in Indonesia was about 24.9%, much lower than that of China which was around 33% to 50%. In light of this, much remains to be done by the government to foster higher growth of productive investments so that the investment ratio can at least achieve the pre-crisis level of 30%. Particularly, various hurdles hampering the progress of investments need to be resolved, such as those in infrastructure construction projects as well as to encouraging more inward foreign direct investments.

3. Major Policies Related to Foreign Direct Investments and Domestic Investments

Considering the importance of encouraging investments to spur higher and sustainable economic growth, the Government has implemented some major policies, both direct and indirectly, for foreign direct investments and domestic investments. During the 1980s, the Government announced deregulations in the financial sector, as a strengthened and competitive financial sector is important for supporting economic activities, including investments. The deregulation also affected both the current and capital accounts.

Banking sector deregulation took place on 1 June 1983, and became the starting point of a more market based monetary policy framework (i.e., liberalising interest rates, streamlining Bank Indonesia's liquidity credit, abolishing credit ceilings, and concurrently introducing new indirect instruments, namely open market operations). With this deregulation, state banks were allowed to determine the deposit and credit rates on their own. By moving towards a more market based system, the Government expected the state banks to be more competitive,

in order to improve their financial intermediation function in the economy, and thereby play a more important role in financing economic activities efficiently.

In relation to export-import activities, efforts to promote more competitive business climate was supported with the issuance of Presidential Instruction no.4/1985 that allowed private surveyors to check the export-import of goods. In the following year, the Government released the regulation that completely removed the export certificate (SE), which took effect on 6 May 1986 (SE is a facility for an exporter to attain free tax and subsidy).

Furthermore, in 1987, the Government released three policies: the first policy is related to current account liberalisation, the second policy to promote domestic investment, and the third aimed at enhancing foreign direct investment. The first policy was the deregulation of the automotive industry, machine industry, electrical machinery, and import tariff reduction. The Government reduced tariffs for goods such as textile, cotton and iron-steel. Along with this policy, the Government also simplified the procedure for business approvals in the machine industry as well as the procedure for assembling automobiles and to assemble and build automotive parts. These policies were implemented on 15 January 1987. The second policy were the Government Regulation No.13, 1987 and the Presidential Decree No. 16, implemented on June 1987. The Government simplified the procedure for obtaining permission to invest in sectors such as mining, agriculture, health, and manufacturing. On 24 December 1987, the Government released the third policy to promote foreign direct investment and exports, whereby the procedures for FDI and domestic investments were simplified. Moreover, the Government also simplified the approvals for exports, to create economic competitiveness. Furthermore, in November 1988, a measure to reduce restrictions in the distribution of products by foreign factories was issued.

More broadened financial reforms were introduced aggressively in late 1980s, starting with the deregulation in the banking sector and foreign exchange transactions, and subsequently followed by deregulation in the capital market and foreign direct investments. The deregulation was aimed at attracting foreign capital and creating a conducive environment for investments. The “October 1988 Package Policy” was intended to increase the degree of monetisation in the economy through broadening the opportunity for opening banks and branches, facilitating the operations of joint ventures of foreign banks with local partners in six major provincial cities, and smoothening the conversion of national private banks into foreign exchange banks.

In May 1989, restrictions on foreign direct investment were also relaxed. In addition, the priority list of open and closed sectors used by Indonesia's Investment Coordinating Board (BKPM) to approve investments was replaced by a simplified "negative list" of closed sectors.

In the capital market, Government reforms were initiated in October 1987 and December 1988. These measures were aimed at fostering development of the capital market with a view to boost investor confidence and improving investment climate. Since then, foreigners are allowed to purchase stocks in the domestic capital market, while foreign securities companies are permitted to form joint ventures with local partners. In 1995, a new capital market law was enacted to strengthen the legal foundation of the market

Policy measures issued in the 1980s have helped investments to grow quickly, especially foreign direct investments. The share of foreign direct investments to GDP and investments to GDP had improved significantly (Graph 16 and 17). This has proven that government policies were effective in promoting foreign direct investment in 1980s. The Government has continued to implement other policies related to both domestic investments and foreign direct investments before the Asian financial crisis started in the middle of 1997.

In the 1990s, the Government continued its endeavour to foster investments and exports. Starting in May 1990, the Government issued the deregulation package covering four development sectors of manufacturing, trade, health, and agriculture. In 1991, it implemented another deregulation packet in June to cover five areas, i.e., investment, manufacturing, agriculture, trade, and financial sectors. The deregulation also removed the monopoly power of state companies for the importation of certain goods such as food, fruits, and meat. The Government also allowed state companies which have the licenses, to import commercial cars. This policy immediately increased the importation of commercial vehicles causing prices in the domestic market to drop, thus enhancing market competitiveness.

Further measures were introduced to promote foreign investments, particularly related to market access (as stipulated in the Government Regulation No. 20/1994 and amended by the Government Regulation No. 83/2001 concerning Equity Ownership for Foreigner Investors) and import tariff reduction. The easy market access for foreign investors is allowed in any sector of the economy for which equity ownership is permissible up to 100%, except for banking and finance companies. For insurance businesses, foreign investors are permitted to own equity up to 85% whereas it is up to 99% for banking and securities companies.

Like most countries, Indonesia still maintains some restrictions on sectors that are considered strategically important to the country and which serve as public goods. For instance, investments in infrastructure projects such as ports, electric power plants, telecommunications, shipping lines, airlines, potable water, public railways, atomic energy reactors and mass media can only be in the form of joint ventures between foreign and local partners. The share of the domestic partner in a joint venture company shall be at least 5% of the total paid-up capital upon its establishment. The Government also boosted domestic investments by deregulation policies in the automotive and wheat industries in 1993.

One year before financial crisis began, the Government released 11 deregulations related to current account liberalisation. Among them is the removal of the ceiling on the exports and imports of foreign factories in 1996. With the depreciating Rupiah against the US Dollar when the Asian financial crisis started in mid 1997, the Government implemented a package of deregulations in July 1997 to support current account liberalisation. It reduced the import tariffs of 1600 variant products, among of which included agriculture, trade and health products. This regulation was followed by the Rules related to both national and regional tax revenue. It also regulated bank credit in land procurement and processing.

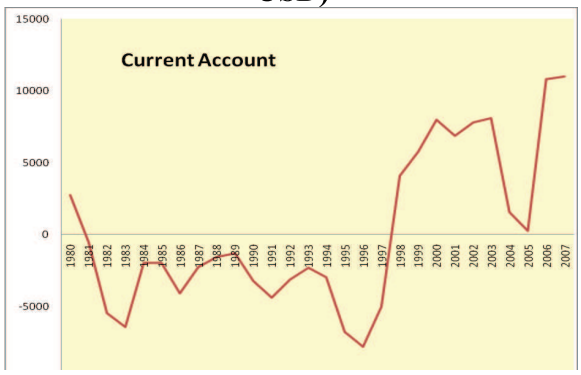
The highest reduction of import tariff was in the industry, agriculture and health sectors consecutively. The Government implemented the Ministry of Finance Decree to reduce the export tariffs on palm oil, palm oil seed, and Crude Oil Palm (CPO) from 30% to 10%. These policies were aimed at promoting exports, thus affecting the current account. The deregulation package resulted in the reduction of the import tariff in average, from 13.0% to 11.9%. The deregulation also permitted private companies to import sugar which was monopolised before by the Bureau Logistic (state company).

The Government also allowed the import of used ships in the deregulation. Meanwhile, export procedures were simplified by increasing the amount on the report value for export (PEB) meaning that only export values of more than 300 million rupiah need be reported which previously was for 100 million rupiah. As the result, small and medium scale companies could export their products up to a value of 300 million rupiah without PEB.

Structural reforms in various areas have improved economic stability and supported stronger economic performance in the 2000s. The balance of payments had recorded surpluses in the 2000s, mainly on the strength of the current account fuelled by more vigorous exports. Global economic trends marked by continued

solid external demand primarily from developing economies and strong commodity prices, contributed to the strong performance of the current account surplus (Graph 18).

Graph 18: Current Account (millions USD)



Source : Bank Indonesia, computed

To promote domestic investments, the Government also provided similar facilities to private companies for FDI. These included the duty free importation of materials and capital goods for two years. The impact of these policies implemented on July 1997, resulted in an investment growth of 8.6%. Investment also increased from 397 trillion rupiah in 1996 to 431 trillion rupiah in 1997.

Act No. 5, 1999 on privatisation policies were aimed at resolving the crisis problem in Indonesia by the Government and Legislative Council. In 2005, the Government also released four policies packages for the energy, monetary, fiscal, and investment sectors to promote investments and in anticipation of oil price increases and the depreciation of Rupiah against the US Dollar.

Table 1
Deregulation to Improve Investment Climate

No.	Area	Contents
1	General	- To improve investment services - To improve coordination between central government rule and regional government rule
2	Customs	- To develop special regions - To prevent smuggling
3	Tax	- To give incentive tax for investment - To promote both transparency and disclosure
4	Labour	- To create industrial relationship and improve job opportunities - To encourage the labour market to be more flexible and productive
5	Small-Medium Business Scale and Cooperation	- To support small-medium scale businesses and cooperation

Source : Ministry of Finance

Finally, the Government released Presidential Decree No.3, 2006, to support the investment climate. The area covered included general, customs, tax, labour, and small-medium scale businesses and cooperation (Table 1). The results of these policies were that in the following year, investments increased by 9.16% from Rp403 trillion in 2006 to Rp440 trillion in 2007.

In conclusion, Government policies after the financial crisis focused on encouraging investments, especially when foreign direct investments, dwindled in the aftermath. Deregulation polices implemented by the Government supported the investment climate while others were aimed at enhancing current account performance. With current account liberalisation, the business climate became more competitive and attracted foreign investments to Indonesia.

4. Determinants of Domestic Investments

In this section, the factors influencing domestic investments will be looked at. Although the determinants of foreign direct investments are not dealt with at length, we will briefly explain its determinants. The current study in Bank Indonesia[2] investigates the factors of FDI in Indonesia; which confirms the other researches relating to determinants of investments. The finding of this research is that the most important factor for investments is economic growth.

2. Kurniati, Prasmuko, and Yanfitri, Determinant Factors of FDI, Bank Indonesia, 2007

Economic growth indicates the economic prospects of a country. If there are good prospects, the foreign investor can be induced to invest in the country. Therefore, the relationship between economic growth and FDI is positive. It means a higher economic growth can increase the inflows of FDI. Another important factor is the labour wage that has a negative link with FDI, as increasing labour wage causes production cost to go up. The high cost of production will decrease profit, making it unattractive to investors. One main consideration for a foreign investor's investments in a country is the labour wage. Therefore, if the labour wage in one country is lower than other countries, the foreign investor will be more induced to invest in that country with lower wages.

The infrastructure is another important factor of both domestic investment and foreign direct investment. Electricity, communication, and transportation form part of the infrastructure. They should be readily available to support businesses. The lack of infrastructure will discourage foreign investors from investing. We can conclude that the relationship between infrastructure and FDI is strongly positive. Therefore, the development of infrastructure is needed to encourage investment.

Similarly, the exchange rate affects both domestic investment and foreign direct investment. However, the relationship between exchange rate and investment is negative. The depreciation of the Rupiah against the US Dollar would attract foreign investors to Indonesia, since they can purchase domestic companies at a lower price. Meanwhile, domestic investors will prefer to increase their investment locally rather than in foreign countries, because the price of foreign companies has increased. In conclusion, a lower exchange rate will be followed by higher investment. Meanwhile, the volatility of the exchange rate has no effect on foreign direct investment, since they are usually for the long-term.

Political stability is also an important factor for foreign direct investment. Foreign investors' concern is for the security of their investments. Political instability may cause to withdraw their investments if they feel that their investments are at risk. The political stability is indicated by the country risk. The lower the country risk, the lower the political stability. The International Country Risk Guide (ICRG) reports the country risk in each country in the world. Some studies also shown that country risk is one of the determinants for investments.

Government bureaucracy is also an important factor for foreign direct investment. The more complicated the procedures for investment, the less will

be the interest of investors. Red tape and long periods needed for investment approvals all serve to discourage investment by foreign concerns.

In addition, we will examine the determinants of domestic investment. Domestic investment can be classified as private investment and public investment. Since the data on public investment is relatively scarce in Indonesia, we will use fixed gross capital formation as a proxy for private investment. The determinants of FDI and private investment are relatively similar. For example, GDP growth is one of the factors that influence investment on both sides. The country with high growth will be attractive for foreign investors, since the economic prospects guarantees profitable returns on investment. Therefore, FDI will increase when GDP growth increases. Meanwhile, high GDP growth also creates expectations for the domestic investor to garner higher profit. High GDP growth is generally a good indication for high levels of economic activities. We can conclude that the GDP growth factor can influence both FDI and private investment.

The other factors of private investment are the real exchange rate, real interest rate, and real credit. To analyse the effect of some factors on private investment, we developed a model for real investment. The macroeconomic time series data is usually non stationary at the level and stationary at the first difference. We need to perform the unit root test for random walk variables, to find both the stationarity and the order of integration for each variable of real investment, real GDP, real interest rate, real exchange rate, and real credit. The real interest rate is the nominal interest rate (time deposit 1 month rate) minus inflation.

As real investments, real GDP and real credit have trends, unit root tests were performed with a constant and trend. Alternatively, for the other variables such as real interest rate and real exchange rate which have no trends and seasonal dummies, the unit root test was performed including the constant only. We also performed unit root testing for each variable using one lag, as it is not known which lag has no serial correlation with the residual in the variable. The null and alternative hypotheses are specified as follows:

H_0 : Non Stationary

H_1 : Stationary

Table 2
The Result of Unit Root Test at Level

No	Variable	Including	ADF lag	t-ADF	Critical Value at 1%	Result
1	Real Investment (LI)	Constant & Trend	1	-1.29	-4.04	Non stationary
2	Real GDP (LGDP)	Constant & Trend	1	-1.96	-4.04	Non stationary
3	Real Interest Rate (IR)	Constant	1	-2.49	-3.49	Non stationary
4	Credit (LCred)	Constant & Trend	1	-1.99	-4.04	Non stationary
5	Real Exchange Rate	Constant	1	-0.88	-3.49	Non stationary

All variables were tested at level I(0) and first difference. All variables at first difference I(1) are tested including constant only.

Table 3
The Result of Unit Root Test at First Difference

No	Variable	Including	ADF lag	t-ADF	Critical Value at 1%	Result
1	Real Investment (LI)	Constant	1	- 7.77	-3.49	stationary
2	Real GDP (LGDP)	Constant	1	-10.43	-3.49	stationary
3	Real Interest Rate (IR)	Constant	1	-5.05	-3.49	stationary
4	Credit (LCred)	Constant	1	-5.78	-3.49	stationary
5	Real Exchange Rate	Constant	1	-4.99	-3.49	stationary

We can conclude that all data are stationary at first difference I(1) and therefore the order of integration of all variables is one. This means that all variables can be cointegrated in the long run. We can therefore develop the model for investment in Indonesia using the Engle Granger technique.

To investigate the effect of all independent variables on real investment in the long run, we estimated the logarithm of investment, logarithm of real GDP, real interest rate, logarithm of real credit and logarithm of real exchange rate as independent variables. The results of the long run equation is shown in Table 4.

Table 4
The Results of the Long Run Equation

Variable	Coefficient	Std. Error	t-Statistic	t-probability
C	1.23	1.21	1.02	0.31
IR	-0.01	0.001	-4.74	0.00
LCR	0.47	0.04	13.24	0.00
LGDP	0.40	0.12	3.30	0.00
REM	0.02	0.01	1.88	0.06
DUM	-0.36	0.02	-15.98	0.00

R^2 = 0.98 and DW = 1.93

In addition, we performed the test for the residual to confirm whether the equation is cointegrated, i.e., if the residual of the long run equation is stationary, it would mean that the equation is cointegrated in the long run.

Graph 19
The Residual of Long Run Equation

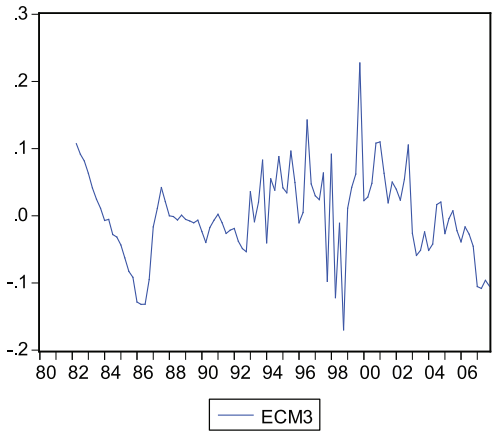


Table 5
The Result of Unit Root Test at Level

No	Variable	Including	ADF lag	t-ADF	Critical Value at 1%	Result
1	Residuals	None	1	- 3.33	- 2.89	Stationary

Since the result shows that the residuals have no unit root at level, it implies that they are stationary. Therefore, the cointegrated long run equation is as follows:

$$l(I) = 1.23 - 0.01^{*} \text{ ir} + 0.47^{*}\, l(Cr) + 0.4^{*}\, l(GDP) + 0.02^{*}\, REM - 0.36^{*}\, Dummy + \varepsilon$$

The slope of the long-term real interest rate is –0.01 meaning that the average investment has been decreasing at the rate of -0.01. Based on economic theory, increasing interest rate can lower investment in the long run. The cost of investing will be higher when interest rate rises. Moreover, people will prefer to save rather than invest when the interest rate is high. The relation between real investment and real interest rate is negative in the long and short term.

On the contrary, both real credit and GDP has postive relationship with real investment in the long run. The slope is 0.47 and 0.4 respectively. Increasing real credit 1% will raise real credit by 0.47%. Meanwhile, increasing real GDP by 1% can raise real investment by 0.4%. Real credit is classified by three categories: investment credit, consumption credit, and working capital credit. Increasing credit will also in turn lead to increased investment. Similarly, increasing real GDP can raise real investment since real GDP is an indication of economic prospects.

The slope of the real exchange rate is 0.02, meaning depreciating Rupiah against US dollar by 1% will raise real investment by 0.02%. There will be more investment when the value of the Rupiah against US dollar falls. Since holding Rupiah is not attractive, there would be a preference to either buy US dollar or make investments.

The ECM is obtained from the residual of the long run equation. The ECM is put into the dynamic equation of real investment and the parsimonious equation is as below:

$$\Delta 1(I) = 0.02 - 0.2^{*} ECM_{t-1} - 0.004^{*} \Delta(ir)_{t-3} + 0.46^{*} \Delta l(GDP)_{t} + 0.17^{*} \Delta l(I)_{t-3} - 0.02^{*} Dummy + \varepsilon$$

Table 6
The Result of Parsimonious Equation

Variable	Coefficient	Std. Error	t-Statistic	t-probability
C	0.02	0.01	2.92	0.004
ECM(-1)	-0.20	0.07	-2.93	0.004
D(IR(-3))	-0.004	0.001	-3.96	0.00
D(LGDP)	0.46	0.12	3.75	0.00
D(LI(-3))	0.17	0.09	2.01	0.047
DUM	-0.02	0.01	-2.14	0.035

R^2 = 0.38 and DW = 1.92

The goodness of fit or R^2 = 0.38 meaning that 38% of the total variation in real investment can be explained by the regression model. The R^2 is low, since we used variables which have been differenced in the regression model. All explanatory variables are significant in that the t-probability is below 5%.

The ECM lag one quarter (ECM_{t-1}) has a t-probability of 0.004 that is strongly significant, meaning the ECM is still persistent in the system for the past one quarter and has an influence on the other variables. The coefficient of ECM should be negative, since the function of the ECM is to bring the equation into an equilibrium in the long run. It is - 0.2 implying that 20% of the disequilibrium is removed in one quarter.

The elasticity of Δir_{t-3} is -0.004, meaning if real interest rate three quarters ago goes up by 1%, the average investment will go down by 0.4%. Theory states that real investment will decrease if the real interest rate goes up. The cost of investment will increase when interest rate is high. Investors reduce their investments when the real lending rate increases. Moreover, people will prefer to save rather thaninvest when the interest rate is rising. Therefore, the relationship between real interest rate and real investment is negative.

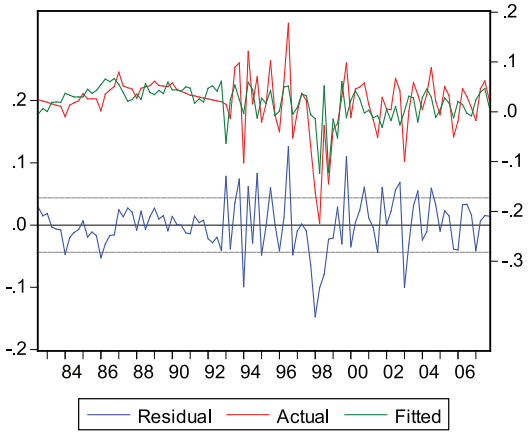
The elasticity of $\Delta L(GDP)_t$ is 0.46 meaning that if real income goes up by 1%, the average investment goes up by around 0.46%. This confirms the theory that the real GDP is an indication for economic prospects. Therefore, a high economic growth will be followed by increasing investment, as this would make it attractive for investments. Moreover, as a high GDP indicates higher incomes for individuals, they are also likely to make more investments. Therefore, GDP growth increases both foreign direct and domestic investments.

The elasticity of $\Delta L(I)_{t-3}$ is 0.17 meaning that if real investment 3 quarters ago goes up by 1%, the average investment goes up by around 0.17%.

Theoretically, an individual's investment in the past will affect the individual's investment now. The effect can be positive or negative but in this case, the effect is positive. The dummy variable representing the period after the financial crisis, is strongly significant with a t-probability of 0.035 below 5%.

Graph 20 comparing between the actual and fitted investments indicates that the regression model is an excellent fit, since both lines (red line for actual and green line for fitted) track each other closely. This means that the short run investment model is valid.

Graph 20
Actual and Fitted Investment Model



5. Issues and Challenges Regarding FDI and Private Investment

Issues related to both foreign direct investment and private investment are note worthy in the aftermath of the Asian financial crisis. Investment in some countries has grown significantly, while it has increased slowly in others. In Indonesia, investment has witnessed a slower growth. This situation is reflected in various indicators[3], including a decreasing Trend of Incremental Capital Output Ratio (ICOR) which shows that capital productivity has become slower.

On average, the percentage of realised FDI to FDI applications is about 50% since 1990s, indicating that many foreign project plans were cancelled. There has been a reduced number of new foreign direct investments based on

3. Indonesia Economy Outlook 2006-2010, July edition, 2006.

approval data by BKPM in the 2000s. However, after the crisis, the yearly average FDI has been higher than domestic investment. However, the net FDI (inflows minus outflows) after crisis is not encouraging, even though it was positive in 2002 and 2004.

The higher outflows than inflows indicates a discouraging climate for investment, especially for foreign companies in industries which are not dependent on local materials and natural resources such as electronics, textiles, clothes, and shoes. These foreign companies can therefore easily shift their factories if the local conditions are not attractive.

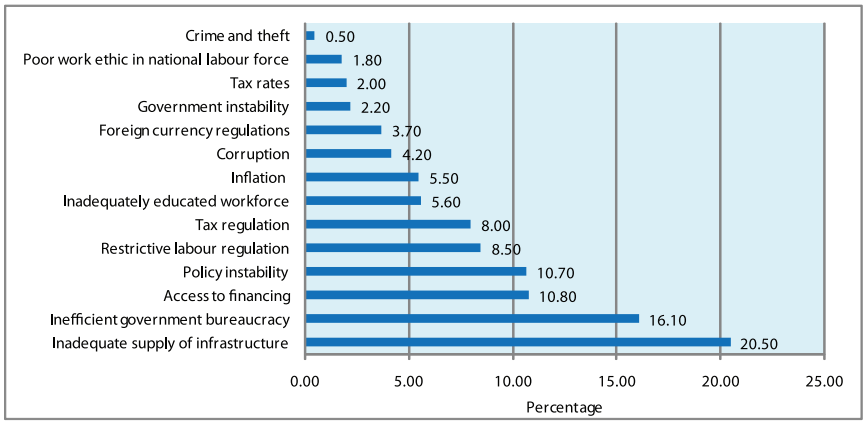
The competitiveness of Indonesia is lower than the other Asian countries and is the only one amongst Asian countries which had negative FDI after financial crisis. This situation is also related to the political condition, which has improved after 2000.

Stern (2002) states that the business or investment climate is the condition where investments are made with the lowest possible risks and costs and the greatest potential for high returns in the long term. For example, some studies report that the improvement in the investment climate in China by decreasing investment cost and reducing investment risk has promoted investment.

The issue of investment climate has also impacted the oil sector. Investors in the oil sector are reluctant to explore for new sources of oil as these activities are taxed. Exploration for new oil sources will be charged both value added tax (PPN) and income tax (PPh), even if the explorations prove to be failures. With added high environment risks, investors have been reluctant to invest in Indonesia.

The interesting question is why do countries experience vast differences in investment growth? This can be explained by exploring investment problems in each country. Many countries share similar issues in the lack of infrastructure and government bureaucracy. The main problem thwarting investment in Indonesia is inadequate infrastructure (Graph 21).

Graph 21
The Main Problems for Doing Business in Indonesia



Source: The Global Competitiveness Report 2007-2008 (World Economic Forum)

The lack of infrastructure is the main concern for attracting investment to Indonesia. For example, electricity only recorded 53% in terms of infrastructure performance (Table 7). Electricity supply is not able to reach all regions in Indonesia due to its high generation costs. When the price of oil and gas increases, the cost of electricity will increase according, reducing the supply. Moreover, the supply of electricity is also dependant on the tower capacity - causing black outs in case of tower breakdowns.

Table 7
The Infrastructure Performance in Indonesia

Indicators	Indonesia (2000)
Electricity (%)	53
Fix line phone (%)	4
Mobile phone application (%)	6
Access to sanitation (%)	55
Access to clean water (%)	78
Road network (km per 1,000 people)	1.7

Source: World Bank (2005)

The other components of infrastructure are the supply of fixed phone lines and road network. Some regions in Indonesia, for example Sumatera and Java, have good infrastructure with many fixed phone lines and good road network. However, other regions such as Kalimantan and Sulawesi, have inadequate infrastructure where the number of fixed phone lines is low, making communication difficult and expensive. Moreover, the road network is not well developed, making transportation expensive. In light of this, the cost of production is very high in these regions, making it unviable for investments.

The second problem is government bureaucracy. The World Bank's survey indicates that the procedure, time, and cost to starting businesses in Indonesia are factors affecting investments. Table 8 shows that the factor representing government bureaucracy in Indonesia stands at 63 (out of 131 countries) with a score of 3.9 (out of 7). Indonesia ranks lower that other Asian countries such as Singapore, Malaysia, and Thailand.

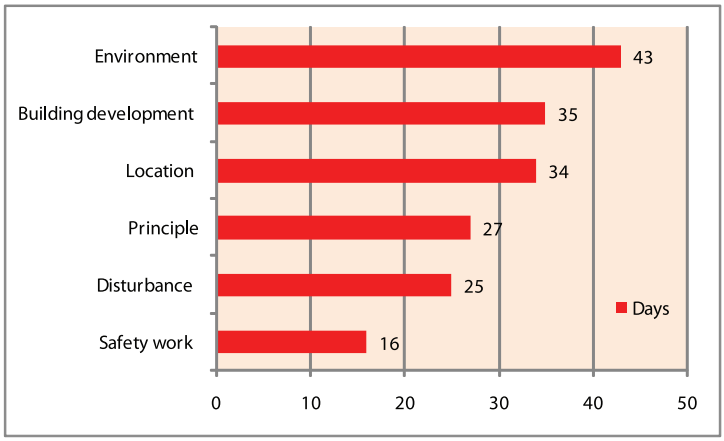
Table 8
The Rank of Basic Requirement in Indonesia

	Rank (Out of 131 countries/economies)	Score (Out of 7)
Global Competitiveness Index	54	4.24
Basic requirements	82	4.14
1st pillar: Institutions	63	3.90
2nd pillar: Infrastructure	91	2.75
3rd pillar: Macroeconomic stability	89	4.59
4th pillar: Health and primary education	78	5.31

Source: The Global Competitiveness Report 2007-2008 (World Economic Forum)

In terms of approvals for investment procedures in Indonesia, it can be seen from Graph 22 that approval for environment procedures take 43 days. The next longest is for building development approval, taking 35 days. Meanwhile, obtaining principle approval takes 27 days. These indicate that government bureaucracy in Indonesia is still rife as investment approvals still take up a lengthy period.

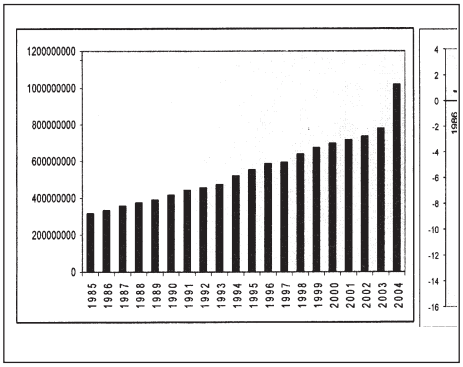
Graph 22
Number of Days for Approvals in Indonesia



Source: LPEM-FEUI, 2005 (Purwanto, 2006)

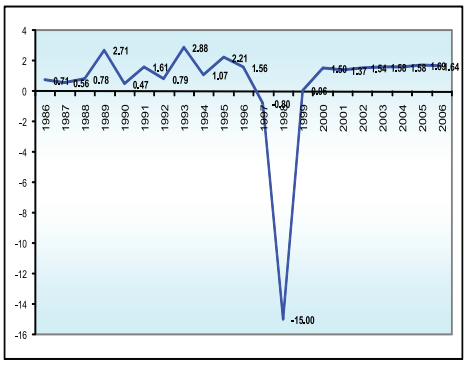
A less qualified workforce is also an important factor, particularly after the financial crisis when human resource productivity scaled down steeply, as indicated by the total factor of productivy (TFP) which reached below 0% (Graph 24). While the development of human capital shows a rising trend (Graph 23), it does not mean a higher educated labour force. This rise in human capital is mostly due to the rising number in work force.

Graph 23: Human Capital



Source: BPS, computed by author

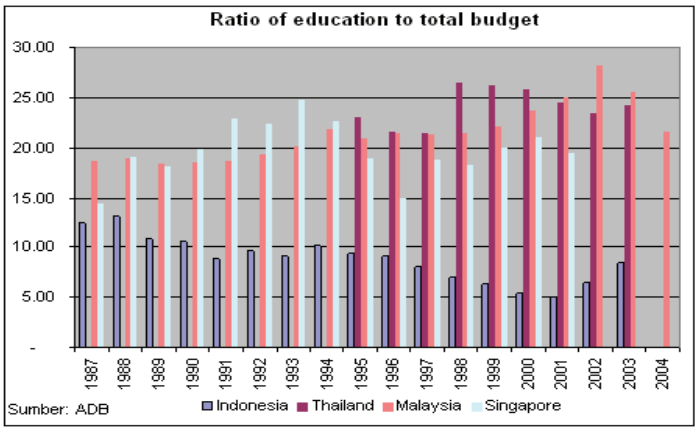
Graph 24: Total Factor Productivity



Source: computed by author

The high supply of labour itself is insufficient as a highly skilled work force is vital. To develop high skilled labour, education is imperative. An educated workforce would lead to higher productivity. Investors are not only looking for cheap labour but also high labour productivity. The Government should focus on developing human capital by increasing education facilities which are still lacking. As can be seen in the Graph, the ratio of education budget to total budget in Indonesia is lower than other Asian countries such as Singapore, Thailand, and Malaysia.

Graph 25
Ratio of Education to Total Budget



Source: ADB

As can be seen in Table 9, the rank of the category "higher education and training" is 65 with a score by 4. It is evident that Indonesia has a lack of sufficiently educated workforce. Meanwhile, Indonesia's labour market efficiency rank at 31 with the score of 4.74. Therefore, the labour problem is not just one of low skills but also market efficiency. In addition, strong labour unions calling for strikes now and again, lower the productivity of industries. These are all factors which are considered by prospective investors.

Table 9
The Rank of Efficiency Enhancer in Indonesia

	Rank (Out of 131 countries/economies)	Score (Out of 7)
Efficiency enhancers	37	4.43
5th pillar: Higher education and training	65	4.00
6th pillar: Goods market efficiency	23	5.06
7th pillar: Labour market efficiency	31	4.74
8th pillar: Financial market sophistication	50	4.65
9th pillar: Technological readiness	75	2.99
10th pillar: Market size	15	5.17
11th pillar: Business sophistication	33	4.65
12th pillar: Innovation	41	3.56

Source: The Global Competitiveness Report 2007-2008 (World Economic Forum)

The Government also has challenges in promoting investment. Firstly, the Government should improve the infrastructure such as the supply of electricity, road network, and fixed phone lines. To increase the supply of electricity, the Government, through the state companies, have to increase electrical capacity by increasing generators. If the capacity of electricity can meet electricity demand, the risks of black outs will be minimised.

Meanwhile, to enhance transportation, the Government has to build develop new roads or repair damaged roads. The priority should be the development of road networks in less developed regions such as East Indonesia. A better road network is needed to ease transportation difficulties between regions. With a good transportation system, production costs will be reduced, making it viable for investors to invest.

Communication is another important factor for promoting invesment. The Government should increase the number of fixed phone lines, especially in East Indonesia. By implementing appropriate policies in telecomunication, the Government can control the price of communication. Production costs will be lowered with the reduction in the cost of telecommunication. With the overall reduction in production costs such as communication, transportation and material costs (electricity), investors can reduce their overall production costs which will encourage further investment.

Reformation in government bureaucracy is also needed to simplify investment procedures. This will make it easier for investors, especially foreign investors, to obtain approvals and encourage further investments in Indonesia. The continued bureaucracy will induced investors to move their investments to other countries which are less bureaucratic. The Government should implement rules simplifying investment procedures and encourage openness in trading.

The Government can also reduce the length of time needed for investment approvals. The policies to create a more conducive investment climate covers the following:

1. Shortening procedure of investment to be about 30 days
2. Assuring business certainty by solving problems between national policies and regional policies, and inter sector policies
3. Giving incentives to investors
4. Promoting investment with better coordination between domestic and overseas investors, including promotions for foreign staff

Moreover, the Government needs to initiate regulations for both domestic investment and foreign direct investment that would promote the investment climate. To attract investments in the oil and gas sector, the Government should be simplify the investment procedures. As a start, if possible, they should lower the exploration tax for oil anand gas. Hopefully, the reduction in tax can motivate oil investors to increase their efforts for new explorations for oil sources.

The Government also has challenges in consistencies of policies. Frequent changes in the government policies will not augur well for investments as investors would be reluctant to increase their investments if they have reservations about the stability and security of their investments. The Government should have a long term strategy plan that ensures that policies pertaining to investments are continued and consistent even if the Government is replaced.

Another challenge is increasing the supply of educated labour which can be met by promoting education. While the wage rate is a factor considered by potential investors, just low wages only without necessary skills is not sufficiently competitive. Appropriate Government policies for both education and wages are important to increase the competitiveness of Indonesia in investments. While competitive wage levels are important, the productivity of labour is equally important in attracting investments.

In light of this, the Government should allocate more budget for education and raise the ratio of education to total budget to over 20%. Better education for the masses would translate to a higher skilled labour force. The Government can also initiate informal education such as training and vocational schools. It is important to resolve the education gap between more developed regions such as Java and less developed ones in East Indonesia where facilities for education are lacking. While there is a well educated workforce in Java, it is the opposite in regions in East Indonesia. Hopefully, by improving the education facilities in these areas, the problem of an inadequately educated labour force can be resolved.

Another challenge is the preservation of political stability. Political stability is an important factor as investors, particularly foreign investors, will only invest if only the country risk is low. A low country risk signifies stable political conditions, which is inductive for attracting investments.

Another recommendation is that the Government should try its level best to maintain consistencies in policies, especially those pertaining to investments. This would require that policies remain consistent even when there is a change in the Government. Policy consistency would guarantee the security of investments by investors. Policies which are inconsistent and change frequently would affect the confidence of investors in the country and the Government should therefore consider this factor seriously when initiating new policies.

The Government also need to monitor the application of laws or regulations relating to investments. Regulations on joint-investments with the other countries should be adhered to. Bilateral agreements with countries which have foreign direct investments in Indonesia such as China, India, and Singapore should be monitored and well coordinated to improve production networking and finally promote economic growth, FDI inflows and investments. The Government can further promote the investment climate by giving tax incentives for foreign direct investment such as the discounting of taxes for increases in investments. Incentives such as these should be applied equally in all regions in Indonesia for the equitable promotion of investments in the country.

6. Conclusion

The long run investment model has shown that there is a strong relationship between the real interest rate, real GDP, real credit, and real exchange rate. The empirical results verify that real interest rate can directly influence real investment. Decreasing the real interest rate will raise real investment and vice

versa. However, the effect of this is relatively small in comparison to other factors. This indicates that real interest rate is not the most important factor in determining real investment. This can be seen after the financial crisis from 1997-1998 when the banking sector was reluctant to lend to the real sector. The commercial banks instead preferred to place their funds in the financial market where the risk is lower such as trading in SBI (Bank Indonesia's Certificate).

Both long run and short run models of investment show that real output can affect investment in the long and short term. Indeed, the effect of both real GDP and real credit is larger than the other factors in the long term. The role of GDP in attracting investment is consistent with economic theory in that increases in real income means that people have more money to invest which in turn would attract more investments. High economic growth is normally commensurate with good business prospects.

The Government should therefore strive to increase real GDP growth to attract further investments. Real GDP can be increased by increasing Government expenditure. Real sector growth can also be encouraged by focusing on sectors that have high export capacity. Bank Indonesia as the central bank can assist the Government by maintaining macroeconomic stability.

Conversely, real credit impacts investment only in the long run. The long run model shows that increasing real credit can in turn raise real investment. The elasticity of real credit to real investment is the highest meaning that the effect of real credit on investment is significant. If we want to increase real investment, we need to increase real credit. In this regard, the role of the central bank is important in widening the access of business units and the population to credit funds. However, the central bank has no authority to compel commercial banks to provide credit.

To improve access to real credit, the central bank can simplify procedures particularly for investment credit. Commercial banks will generally adhere to the regulations set by the central bank. The simplifying of credit procedures will induce investors to increase investments. However, the simplification of credit procedures does not mean that banks have to grant credit without proper assessment of the viability of applicants. The central bank can encourage commercial banks to allocate funds for credit besides the money market.

Similarly, while the real exchange rate affects real investment in the long run, it has no impact in the short run. The investment model shows that depreciating real exchange rate can increase real investment in the long run.

Economic theory states that the correlation between real investment and real lending rate is negative, meaning that investment will increase if the real exchange rate goes down or depreciates, which is confirmed by the investment model.

Even though a depreciating exchange rate can improve investment, it is not to say that the exchange rate should be depreciated deliberately as a depreciating Rupiah has the impact of an increased inflation rate. For this reason, the central bank should endeavour to maintain the stability of the exchange rate. The dummy variable to proxy the pre and post Asian financial crisis period is significant in both the long run and short run equations, meaning that the investment model has a structural break. This is evidence that the financial crisis affected real investments in Indonesia.

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Chapter 3

INVESTMENT IN KOREA IN THE POST-CRISIS ERA: ISSUES AND CHALLENGES

by
Yoon, Sang Gyoo[1]

1. Introduction

Investment in Korea, which showed a recovery following the currency crisis, began to slow down starting from 2001 and decreased with greater rapidity than did GDP. Inward FDI, which topped an average of US$11 billion for nine consecutive years from 1999, has declined slightly since 2004. Meanwhile, it seems that considerable change occurred in investment behaviour, following the drastic post-crisis changes in economic structure.

Investment is one of the important factors that consist of final demand and determine the growth potential of an economy. This is the reason why stagnant investment activities are of great concern because a slowdown in investment may lead to economic slowdown and lessen the long-term growth potential. For the purpose of searching for effective measures to stimulate investment, more precise analysis of what has determined private investment in Korea should be made considering the drastic post-crisis changes. Accordingly, the objective of this paper is to find the determinants of private investment, which has slowed since the currency crisis, and to draw policy implications to promote investment.

This paper is organised as follows. Section 2 provides an outline of the trends of investment in Korea. In Section 3, major policies related to foreign direct investment and domestic investment are analysed. Section 4 presents an extended private investment model and time series tests. Finally, in the last section, the analyses results are reviewed to draw some policy implications.

2. Trends of Investment in Korea Since 1985

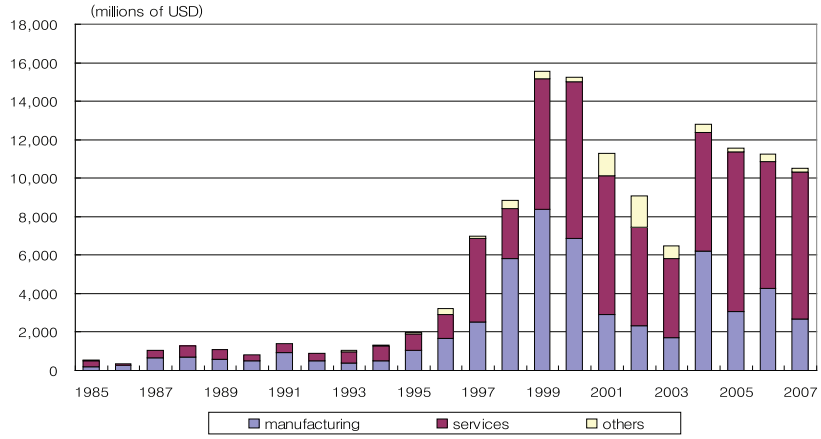
The Asian currency crisis provided strong motivation for attracting FDI. Inward FDI for the ten years after the Asian crisis was four times greater than that of 1962-1997. Inward FDI topped an average of US$11 billion on a

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notification basis for nine consecutive years from 1999. After the crisis of 1997, the Korean government dramatically changed its policy towards inward FDI by implementing extensive liberalisation measures and undertaking all-out promotion efforts. The sharp increase in FDI since 1997 was due to various factors: a favourable investment environment, depreciation of the local currency and asset values; and the government's promotion of investment through deregulation; the increased number of company offerings as a result of corporate restructuring and the privatisation of government owned companies. Thanks to these policy changes that were accompanied by a global IT boom, FDI flowed into Korea in record amounts during 1999-2000. However, FDI inflows into Korea fell sharply in 2001. This rapid fall of FDI inflows into Korea was largely due to the slowdown of the world economy.

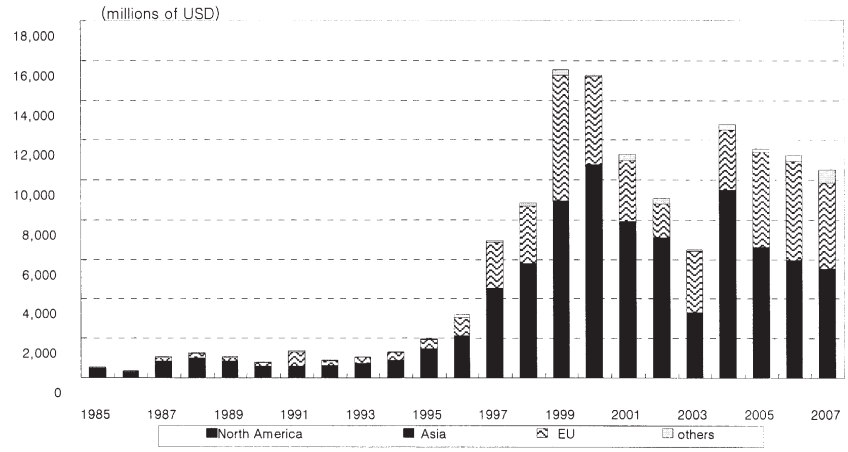
Looking at FDI into Korea for the past 10 years in two stages, during the first stage of 1998-2002, there was a quantitative expansion through the active attraction of foreign capital with liberalisation of regulations and, during the second stage since 2003, there was a qualitative growth through the strategic attraction of FDI with the targeting specific industries. Since 2004, Korea has experienced a slight decline in inward FDI. However, annual FDI inflows have remained high at levels of more than US$10 billion on a notification basis. As shown in Appendix Table A-4, the services industry accounts for 54.4% of the total amount of investment, recording US$ 76.2 billion in terms of outstanding invested amount as of the end of March 2008. The sectoral distribution of inward FDI within the services industry indicates that finance and insurances accounts for 33.1%, recording US$ 25.2 billion. Meanwhile, the manufacturing industry accounts for 40.9% of inward FDI, standing at US$ 57.2 billion. The sectoral distribution of inward FDI within the manufacturing industry indicates that electrical and electronics accounts for 33.6% of the manufacturing industry, recording US$ 19.2 billion.

Figure 1
Trends of Inward FDI by Sector



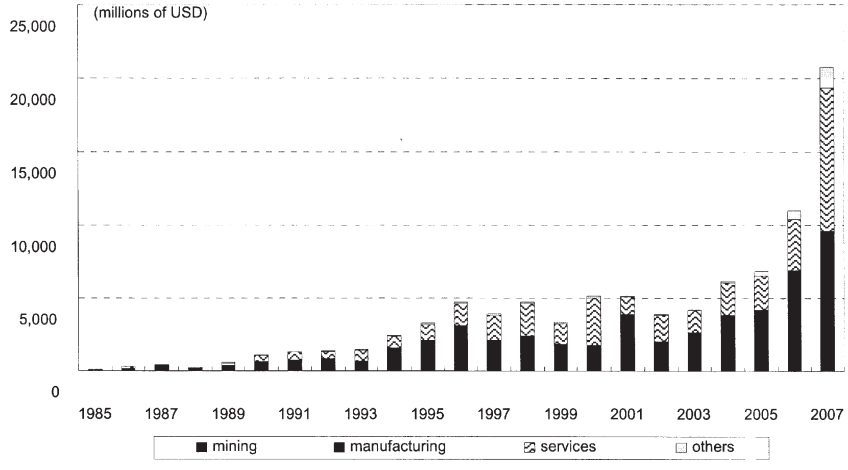
As shown in Appendix Table A-5, the geographical distribution of Korean inward FDI shows that North America makes up the largest share, with 35.1% of total investment. EU (33.1%) and Asia (29.3%) follow. Based on the outstanding invested amounts at the end of March 2008, the investment ratios between regions do not vary substantially.

Figure 2
Trends of Inward FDI by Origin Country



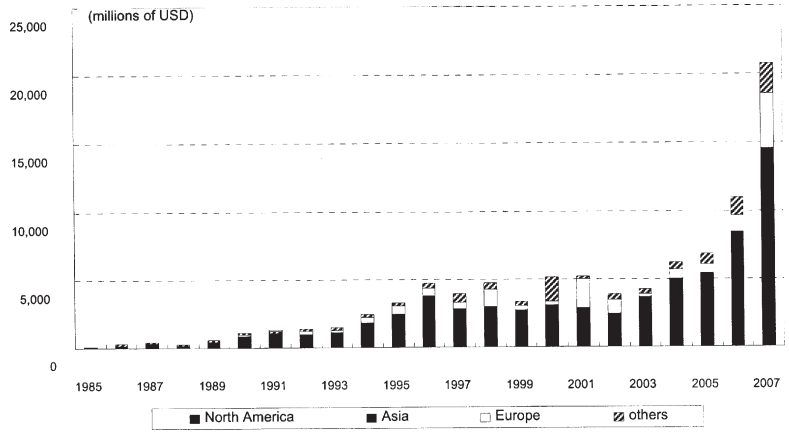
Korea's outward FDI, which saw an overall surge from the late 1980s up to 1996, has fallen since the currency crisis. At the end of the 1980s, Korea's overseas direct investment (outward FDI) increased rapidly as the country had been achieving surpluses on the current account due to three low cost factors: oil prices, exchange rates and interest rates. FDI outflows of Korea continued to rise until 1996. With the eruption of the currency crisis in 1997, the level of investment declined, but outward FDI has continued to increase except for the crisis years of 1997 and 1999, and the global slowdown in 2002 and 2003 after the IT boom. Especially, in 2002 and 2003, FDI outflows decreased dramatically. However, the Korean government facilitated outward FDI, in recognition of its importance as a means of raising the competitiveness of domestic companies. As a result, Korea's FDI outflows have rapidly increased since 2004, driven mostly by rise in FDI outflows to China. In particular, after the government undertook deregulation on outward FDI, for example when the procedures for establishing overseas offices of domestic financial institutions were simplified and the related criteria were relaxed in April 2007, FDI outflows surged two-fold in 2007. As shown in Appendix Table A-6, the manufacturing industry accounts for 47.3% of the total amount of investment, recording US$46.9 billion in terms of outstanding invested amount as of the end of March 2008. The sectoral distribution of outward FDI in the manufacturing industry indicates that electronics, parts, etc., accounts for 26.3% of the manufacturing industry, recording US$ 12.4 billion. In addition, the services industry accounts for 39.9%, or US$ 39.7 billion. The sectoral distribution of outward FDI in the services industry indicates that wholesale and retail accounts for 41.1% of the services industry, recording US$ 16.3 billion.

Figure 3
Trends of Outward FDI by Sector



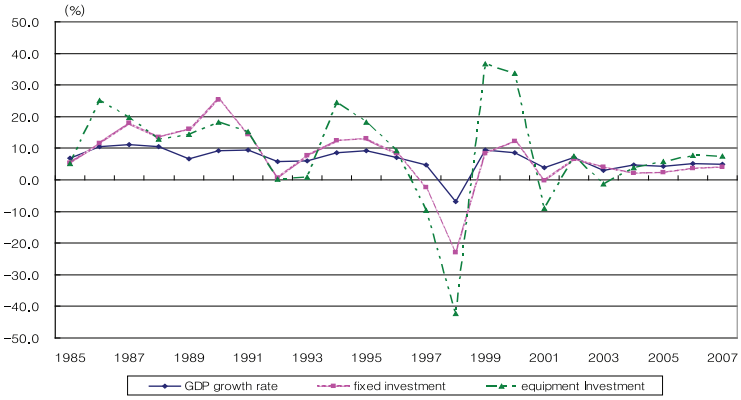
As shown in Appendix Table A-7, the geographical distribution of Korean outward FDI shows that the Asian region makes up the largest share, with 48.6% of total investment, followed by North America (24.1%) and Europe (15.4%).

Figure 4
Trends of Outward FDI by Destination Country



Domestic equipment investment (hereafter "investment"), which showed a rapid recovery following the currency crisis, subsequently began to slow down dramatically, showing a steep decrease (-9.0%) over the previous year in 2001. Moreover, as investment decreased with greater rapidity than did GDP, its ratio to GDP (investment/GDP), which had stood at 12.8% in 2000, dropped to 8.9% in 2007. Meanwhile, it seems that considerable change also occurred in investment behaviour, following the drastic post-crisis changes in economic structure. First of all, after the crisis, correlation between investment and economic activity increased as the crisis made Korean firms more responsive to profitability and investment in imported capital goods, which is more sensitive to activity. Another feature of investment in Korea since the crisis is that more firms now depend to a larger extent on internal financing for their investment resources. This likely reflects the fact that investment decision-making firms are putting more weight on actual profits after the crisis and that financial institutions are tightening their screening criteria for lending.

Figure 5
Trends on GDP and Investment Growth



3. Major Policies Related to Foreign Direct Investment and Domestic Investment

The Korean economy of the past take-off and high growth stages of the 1960-1980s can be characterised by the deep involvement of the government in the economy and its close relationship with the private sector. Although this development paradigm in the 1960s and 1970s seems to have been one of the major forces behind the 'miracle' of the Korean economy -the fast development and high growth rate- it is now deemed to have contributed greatly to the currency crisis on hinge sight. Post-crisis development has concentrated on the three areas of investment, capital and foreign exchange markets, and trade.

Although it was only after the currency crisis in 1997 that major liberalisation measures of the trade sector were carried out, much of Korea's trade and services had been liberalised, albeit slowly, prior to the crisis. Korea had committed to opening its market for goods and services previously in such international organisations as the WTO and the OECD, and the measures taken after the crisis merely represented an acceleration of such measures. In other words, Korea already had a well-developed trade liberalisation in place prior to the crisis. On the other hand, the extensive market opening measures for investment and capital flows represented a substantial change in existing policy.

Table 1
Liberalisation of Financial Markets in Korea

Date	Measures
Dec. 1997	Full liberalisation of the corporate and government bond markets
Apr. 1998	Establishment of foreign subsidiaries allowed
May 1998	Opening of all money market instruments (CP, CDs, RPs, etc.) Removal of ceilings on foreigners' stock market investments (with the exception of some state-owned enterprises)
Apr. 1999	Capital account transactions regulation system changed from a negative list to a positive list

After the crisis, major trade liberalisation was at first carried out as a part of Korea's IMF structural programme. It included the elimination of the Import Diversification Programme, the elimination of subsidies, the reduction of the number of items subject to adjustment tariffs, the revision of import procedures, and the liberalisation of some service sectors. Subsequently, a second round of trade liberalisation was initiated by the Korean government, concentrating on reducing government regulations on trade. As a result the Korean trade sector became more globalised, as reflected in the increased share of trade in GDP. Various trade indicators improved, the capital and foreign exchange markets broadened and deepened and foreign capital inflows increased. According to data from the Ministry of Strategy and Finance, Korea's simple average applied tariff rate dropped from 11.4% in 1990 to 7.9% in 1994, where it has remained since.

Table 2
Simple Average Tariff Rates in Korea before 1998

1990	1991	1992	1993	1994	1995	1996	1997
11.4	11.4	10.1	8.9	7.9	7.9	7.9	7.9

Source: Ministry of Strategy and Finance

Investment liberalisation focused on removing or easing various restrictions on foreign investors through the enactment of the Foreign Investment Promotion Act, liberalisation of the capital market, and the removal of restrictions on hostile takeovers of local companies by foreigners. Together with several favourable factors such as the depreciation of the won, investment liberalisation significantly increased FDI inflows into the Korean economy. Cross-border M&As and privatisation were the major channels through which foreign capital flowed in.

While the major role of large FDI inflows was to improve liquidity in the Korean corporate sector, it also helped introduce advanced management techniques and built a new corporate governance and control structure. Previously, foreign investors may have faced direct or indirect restrictions on investment activities such as restrictions on investment in certain businesses, limits on the amount of shares held in a company or restrictions relation land ownership. However, many of these restrictions were removed or at least significantly eased through the enactment of the Foreign Investment Promotion Act in 1998, the liberalisation of the capital market and the removal of restrictions on hostile takeovers of local companies by foreign ones. The effects of the Act are as follows: first of all, 99.8% of business areas, a level on a par with other OECD economies, have been made entirely open to foreign investment. All types of FDI are now permitted, including the establishment of new businesses, mergers and acquisitions, the acquisition of newly offered and previously issued shares, and long-term loan investment. Cross-border M&As and land acquisition by foreigners were liberalised.

Finally, once investment by a foreigner has been established, restrictions on fund transfers are eased. Also, various administrative efforts to provide a favourable investment environment included the broadening of tax incentives for foreign investment such as widening the range of qualifying projects, extending the tax exemption period and increasing the tax exemption level; setting up administrative offices to serve as a "one-stop" service centre and the Office of Investment Ombudsman to resolve any conflicts or problems in foreign investment activities. The government provides various incentives and deregulations to attract FDI such as tax reduction, cash grant, location support etc. Tax reductions include the reduction or exemption of corporate and income tax for 7 years, of acquisition, registration and property tax for 5-15 years and of tariffs for 3 years. The government provides cash grants for foreign investors for financing the construction of facilities or the purchase of equipment related to the investment. The government also provides subsidies for employment and training and support for the improvement of business and living environment. The Invest Korea Plaza opened in October 2006 with main services including secretarial and reception services and dedicated office space, all administrative services related to business consultation and investment etc. The government is also working to achieve better living conditions for foreigners, particularly in the areas of education and medical services. One of the top priorities for the new government is ensuring economic growth by attracting more FDI inflows. Therefore, it will strengthen its efforts to achieve this goal by improving the overall investment environment through a combination of policies involving tax cuts, deregulation, and more organised support for businesses.

Economic Policy Direction for the New Government

More favourable place for foreign investors
- One-stop service for foreign investors
- Reinforcing administrative assistance: Tax, immigration, etc.
- Improvement of living environment

The Foreign Investment Promotion Act (FIPA)

The Foreign Investment Promotion Act (FIPA) was enacted to facilitate foreign investment by supporting foreign investment and making it convenient for investors. The Foreign Investment Promotion Act is the basic law for foreign investment, while the secondary legislation includes the Foreign Investment Promotion Act Enforcement Decree and Enforcement Regulations providing for matters delegated to the legislation by the Foreign Investment Promotion Act and matters required for enforcement, and regulations on foreign investment and technology import. Also, unless stated otherwise in the Foreign Investment Promotion Act, the Foreign Exchange Trade Act will apply to matters related to foreign exchange and external dealings related to foreign investment. The Tax Exemptions and Exceptions Act and its Enforcement Promotion Decree and Enforcement Regulation, and regulations on tax reductions for foreign investment, etc., govern tax reductions for foreign investments.

Foreign Investment-Related Law

Basic Legislation
- Foreign Investment Promotion Act · Enforcement Promotion Acts · Enforcement Regulations
- Regulations on foreign investment and technology import
- Comprehensive announcement of foreign investment
- Regulations on tax reduction and exemption for foreign investment
- Tax exemptions and Exceptions Act · Enforcement Ordinances · Enforcement Regulations

Other Related Legislation
- Foreign Exchange Trade Act: Matters regarding foreign exchange and external trading related to foreign investment
- Law on designation and operation of free trade zones
- Law on designation and operation of free economic zones
- Securities Trade Act, etc.

Liberalisation of capital involves liberalising the capital and foreign exchange markets. Prior to the liberalisation of the capital market, financial deregulation measures in Korea had been first initiated in 1979 with the privatisation of banks, free entry of non-bank financial intermediaries, introduction of new financial instruments and so on. After such deregulation processes, capital market liberalisation measures were undertaken in the first half of the 1980s. In light of this, domestic banks were allowed to borrow from abroad, foreign investors could participate in the Korean stock market through investment trust funds, and the Korea Fund was listed on the NYSE. However, the outbreak of the currency crisis changed the climate for capital market liberalisation. The crisis forced the country to adopt a "big bang" approach in the opening up of the markets. In May 1998, the restrictions on aggregate foreign ownership of shares of listed Korean companies and money market instruments were eliminated.

Following the adoption of the managed floating exchange rate regime in 1990, alternatively called the market average exchange rate system, the won-dollar exchange rate was in principle determined by market forces. To support this system, regulations on foreign exchange dealings were relaxed and with it the rapid development of the inter-bank foreign exchange market. However, the crisis brought about the accelerated liberalisation of the foreign exchange market. The new Foreign Exchange Transaction Act, which came into effect in April 1999, replaced the Foreign Exchange Act. It guarantees international wire transactions of profits resulting from equity trading, principal and interest on long-term loans, payments received for the import of technology, and foreigners' remittances. Together with the liberalisation of FDI, the liberalisation of the capital and foreign exchange markets widened the doors for foreign capital inflows. Like investment deregulation, liberalisation of the capital and foreign exchange markets increased foreign capital inflows into the Korean corporate sector, mainly through foreigners' investment in the Korean stock and foreign exchange markets. The foreign net purchase of Korean securities, which until recently was concentrated in equity investment, has increased. The efficiency of the foreign exchange market increased, and its daily turnover has also expanded.

Table 3
Korea's Foreign Exchange Market Liberalisation

Dates	Measures	Major Improvements
Apr 1999	first phase of FOREX liberalisation	1) abolishing the Foreign Exchange Management Law and enacting the Foreign Exchange Transaction Laws, 2) converting regulations on capital transactions to a negative system
Jan 2001	second phase of FOREX liberalisation	abolishing the ceilings on overseas payments for overseas expenses for travel, stay, education and emigration
Apr 2002	medium and long term policy direction to deregulate the foreign exchange market	aiming to complete FOREX liberalisation by 2011 through 3 phases
Dec 2005	abolition of capital transaction licensing system	transformed to ex post report system
Jan, Mar 2006	measures to expand outbound FDI	removing ceilings on outbound FDI by individuals and restrictions limiting the types and items of overseas securities investment by individuals
May 2006	early implementation of FOREX liberalisation plan	1) advancing the schedule of the FOREX liberalisation plan from 2011 to 2009, 2) aiming to complete the second phase of the FOREX liberalisation plan by 2009, 3) allowing acquisition of overseas real estate for investment purposes up to US$1 million
Jan 2007	measures to boost corporate expansion overseas & encourage outward FDI	raising the limit on the acquisition of overseas real estate by Korean nationals for investment purposes from US$1 million to US$3 million
Dec 2007	measures to establish market-friendly FOREX transaction system	1) full completion of the first phase of the FOREX liberalisation Plan as scheduled, 2) abolishing the reporting requirement for capital transactions up to US$50,000 and reducing documents required for reporting

The continued decrease of investment required the government to facilitate investment to create jobs. First of all, it introduced a major economic stimulus package in September 2004. The package included strengthening competitiveness of small- and medium-sized enterprises, policies to ensure a soft-landing for the construction industry, financial polices to boost investment, increasing service sector competitiveness and pursuing full-scale regulatory reform. In addition, the Ministry of Finance and Economy initiated the 'Comprehensive Measures to Improve the Business Environment' in September 2006, with the aim of creating

a business environment which is on par with advanced economies to facilitate corporate investment and job creation. The measures were designed to improve regulations and policies spanning the entire range of business from entry to exit. The government focused on alleviating high cost structure of core production factors including land and labour as well as creating a business-friendly environment.

4. Determinants of Private Investment in Korea

In this Section, an empirical analysis of the determinants of investment behaviour in the Korean economy is carried out. Variables used for the analysis are those perceived to have an effect on investment decision-making in Korea.

4.1 Specification of the Private Investment Equation

To estimate the private investment function in Korea, demand factors such as Gross Domestic Product and stock prices are included as the regressors in addition to cost factors such as the relative price of capital, interest rates and the foreign exchange rate. In demand terms, an increase in demand (GDP) or optimism as to future activity acts to stimulate investment. Barro (1990) and Anderson & Subbaraman (1996) suggest that investment is strongly affected by the lagged returns on stock prices. Since these imply that the stock market reflects expectations of future activity and stock prices act as a leading indicator of future activity, stock prices are included as a proxy variable for the prospects of future activity. In cost terms, investment increases when there is a reduction in the user cost of capital interest rates and capital prices or a decrease in the import prices of capital caused by the drop of the won/dollar rate (appreciation of the won). An increase of the won/dollar rate (depreciation of the won) has conflicting effects on investment with a positive effect with a reduction in the dollar-denominated export prices and a negative effect with the increase in prices of imported investment goods. The sign of its coefficient, therefore, depends on the relative sizes of these effects. The outward FDI is included to verify the crowding-out effect between domestic investment and investment abroad, and a crisis dummy to verify the structural changes in the aftermath of the currency crisis in Korea.

$$\ln(INV_t) = \alpha + \beta_1 \ln(GDP_t) + \beta_2 \ln(DC_t) + \beta_3 IR_t + \beta_4 \ln(ER_t) + \beta_5 \ln(SP_t) + \beta_6 \ln(CP_t) + \beta_7 OUTFDI_t + \beta_8 Dummy_t + \varepsilon_t \quad (1)$$

where *INV*: real private investment, *GDP*: real GDP, *DC*: real domestic credit to private sector, *IR*: real interest rates, *ER*: real exchange rates, *SP*: real

stock prices, *CP*: real capital prices, *OUTFDI*: outward FDI, *Dummy*: crisis dummy

4.2 Data and Variables

Time series data from the first quarter of 1980 to the second quarter of 2008 are used for the analysis. The definitions for variables and data sources are presented in Table 4. The data were sourced from the Korean National Accounts and ECOS of The Bank of Korea. The dependent variable used is real private investment and since the quarterly data for real private investment for 1980-2003 are not available, they were estimated using the yearly data of private fixed capital formation and the quarterly structure of real fixed capital formation. All variables were converted into real terms. The GDP deflator is used for interest rates, stock prices and capital prices, the CPI for exchange rates and the PPI for domestic credit. All series, except real interest rates and outward FDI, are logged for the estimation of the model.

Table 4
Description of the Variables

Variables		Description	Sources
INV	Investment	Seasonally adjusted real private investment	National Accounts, BOK
GDP	GDP	Seasonally adjusted real Gross Domestic Product	National Accounts, BOK
DC	Domestic Credit	Real domestic credit to private sector over PPI	ECOS, BOK
IR	Interest Rates	Yields on three-year government bonds over GDP deflator	ECOS, BOK
ER	Exchange Rates	Real Won/Dollar exchange rates adjusted by CPIs of Korea and US	ECOS, BOK
SP	Stock Prices	Real composite price indexes of stocks(KOSPI) over the GDP deflator	ECOS, BOK
CP	Capital Prices	Investment(Gross fixed capital formation) deflator over GDP deflator	National Accounts, BOK
OUTFDI	Outward FDI	Direct Investment Abroad	ECOS, BOK
Dummy	Crisis Dummy	1 during the Post-crisis era (1998.1/4~2008.2/4), 0 otherwise	

4.3 Empirical Results

To estimate the private investment function in Korea, an error correction model was used to show long-run cointegration relationship and fit of short-run dynamic relationships, with the inclusion as the regressors, the error terms derived from the long-run equations. As a preliminary to estimation, the unit-root hypothesis was carried out using the Augmented Dickey-Fuller (ADF) test and the Phillips-Perron (PP) test. The results are presented in Appendix Table A-10. The results show that none of the variables can reject the null hypothesis of a unit-root at 5% or less and they are integrated of order one. This means that this time series data has a non stationarity problem and an estimation without considering the problem would result in a spurious regression.

On this basis, cointegration tests are required. The unit-root tests on the error terms derived from the long-run equations in Tables 5 and 6 were conducted and the results are shown in Appendix Table A-11. The test results show that all the error terms can reject the null hypothesis of a unit-root at 5% or less. This means that there exist stable long-run_cointergrating_relations between investment, GDP, domestic credit, interest rates, exchange rates, stock prices, capital prices and outward FDI as presented in Tables 5 and 6, during the first quarter of 1980 to the second quarter of 2008.

The estimated long-run equation (8) shown in Table 6 suggests that a 1% increase in GDP, domestic credit and stock price stimulates investment spending in the long run by 0.36%, 0.48% and 0.05%, respectively. A 1% rise in the exchange rate and capital prices leads to a 0.25% and 1.01% decrease in investment, respectively. The negative sign of the exchange rate's coefficient implies that the negative effect of a rise in exchange rate through increasing import prices is stronger than the positive effect stemming from the increase in exports. A 1% rise in interest rates reduces investment spending in the long run by 0.63%, which confirms the policy channel of investment fluctuations, that is, an increase in interest rates→ a decrease in investment. The negative coefficient (-0.20) of outward FDI suggests that overseas direct investment has a crowding-out effect on domestic investment. In addition, the negative coefficient of the dummy implies that there was a structural change in firms' investment behaviour after the crisis which shows the stagnation of investment following the currency crisis

Table 5
Estimation Results of Private Investment Function
(Long-run equations)

Dependent Variables Investment: ln(INV_t)	(1)	(2)	(3)	(4)
Constant	1.558 (0.96)	4.536*** (2.62)	3.151* (1.91)	5.021*** (2.92)
GDP: ln(GDP_t)	0.578*** (3.55)	0.536*** (3.48)	0.320* (1.80)	0.379** (2.22)
Domestic Credit: ln(DC_{t-1})	0.430*** (5.09)	0.367*** (4.58)	0.536*** (6.08)	0.445*** (5.06)
Interest Rates: IR_{t-1}	-0.484* (-1.67)	-0.637** (-2.29)	-0.557** (-1.99)	-0.647** (-2.36)
Exchange Rates: ln(ER_t)	-0.193** (-2.53)	-0.305*** (-3.89)	-0.149** (-2.00)	-0.254*** (-3.13)
Capital Prices: ln(1+CP_{t-2})		-1.607*** (-4.20)		-1.344*** (-3.37)
Stock Prices: ln(SP_t)			0.066*** (3.09)	0.043** (2.01)
Dummy	-0.381*** (-13.13)	-0.290*** (-8.06)	-0.343*** (-11.22)	-0.281*** (-7.87)
Adj R^2	0.99	0.99	0.99	0.99

Notes: 1) The t-values are in parentheses.
2) *, **, *** means that the estimates are significant at the 10%, 5% and 1% levels, respectively.

Table 6
Estimation Results of Private Investment Function
(Long-run equations)

Dependent Variables Investment: ln(INV_t)	(5)	(6)	(7)	(8)
Constant	1.528 (0.95)	4.204*** (2.46)	3.171** (1.98)	4.717*** (2.80)
GDP: ln(GDP_t)	0.599*** (3.77)	0.546*** (3.59)	0.330** (1.94)	0.362** (2.17)
Domestic Credit: ln(DC_{t-1})	0.430*** (5.25)	0.381*** (4.80)	0.542*** (6.40)	0.475*** (5.47)
Interest Rates: IR_{t-1}	-0.454* (-1.60)	-0.617** (-2.25)	-0.523** (-1.93)	-0.625** (-2.33)
Exchange Rates: ln(ER_t)	-0.220*** (-2.89)	-0.313*** (-4.04)	-0.173** (-2.34)	-0.254*** (-3.19)
Capital Prices: ln(1+CP_{t-2})		-1.366*** (-3.45)		-1.012*** (-2.45)
Stock Prices: ln(SP_t)			0.070*** (3.42)	0.051*** (2.40)
Outward FDI: $OUTFDI_{t-2}$	-0.262*** (-3.05)	-0.173** (-2.02)	-0.274*** (-3.34)	-0.204*** (-2.41)
Dummy	-0.367*** (-12.51)	-0.291*** (-8.22)	-0.326*** (-10.77)	-0.281*** (-8.06)
Adj R^2	0.99	0.99	0.99	0.99

Notes: 1) The t-values are in parentheses.
2) *, **, *** means that the estimates are significant at the 10%, 5% and 1% levels, respectively.

To capture the short-run dynamic adjustment process among the variables, based on the long-run cointegration equations fitted above, the error correction model was set up as in equation (2). The lag variables were selected according to the general to specific method.

$$\Delta\ln(INV_t) = \alpha + \beta_1 EC_{t-1} + \sum\beta_{2i} \Delta\ln(GDP_{t-i}) + \sum\beta_{3i} \Delta\ln(DC_{t-i}) + \sum\beta_{4i} \Delta IR_{t-i} \quad (2)$$

$$+ \sum\beta_{5i} \Delta\ln(ER_{t-i}) + \sum\beta_{6i} \Delta\ln(SP_{t-i}) + \sum\beta_{7i} \ln(CP_{t-i}) + \sum\beta_{8i} OUTFDI_{t-i} + \varepsilon_t$$

where *INV*: real private investment, *EC*: the errors term of the long-run cointegration equations, *GDP*: real GDP, *DC*: real domestic credit to private sector, *IR*: real interest rates, *ER*: real exchange rates, *SP*: real stock prices, *CP*: real capital prices, *OUTFDI*: outward FDI and *Dummy*: crisis dummy.

The estimation results in Tables 7 and 8 show that GDP and domestic credit have positive effects on investment demand while interest rates, exchange rates, capital prices and stock prices have negative effects. The estimates of the error correction terms are statistically significant with negative signs, implying that investment growth tends to return to equilibrium from the next period after deviating from the long-run equilibrium in response to external shocks and, at the same time, confirming the reliability of the long-run equations fitted above. A closer look at the short-run dynamic equation (8) in Table 8 suggests that a 1% rise in GDP increases investment growth by 1.74% while a 1% increase in domestic credit growth leads to 0.26%p increase in investment growth. Furthermore, interest rates, exchange rates, capital prices and outward FDI have negative signs as well as being statistically significant as expected, having coefficients of -0.33, -0.28, -0.31 and -0.07 respectively.

Table 7
Estimation Results of Private Investment Function
(Short-run dynamic equations)

Dependent Variables Investment: $\Delta\ln(INV_t)$	(1)	(2)	(3)	(4)
Constant	-0.017***	-0.017***	-0.017***	-0.017***
	(-3.04)	(-3.21)	(-3.17)	(-3.45)
Error Terms: EC_{t-1}	-0.135**	-0.170***	-0.191***	-0.210***
	(-2.22)	(-2.79)	(-3.26)	(-3.41)
GDP: $\Delta\ln(GDP_t)$	1.607***	1.626***	1.707***	1.738**
	(5.98)	(6.17)	(6.75)	(6.84)
Domestic Credit: $\Delta\ln(DC_t)$	0.294**	0.267*	0.270**	0.238*
	(2.00)	(1.83)	(2.00)	(1.73)
Interest Rates: ΔIR_{t-1}	-0.234	-0.308**	-0.250*	-0.324**
	(-1.42)	(-1.97)	(-1.65)	(-2.15)
Exchange Rates: $\Delta\ln(ER_t)$	-0.249***	-0.250***	-0.264**	-0.265***
	(-3.03)	(-3.22)	(-3.29)	(-3.37)
Capital Prices: $\Delta\ln(1+CP_{t-2})$		-0.371**		-0.369**
		(-1.97)		(-2.06)
Stock Prices: $\Delta\ln(SP_t)$			-0.045*	-0.044*
			(-1.78)	(-1.85)
Adj R^2	0.45	0.47	0.48	0.49

Notes: 1) The t-values are in parentheses.
2) *, **, *** means that the estimates are significant at the 10%, 5% and 1% levels, respectively.

Table 8
Estimation Results of Private Investment Function
(Short-run dynamic equations)

Dependent Variables Investment: $\Delta\ln(INV_t)$	(5)	(6)	(7)	(8)
Constant	-0.018***	-0.017***	-0.018***	-0.018***
	(-3.49)	(-3.53)	(-3.82)	(-3.89)
Error Terms: EC_{t-1}	-0.162***	-0.185***	-0.228***	-0.232***
	(-2.45)	(-2.87)	(-3.36)	(-3.48)
GDP: $\Delta\ln(GDP_t)$	1.624***	1.626***	1.729***	1.736**
	(6.13)	(6.17)	(6.88)	(6.80)
Domestic Credit: $\Delta\ln(DC_t)$	0.308**	0.286*	0.286**	0.262*
	(2.03)	(1.91)	(2.13)	(1.91)
Interest Rates: ΔIR_{t-1}	-0.263*	-0.319**	-0.279*	-0.330**
	(-1.59)	(-2.04)	(-1.89)	(-2.25)
Exchange Rates: $\Delta\ln(ER_t)$	-0.270***	-0.268***	-0.276**	-0.276***
	(-3.42)	(-3.52)	(-3.53)	-3.56)
Capital Prices: $\Delta\ln(1+CP_{t-2})$		-0.333*		-0.313*
		(-1.83)		(-1.85)
Stock Prices: $\Delta\ln(SP_t)$			-0.047*	-0.044*
			(-1.91)	(-1.91)
Outward FDI: $\Delta OUTFDI_t$	-0.079***	-0.076**	-0.075***	-0.072***
	(-5.21)	(-5.10)	(-4.88)	(-5.09)
Adj R^2	0.47	0.49	0.51	0.51

Notes: 1) The t-values are in parentheses.
2) *, **, *** means that the estimates are significant at the 10%, 5% and 1% levels, respectively.

5. Conclusions and Policy Recommendations

Investment is not only one of the main items that make up final demand but also one of the most important factors that determine future economic growth potential. This paper explores the determinants of private investment in Korea. Its main findings show that firstly, private investment in Korea is determined by demand factors such as GDP and the prospects of future activity (stock prices), by cost factors such as interest rates, exchange rates and capital prices, by the financial availability (domestic credit) and by a crowding-out effect (outward FDI). A rise in demand factors and financial availability stimulates private investment. However, an increase in cost factors and outward FDI decreases private investment. Secondly, the empirical results validate the effectiveness of interest rate policy. This is in converse to most studies on investment behaviour in Korea that have proposed that interest rates have little, if any, effect on investment decisions, with some even discarding it as determinants of investment[2].

The statistically significant coefficient of the interest rate shows that a 1% rise in interest rates reduces investment spending in the long run by 0.63%. Thirdly, there was a structural change in firms' investment behaviour after the crisis, especially the stagnation of investment. In this regard, the Korean government should undertake policy measures to stimulate investment and FDI.

To stimulate investment, the government should strengthen its efforts to improve the overall investment environment through a combination of policies involving tax cuts, deregulation, and more organised support for businesses. The weakness in Korea's key parts and materials manufacturing industry is a reason why production expansion is not leading to investment. In this regard, enhancing technological capability to develop capital goods domestically is crucial. For the purpose of facilitating inward FDI and investment, it is also necessary to attract high-tech component companies from overseas which will allow Korean industries to strengthen their competitiveness and to induce R&D centred FDI for industries representing new growth engines such as biotechnology and alternative energy. To this end, connections between global leading companies' R&D centres and Korea's national innovative system should be strengthened as is often the case in advanced countries.

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Appendix

Table A-1
Major Economic Indicators

(%, index)

	GDP Growth Rate	Inflation (CPI)	Nominal Interest Rate[1)]	Real Interest Rate[2)]	Won/Dollar Exchange Rate[3)]		Stock Price Index[4)]	
1987	11.1	3.0	12.6	9.6	822.4	(-6.7)	416.7	(82.9)
1988	10.6	7.1	14.2	7.1	730.5	(-11.2)	692.4	(66.2)
1989	6.7	5.7	15.2	9.5	671.4	(-8.1)	918.7	(32.7)
1990	9.2	8.6	16.5	7.9	712.1	(6.1)	746.0	(-18.8)
1991	9.4	9.3	18.9	9.6	733.8	(3.1)	658.0	(-11.8)
1992	5.9	6.2	16.2	10.0	781.1	(6.4)	585.7	(-11.0)
1993	6.1	4.8	12.6	7.8	802.8	(2.8)	728.4	(24.4)
1994	8.5	6.3	12.9	6.6	803.5	(0.1)	965.3	(32.5)
1995	9.2	4.5	13.8	9.3	770.9	(-4.0)	934.9	(-3.1)
1996	7.0	4.9	11.9	7.0	805.1	(4.4)	833.4	(-10.9)
1997	4.7	4.4	13.4	9.0	953.6	(18.4)	654.5	(-21.5)
1998	-6.9	7.5	15.1	7.6	1395.0	(46.3)	406.1	(-38.0)
1999	9.5	0.8	8.9	8.1	1188.7	(-14.8)	806.8	(98.7)
2000	8.5	2.3	9.4	7.1	1131.1	(-4.8)	734.2	(-9.0)
2001	3.8	4.1	7.1	3.0	1291.0	(14.1)	572.8	(-22.0)
2002	7.0	2.8	6.6	3.8	1250.7	(-3.1)	757.0	(32.2)
2003	3.1	3.5	5.4	1.9	1191.9	(-4.7)	679.8	(-10.2)
2004	4.7	3.6	4.7	1.1	1143.7	(-4.0)	832.9	(22.5)
2005	4.2	2.8	4.7	1.9	1024.1	(-10.5)	1073.6	(28.9)
2006	5.1	2.2	5.2	3.0	955.1	(-6.7)	1352.2	(26.0)
2007	5.0	2.5	5.7	3.2	929.2	(-2.7)	1713.2	(26.7)
2008.1/4	5.8	3.8	6.4	2.6	956.9	(1.9)	1704.0	(17.3)

Notes: 1. yields of corporate bonds(3 yr). 2. nominal interest rate minus inflation.
3. closing rate(average). 4. KOSPI(1980. 1. 4 = 100).
5. % changes are in parentheses.

Table A-2
FDI Flows[1] and DI[2]

(millions of USD, %)

	inward FDI (A)		outward FDI (B)		net FDI (A-B)		fixed investment		equipment investment	
1985	234	(0.2)	591	(0.6)	-358	(-0.4)	2,779	(28.8)	1,184	(12.3)
1986	460	(0.4)	1,227	(1.1)	-767	(-0.7)	3,164	(28.4)	1,512	(13.6)
1987	616	(0.4)	515	(0.4)	101	(0.1)	4,113	(29.4)	1,983	(14.2)
1988	1,014	(0.5)	643	(0.3)	371	(0.2)	5,603	(29.9)	2,612	(13.9)
1989	1,118	(0.5)	598	(0.3)	520	(0.2)	7,417	(32.2)	3,252	(14.1)
1990	789	(0.3)	1,052	(0.4)	-263	(-0.1)	9,779	(37.1)	3,853	(14.6)
1991	1,180	(0.4)	1,489	(0.5)	-309	(-0.1)	11,981	(38.9)	4,413	(14.3)
1992	728	(0.2)	1,162	(0.4)	-433	(-0.1)	12,166	(36.9)	4,375	(13.3)
1993	588	(0.2)	1,340	(0.4)	-752	(-0.2)	13,158	(36.3)	4,483	(12.4)
1994	809	(0.2)	2,461	(0.6)	-1,652	(-0.4)	15,416	(36.4)	5,744	(13.6)
1995	1,776	(0.3)	3,552	(0.7)	-1,776	(-0.3)	19,302	(37.3)	7,295	(14.1)
1996	2,325	(0.4)	4,670	(0.8)	-2,345	(-0.4)	20,894	(37.5)	7,836	(14.1)
1997	2,844	(0.6)	4,449	(0.9)	-1,605	(-0.3)	18,396	(35.6)	6,314	(12.2)
1998	5,412	(1.6)	4,740	(1.4)	673	(0.2)	10,503	(30.3)	2,898	(8.4)
1999	9,333	(2.1)	4,198	(0.9)	5,136	(1.2)	13,235	(29.7)	4,575	(10.3)
2000	9,283	(1.8)	4,999	(1.0)	4,285	(0.8)	15,912	(31.1)	6,559	(12.8)
2001	3,528	(0.7)	2,420	(0.5)	1,108	(0.2)	14,240	(29.5)	5,281	(11.0)
2002	2,392	(0.4)	2,617	(0.5)	-224	(0.0)	15,909	(29.1)	5,695	(10.4)
2003	3,526	(0.6)	3,426	(0.6)	100	(0.0)	18,190	(29.9)	5,818	(9.6)
2004	9,246	(1.4)	4,658	(0.7)	4,588	(0.7)	20,113	(29.5)	6,277	(9.2)
2005	6,309	(0.8)	4,298	(0.5)	2,010	(0.3)	23,161	(29.3)	7,110	(9.0)
2006	3,586	(0.4)	8,127	(0.9)	-4,540	(-0.5)	25,776	(29.0)	7,952	(9.0)
2007	1,579	(0.2)	15,276	(1.6)	-13,697	(-1.4)	27,913	(28.8)	8,657	(8.9)
2008.1/4	-674	(-0.3)	4,116	(1.8)	-4,791	(-2.1)	5,797	(25.4)	2,092	(9.2)

Notes: 1) BOP basis. 2) the ratios of FDI and DI to GDP are in parentheses.

Table A-3
Growth Rates of DI by Types of Capital Goods

(%)

	Fixed Investment (A+B+C)	Construction Investment (A)	Equipment Investment (B)	(Transport Equipment)	(Machinery Equipment)	Intangible Fixed Assets (C)
1985	5.3	4.5	5.1	4.7	5.3	68.0
1986	11.5	3.9	25.1	13.4	30.9	29.3
1987	18.1	16.8	19.7	10.7	23.5	28.5
1988	13.6	14.1	12.9	8.3	14.7	11.0
1989	16.0	16.8	14.3	12.3	15.1	24.6
1990	25.4	30.5	18.3	25.9	15.6	10.6
1991	14.4	13.6	15.3	12.5	16.4	27.0
1992	0.6	0.1	0.3	7.4	-2.2	18.4
1993	7.7	11.5	0.8	3.8	-0.3	14.6
1994	12.5	5.6	24.5	24.4	24.5	26.1
1995	13.1	9.5	18.3	2.4	25.0	21.3
1996	8.4	7.5	9.2	8.9	9.3	16.2
1997	-2.3	2.3	-9.6	-12.3	-8.6	6.4
1998	-22.9	-12.4	-42.3	-50.5	-39.6	-0.6
1999	8.3	-3.7	36.8	66.4	28.8	19.5
2000	12.2	-0.7	33.6	24.0	36.9	22.3
2001	-0.2	6.0	-9.0	-12.5	-7.9	6.4
2002	6.6	5.3	7.5	10.5	6.6	14.2
2003	4.0	7.9	-1.2	-12.2	2.2	-0.9
2004	2.1	1.1	3.8	-8.9	7.2	0.9
2005	2.4	-0.2	5.7	-1.8	7.4	8.1
2006	3.6	-0.1	7.8	6.0	8.2	11.8
2007	4.0	1.2	7.6	7.7	7.6	6.0
2008.1/4	0.5	-1.1	1.4	12.3	-0.9	6.2

Table A-4
Inward FDI[1] by Sector

(millions of USD)

	Total (A+B+C)	Manufac-turing(A)	(chemi-cals)	(electrical, electronics)	services (B)	(wholesale & retail)	(finance & insurances)	others (C)[2]
1985	532	175	31	25	346	9	18	12
1986	355	257	34	66	94	16	10	4
1987	1,063	660	167	197	400	103	17	3
1988	1,284	695	224	260	574	182	93	15
1989	1,090	564	104	126	513	161	202	13
1990	803	520	109	84	281	100	125	2
1991	1,396	948	581	84	442	185	180	6
1992	895	516	145	47	377	229	41	2
1993	1,044	392	77	74	589	349	37	63
1994	1,317	491	92	75	789	320	185	37
1995	1,970	1,041	195	238	863	349	312	66
1996	3,204	1,673	548	348	1,222	553	206	308
1997	6,971	2,508	342	334	4,362	2,966	341	102
1998	8,858	5,835	789	1,456	2,591	1,681	554	432
1999	15,545	8,369	1,372	3,844	6,784	1,726	2,580	392
2000	15,256	6,877	778	2,575	8,121	2,024	1,925	259
2001	11,287	2,911	515	896	7,231	1,490	1,769	1,145
2002	9,095	2,337	141	517	5,124	589	1,023	1,634
2003	6,471	1,699	690	299	4,132	945	1,650	639
2004	12,792	6,217	1,377	2,949	6,141	1,129	3,221	434
2005	11,566	3,078	278	1,041	8,301	807	3,920	187
2006	11,243	4,249	764	1,803	6,626	499	3,021	368
2007	10,514	2,692	509	935	7,612	1,827	2,293	210
2008.1/4	2,715	725	75	384	1,933	68	1,368	58
cumulated	140,008	57,196	10,434	19,202	76,220	18,395	25,240	6,592

Notes: 1) notification basis.
2) agriculture, forestry, fisheries, mining, electricity, gas, water, construction etc.

Table A-5
Inward FDI[1] by Origin Country

(millions of USD)

	Total	America	(USA)	Asia	(Japan)	EU	(Nether-lands)	Others[2]
1985	532	109	108	379	364	33	1	12
1986	355	129	125	160	139	32	4	34
1987	1,063	267	249	570	497	161	46	65
1988	1,284	289	284	713	697	218	49	64
1989	1,090	321	319	525	466	170	20	74
1990	803	336	318	257	236	188	36	22
1991	1,396	312	297	248	226	749	599	86
1992	895	433	379	171	155	242	44	48
1993	1,044	344	341	392	286	299	131	9
1994	1,317	324	311	569	428	393	67	31
1995	1,970	688	665	798	425	461	170	24
1996	3,204	925	875	1,218	255	892	205	168
1997	6,971	3,418	3,189	1,137	266	2,306	831	110
1998	8,858	3,774	2,970	2,020	510	2,885	1,323	179
1999	15,545	4,203	3,739	4,776	1,762	6,262	3,322	304
2000	15,256	6,042	2,921	4,717	2,452	4,437	1,775	60
2001	11,287	5,582	3,882	2,345	776	3,055	1,234	305
2002	9,095	4,852	4,491	2,270	1,404	1,680	451	293
2003	6,471	1,947	1,242	1,383	543	3,073	162	67
2004	12,792	5,200	4,718	4,301	2,263	3,009	1,309	282
2005	11,566	3,108	2,690	3,514	1,881	4,781	1,150	163
2006	11,243	1,942	1,705	4,010	2,111	4,971	800	320
2007	10,514	3,202	2,341	2,335	990	4,332	1,979	646
2008.1/4	2,715	531	453	582	252	1,539	107	64
cumulated	140,008	49,100	39,452	40,998	20,778	46,359	15,862	3,551

Notes: 1) notification basis.
2) include international organizations.

Table A-6
Outward FDI[1)] by Sector

(millions of USD)

	total	mining	manufac turing	(electronic parts etc)	(automo -bile)	services	(wholesale & retail)	others
1985	113	71	21	0	0	14	12	8
1986	316	83	77	0	20	150	16	6
1987	410	219	156	3	0	26	23	8
1988	246	65	84	10	2	76	41	20
1989	580	76	280	10	30	137	61	87
1990	1,116	152	485	23	105	433	232	46
1991	1,339	123	603	76	73	583	223	30
1992	1,361	150	681	79	14	505	303	25
1993	1,486	146	552	100	25	754	452	33
1994	2,433	115	1,495	317	191	776	562	46
1995	3,296	77	2,042	486	228	1,073	320	103
1996	4,744	250	2,879	813	385	1,504	600	111
1997	3,915	217	1,908	441	237	1,687	516	103
1998	4,742	114	2,276	529	796	2,231	1,874	121
1999	3,336	212	1,655	288	62	1,399	1,067	70
2000	5,144	95	1,639	419	13	3,277	844	134
2001	5,181	65	3,824	2,833	50	1,238	905	53
2002	3,898	210	1,817	423	230	1,790	1,178	81
2003	4,226	331	2,351	332	223	1,467	782	77
2004	6,188	317	3,487	1,184	441	2,271	1,110	113
2005	6,836	500	3,717	779	719	2,335	973	284
2006	10,992	1,434	5,459	1,313	886	3,537	1,246	562
2007	20,735	2,021	7,622	1,803	1,609	9,726	2,044	1,367
2008.1/4	5,959	1,689	1,737	178	403	2,279	832	254
cumulated	99,305	8,858	46,933	12,446	6,741	39,653	16,291	3,862

1) notification basis

Table A-7
Outward FDI[1)] by Destination Country

(millions of USD)

	Total	North America	(USA)	Asia	(China)	Europe	Others
1985	113	27	13	18	0	39	29
1986	316	81	60	94	0	6	136
1987	410	189	164	132	0	7	82
1988	246	125	122	45	0	15	60
1989	580	283	169	137	6	19	140
1990	1,116	488	393	381	16	82	166
1991	1,339	456	390	580	42	162	141
1992	1,361	404	359	578	141	215	164
1993	1,486	414	408	702	288	175	194
1994	2,433	568	526	1,262	674	376	227
1995	3,296	581	570	1,841	914	638	235
1996	4,744	1,615	1,593	2,141	1,019	601	387
1997	3,915	961	950	1,840	779	513	601
1998	4,742	991	945	2,001	681	1,243	506
1999	3,336	1,417	1,398	1,292	352	303	325
2000	5,144	1,427	1,391	1,643	746	291	1,783
2001	5,181	1,487	1,462	1,399	650	2,129	166
2002	3,898	575	570	1,844	1,114	1,056	422
2003	4,226	1,075	1,060	2,569	1,811	222	360
2004	6,188	1,451	1,404	3,516	2,378	714	507
2005	6,836	1,292	1,257	4,117	2,798	644	782
2006	10,992	2,198	1,808	6,252	3,346	1,193	1,349
2007	20,735	3,557	3,412	11,017	5,461	4,012	2,149
2008.1/4	5,959	2,020	1,995	2,672	836	578	689
Cumulated	99,305	23,960	22,608	48,234	24,053	15,294	11,818

1) notification basis

Table A-8
Private & Public Investment at Current Prices

(millions of won, %)

	Private Investment				Public Investment			
	amount	rate of increase	ratio of GDP	shares in investment	amount	rate of increase	ratio of GDP	shares in investment
1980	10,630	15.0	27.4	85.1	1,861	22.9	4.8	14.9
1981	11,516	8.3	23.7	84.2	2,165	16.3	4.4	15.8
1982	13,323	15.7	23.9	83.6	2,614	20.7	4.7	16.4
1983	16,352	22.7	24.9	84.5	3,002	14.8	4.6	15.5
1984	18,442	12.8	24.5	84.2	3,467	15.5	4.6	15.8
1985	20,200	9.5	24.0	83.5	3,987	15.0	4.7	16.5
1986	23,937	18.5	24.4	85.8	3,955	-0.8	4.0	14.2
1987	29,500	23.2	25.6	87.2	4,330	9.5	3.8	12.8
1988	35,751	21.2	26.1	87.3	5,179	19.6	3.8	12.7
1989	43,582	21.9	28.2	87.5	6,213	20.0	4.0	12.5
1990	60,937	39.8	32.6	88.0	8,297	33.5	4.4	12.0
1991	76,324	25.3	33.8	86.8	11,565	39.4	5.1	13.2
1992	81,026	6.2	31.5	85.3	13,975	20.8	5.4	14.7
1993	90,659	11.9	31.2	85.8	14,964	7.1	5.1	14.2
1994	106,876	17.9	31.4	86.3	17,023	13.8	5.0	13.7
1995	130,019	21.7	32.6	87.4	18,801	10.4	4.7	12.6
1996	144,799	11.4	32.3	86.1	23,358	24.2	5.2	13.9
1997	147,882	2.1	30.1	84.5	27,079	15.9	5.5	15.5
1998	118,936	-19.6	24.6	81.0	27,979	3.3	5.8	19.0
1999	128,602	8.1	24.3	81.7	28,805	3.0	5.4	18.3
2000	148,195	15.2	25.6	82.4	31,713	10.1	5.5	17.6
2001	148,811	0.4	23.9	81.0	34,981	10.3	5.6	19.0
2002	163,017	9.5	23.8	81.9	36,030	3.0	5.3	18.1
2003	173,758	6.6	24.0	80.1	43,049	19.5	5.9	19.9
2004	183,677	5.7	23.6	79.8	46,540	8.1	6.0	20.2
2005	191,702	4.4	23.7	80.8	45,538	-2.2	5.6	19.2
2006	202,482	5.6	23.9	82.2	43,816	-3.8	5.2	17.8
2007	214,232	5.8	23.8	82.6	45,122	3.0	5.0	17.4

Table A-9
Private & Public Investment at Constant Prices

(millions of won, %)

	Private Investment				Public Investment			
	amount	rate of increase	ratio of GDP	shares in investment	amount	rate of increase	ratio of GDP	shares in investment
1980	30,759	-11.4	22.1	86.0	5,024	-6.3	3.6	14.0
1981	29,441	-4.3	20.0	84.9	5,235	4.2	3.6	15.1
1982	32,498	10.4	20.5	84.3	6,034	15.3	3.8	15.7
1983	38,580	18.7	22.0	85.3	6,675	10.6	3.8	14.7
1984	42,616	10.5	22.5	84.9	7,552	13.1	4.0	15.1
1985	44,538	4.5	22.0	84.3	8,276	9.6	4.1	15.7
1986	50,995	14.5	22.8	86.6	7,907	-4.5	3.5	13.4
1987	61,295	20.2	24.6	88.1	8,262	4.5	3.3	11.9
1988	69,695	13.7	25.3	88.2	9,338	13.0	3.4	11.8
1989	81,048	16.3	27.6	88.4	10,621	13.7	3.6	11.6
1990	102,218	26.1	31.9	88.9	12,771	20.2	4.0	11.1
1991	115,379	12.9	32.9	87.7	16,210	26.9	4.6	12.3
1992	113,957	-1.2	30.7	86.1	18,356	13.2	4.9	13.9
1993	123,547	8.4	31.3	86.7	18,990	3.5	4.8	13.3
1994	139,618	13.0	32.6	87.1	20,722	9.1	4.8	12.9
1995	159,921	14.5	34.2	88.2	21,424	3.4	4.6	11.8
1996	170,817	6.8	34.2	86.9	25,733	20.1	5.1	13.1
1997	163,922	-4.0	31.3	85.4	28,112	9.2	5.4	14.6
1998	119,614	-27.0	24.6	80.8	28,378	0.9	5.8	19.2
1999	131,471	9.9	24.6	82.0	28,865	1.7	5.4	18.0
2000	148,195	12.7	25.6	82.4	31,713	9.9	5.5	17.6
2001	145,554	-1.8	24.2	81.1	34,022	7.3	5.7	18.9
2002	157,508	8.2	24.5	82.3	33,957	-0.2	5.3	17.7
2003	160,874	2.1	24.3	80.8	38,174	12.4	5.8	19.2
2004	163,794	1.8	23.6	80.6	39,394	3.2	5.7	19.4
2005	170,445	4.1	23.6	81.9	37,609	-4.5	5.2	18.1
2006	179,634	5.4	23.6	83.4	35,858	-4.7	4.7	16.6
2007	188,089	4.7	23.6	83.9	36,087	0.6	4.5	16.1

Table A-10
The Results of Unit-root Test

Variables		ADF[1)]	Phillips-Perron[2)]
ln(*INV*)	Investment	-0.79	-1.09
ln(*GDP*)	GDP	-0.99	-0.59
ln(*DC*)	Domestic Credit	-0.96	-0.49
IR	Interest Rates	-0.86	-2.10
ln(*ER*)	Exchange Rates	-2.51	-2.11
ln(1+*CP*)	Capital Prices	-1.66	-1.47
ln(*SP*)	Stock Prices	-2.02	-1.83
OUTFDI	Outward FDI	2.59	3.48
Δ ln(*INV*)	Investment	-9.57**[3)]	-9.66**
Δ ln(*GDP*)	GDP	-8.14**	-8.17**
Δ ln(*DC*)	Domestic Credit	-4.20**	-7.56**
Δ *IR*	Interest Rates	-8.66**	-18.46**
Δ ln(*ER*)	Exchange Rates	-7.45**	-7.31**
Δ ln(1+*CP*)	Capital Prices	-5.88**	-33.34**
Δ ln(*SP*)	Stock Prices	-7.62**	-7.60**
Δ*OUTFDI*	Outward FDI	-11.79**	-40.05**

Notes: 1) Augmented Dickey-Fuller test, t-statistic
2) Phillips-Perron test, $Z_{\pm}$-statistic
3) *, ** means that the estimates are significant at the 5% and 1% levels, respectively.

Table A-11
The Results of Unit-root Test on the Error Terms

Long-run Equations	ADF[1)]	Phillips-Perron[2)]
(1)	-3.64**[3)]	-3.56**
(2)	-4.22**	-4.20**
(3)	-4.64**	-4.97**
(4)	-3.57**	-3.56**
(5)	-4.64**	-4.81**
(6)	-4.29**	-4.28**
(7)	-4.39**	-4.64**
(8)	-4.45**	-4.56**

Notes: 1) Augmented Dickey-Fuller test, t-statistic
2) Phillips-Perron test, $Z_{\pm}$-statistic
3) *, ** means that the estimates are significant at the 5% and 1% levels, respectively.

Chapter 4

INVESTMENT IN MALAYSIA IN THE POST-CRISIS ERA: ISSUES AND CHALLENGES

by
Idwan Suhardi Hakim[1]

1. Introduction

Investment expenditure is vital to economic growth as it expands a nation's future productive capacity. As the current productive capacity depreciates and is exhausted, the need for new and replacement capacity arises in order to support the income generating process. The new capacity can also lead to a better and more efficient technology that can improve and accelerate the production process. Without sustained investment spending, a country may not be able to achieve a sustained rate of economic and income growth.

During the 1990s, when Asian economies recorded impressive growth rates, these countries experienced large increase in investment spending, from both domestic sources as well as foreign direct investment (FDI). However, the Asian Financial Crisis in 1997-1998 caused the recession in these countries, with a significant decline in investment. A number of studies have analysed the factors that influenced the large decline in investment in the Asian Financial Crisis-affected countries, before and after the crisis[2]. Several factors have been put forward to explain the low investment levels in these countries after the crisis compared with earlier years. This paper adds to the literature by examining the case for Malaysia. More specifically, this paper will analyse the factors influencing the overall growth patterns of domestic investment.

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1. Author is Manager of the Economics Department of Bank Negara Malaysia. This paper benefited from constructive views, comments and feedbacks from various people in Bank Negara Malaysia. Specifically, the author is grateful to Marzunisham Omar, Rozainita Shamsudin, Low Ai Loon, Shasha Kartini Mohd Ridzam and Mohd Helmi Ramlee for their valuable assistance and feedbacks. Any remaining errors in this paper are entirely due to the author's shortcomings. As usual, all views expressed in this paper are strictly the author's, and do not necessarily reflect the official views of Bank Negara Malaysia.

2. Recent papers include, for example, Guimaraes and Unteroberdoerster (2006); IMF (May 2006); Jongwanich and Kohpaiboon (2008); and Reserve Bank of Australia (April 2006).

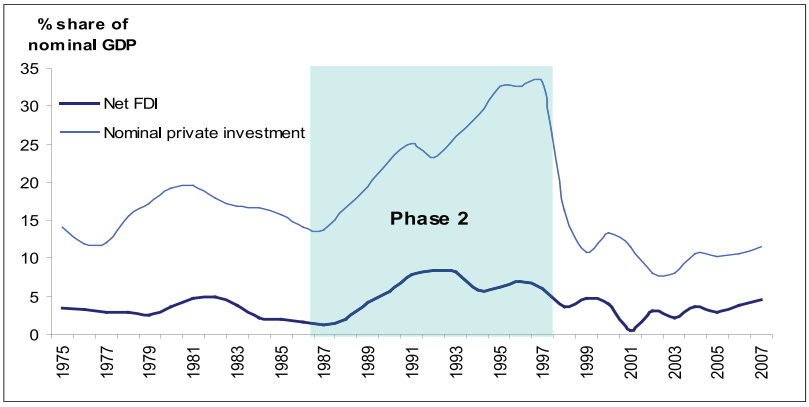
The paper is organised as follows. The next section will describe the major trends and patterns of investment in Malaysia. It will discuss, among others, developments in and performance of total domestic investment and the Malaysian economy, as well as key factors that influenced investment in the post-Asian Financial Crisis period. Section 3 will then continue with a brief discussion of the major policies related to investment. The empirical results on determinants of investment in Malaysia will be discussed in Section 4. Section 5 will outline a few pertinent issues and challenges, before concluding remarks are discussed in the final section.

2. Investment Trends Since 1975

2.1 Overall Investment Trends

The Malaysian economy achieved an average growth of 6.4% per annum from 1975 to 2007. In general, the overall growth can be divided into three different periods (Chart 1). First, there was a steady growth from 1975 to 1984, averaging 7% per annum before the 1985-1986 economic crisis. In the second period, the economy expanded at a strong average rate of 8.9% per year from 1987 to 1997, prior to the 1997-1998 Asian Financial Crisis. Finally, the post-recovery period saw a steady but lower growth pattern amidst several periods of shocks to the economy.

Chart 2: Net FDI and Private Investment



Source: Bank Negara Malaysia; Department of Statistics, Malaysia

The investment trend largely follows a similar pattern to the real GDP growth. In the first phase (1975-1984), total investment recorded a double-digit average growth of 10% per annum. This period was mainly characterised by the shift

in the growth strategy towards export-oriented industrialisation (EOI) from the earlier focus on import-substitution policy. The introduction of the Investment Incentives Act (IIA) in 1968 encouraged private investment growth, mainly in the form of FDI inflow into labour-intensive and export-oriented industries, especially in the manufacturing sector. Incentives in the form of tax holidays and investment tax allowances were given to firms, particularly in the targeted export-oriented manufacturing industries. The Government also established Free Trade Zones (FTZs) and Licensed Manufacturing Warehouses (LMWs) in 1972 and 1974 respectively to further attract foreign investors and multinational corporations (MNCs) to establish their operations in Malaysia.

As a result of the EOI policy, the manufacturing sector became the fastest growing sector of the economy, averaging 11.8% growth per annum in the 1970s. Manufactured exports as a share of total gross exports increased from 21.9% in 1975 to 32.8% in 1985, while the share of commodity exports declined (Table 1). On the demand side, the change of strategy towards exports promotion resulted in the increasing share of total exports of goods and services from 38% of nominal GDP in 1971 to 52% of GDP in 1985.

Table 1: Changing Developments in Exports Composition

	1975	**1985**	**1995**
	Share of total gross exports (%)		
Total commodities	77.2	66.7	19.4
Agriculture	*54.1*	*32.7*	*13.6*
Minerals	*23.1*	*34.0*	*5.8*
Manufactured goods	21.9	32.8	79.6
Others	0.9	0.5	1.0
Gross exports	**100.0**	**100.0**	**100.0**

Source: Bank Negara Malaysia; Department of Statistics, Malaysia; Author's calculation

The prolonged global recession in the early 1980s led to lower commodity prices and a decline in external demand for Malaysia's major commodities. In response, the Government undertook expansionary fiscal measures to stimulate growth in the domestic economy. The Government increased its capital spending considerably, resulting in significantly higher public investment expenditure (Table 2). As a result, real public investment recorded robust, double-digit growth averaging 40% in 1980-1981, compared with an average growth of 8.3% between 1975 and 1979. The majority of the investment expenditure focused on the

development of basic infrastructure and the provision of essential services such as housing, education and rural development.

Table 2: Public Sector Investment Spending

	Phase 1		Phase 2	Phase 3
	1975-1979	1980-1984	1987-1997	1999-2007
	Share of nominal GDP (%)			
Federal Government development expenditure	8.9	14.4	6.2	7.6
Nominal public investment	9.4	14.5	10.8	12

Source: Bank Negara Malaysia; Department of Statistics, Malaysia

In addition, as part of the efforts to diversify the economy away from high dependence on the volatile commodity sector, the Government promoted the development of heavy industries. This was reflected through the incorporation of Heavy Industries Corporation of Malaysia (HICOM) in 1981 to be the main driver of this objective. It was mainly achieved through selective joint ventures with foreign firms, mainly involving production of iron and steel, petrochemicals and motor vehicles.

However, the continued weak external demand and the counter-cyclical fiscal measures caused strains on the economy's resources. Concerns with the sustainability of economic growth emerged as the economy faced the problem of twin deficits in the current account and fiscal budget positions. The current account deficit peaked at 14.1% of gross national income (GNI) in 1982. Meanwhile, the significant expansion in fiscal spending led to a substantial increase in the country's external debt financing from 20% of GNI in 1979 to 41% of GNI in 1982.

To address these concerns, the Government embarked on a voluntary structural adjustment programme to reduce fiscal spending, while promoting the private sector as the main engine of growth. The impact from the cutback in Government expenditure, longer-than-expected global recession and low commodity prices culminated in the economic contraction in 1985. Total investment declined in 1985, and continued to register negative growth rates for the next two years.

The second phase (1987-1997) witnessed the most significant expansion in domestic economic and investment activities among the three phases (Table 3). The main highlights of the second phase were the enhanced emphasis on export-oriented industries and FDI-led investment growth, as well as the Government's privatisation policy.

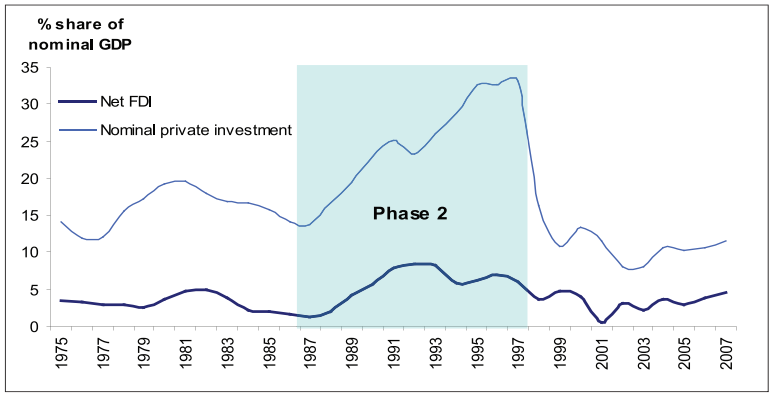
Table 3: Average Growth During the Different Phases

	Phase 1	**Phase 2**	**Phase 3**
	1975-1984	**1987-1997**	**1999-2007**
	Average annual growth (%)		
Total investment	10.0	16.7	5.1
Private	*8.2*	*20.0*	*5.1*
Public	*14.7*	*11.0*	*8.1*
Real GDP	**7.0**	**8.9**	**5.7**

Source: Bank Negara Malaysia; Department of Statistics, Malaysia; Author's calculation

The introduction of the First Industrial Master Plan (IMP1) in 1986 was significant in charting the strategic direction of the country's economic progress through the EOI and FDI-led growth strategy. The move coincided with rising production costs in major developed economies, especially as their currencies appreciated following the 1985 Plaza Accord. At the same time, the Promotion of Investment Act (PIA) introduced in 1986 provided more generous incentives and a greater degree of liberalisation as well as deregulation than the IIA 1968. These measures benefited private investment expenditure in particular, which recorded a considerably higher average growth of 20% per annum in the second phase. A major contributing factor was the significant increase in FDI (Chart 2), particularly into the manufacturing sector. At its peak, net FDI inflows amounted to 8.4% of nominal GDP in 1992. Among the significant recipients of FDI inflows within the manufacturing sector were the electrical and electronics (E&E), chemical and chemical products, as well as petroleum industries.

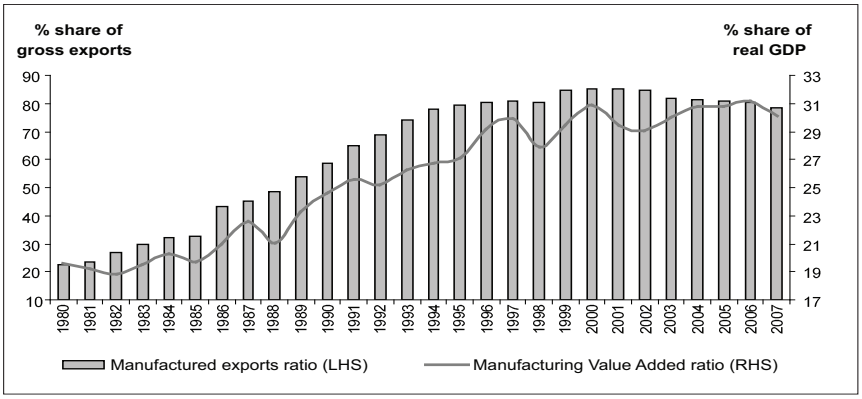
Chart 2: Net FDI and Private Investment



Source: Bank Negara Malaysia; Department of Statistics, Malaysia

As a result, the manufacturing sector grew on average by 13.9% per year during the second phase. Accordingly, total exports of goods and services as a share of nominal GDP expanded further compared with the earlier phase. By 1995, it accounted for almost 91% of GDP. Reflecting the strong growth of the manufacturing sector during this period, exports of manufactured products increased significantly to account for 79.6% of total gross exports in 1995 compared with 32.8% in 1985 (Chart 3).

Chart 3: Increasing Importance of the Manufacturing Sector



Source: Bank Negara Malaysia; Department of Statistics, Malaysia

In addition to the manufacturing sector, another key economic sector that experienced a marked increase in growth during the second phase was the construction sector. Value added in the construction sector expanded significantly, especially towards the end of the second phase (Table 4), driven by the construction of major public and privatised infrastructure projects, as well as a surge in housing and property development.

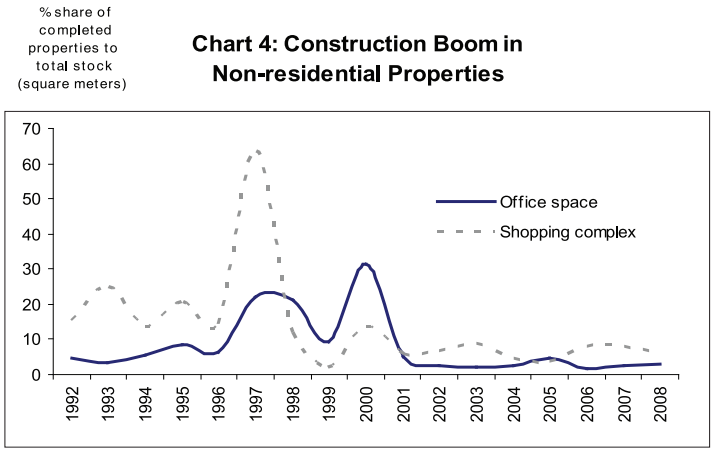
Table 4: Construction Sector Value Added Growth

	Phase 1		Phase 2		Phase 3	
	1975-1979	1980-1984	1987-1992	1993-1997	1999-2003	2004-2007
	Average annual growth (%)					
Construction	7.6	11.2	7.5	14.8	0.5	0.7

Source: Bank Negara Malaysia; Department of Statistics, Malaysia; Author's calculation

During the second phase, the Government recognised the need to improve domestic infrastructure to cater for the growing demand from industries. The presence of proper infrastructure facilities also served as a key factor in attracting foreign investors. Hence, the Government embarked on the construction of major infrastructure projects during this period, mainly in improving the transportation system, logistics as well as utilities. To accelerate the development of key infrastructure facilities, public-private sector partnerships were implemented through the Government's privatisation policy. Hence, a number of significant public infrastructure projects involved participation from the private sector; for example, the North-South Expressway (NSE), STAR Light Rail Transit (STAR-LRT), Kuala Lumpur International Airport (KLIA) and construction of power plants.

Chart 4: Construction Boom in Non-residential Properties

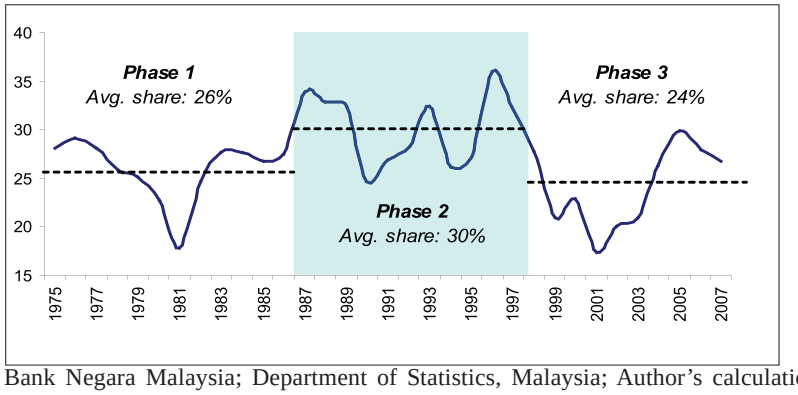


Source: National Property Information Centre (NAPIC); Author's calculation

Furthermore, there was a boom in residential and non-residential property development activities, particularly towards the end of the second phase. For example, referring to Chart 4, the high rate of completed non-residential properties specifically for office space and shopping complexes between 1997 and 1998 indicated that there were significant construction and investment activities occurring in the preceding years[3]. This corroborates the significant growth trend observed in the construction sector value added, especially in the 1993-1997 period, as indicated in Table 4 earlier.

In terms of public investment, the bulk of the Federal Government's development expenditure continued to focus on provision of essential services such as education, health, housing, agriculture and rural development, as well as promotion of trade and industry. It is also noted that the Government increasingly channelled more funds into improving public infrastructure during the second phase as compared with the earlier period, particularly for the transport and utilities sub-sector (Chart 5).

Chart 5: Federal Government Development Spending on Transport and Utilities



Source: Bank Negara Malaysia; Department of Statistics, Malaysia; Author's calculation

With the enhanced push for EOI and FDI-led growth policy, as well as the focus on developing and improving infrastructure capacity, total investment grew at an annual average of 16.7% in the second phase, the highest growth rate

3. Completed properties in a specific year as shown in the chart do not necessarily imply that the construction activities (or the corresponding investment expenditure on construction works) took place in that particular year only; in fact, it might stretch over the past several years.

among the three phases. This was led by the private investment, which grew strongly at an annual average rate of 20%. Consequently, total investment peaked at 44% of real GDP in 1995, just before the significant decline in investment during the 1997-1998 Asian Financial Crisis.

In the third phase (1999-present), total investment recorded a much lower growth relative to the earlier two phases. Investment activities registered an average growth of 5.1% per annum, compared with the robust double-digit growth recorded in the first two phases.

Private investment, which is still recovering from the effects of the Asian Financial Crisis, was influenced by the US tech bubble burst in 2001, the spread of the Severe Acute Respiratory Syndrome (SARS) in 2003 and the current global credit and financial crisis. In contrast, investment activities in the earlier phases benefited from a stable and prolonged period of positive economic growth. These crises influenced not only the sentiments of the domestic investors, but also among global investors. More importantly, the crises also led to lower FDI inflows into Malaysia, particularly in 2001 and 2003 (refer to Chart 2 earlier). As a result, private investment growth was affected.

The third phase also witnessed the Government's efforts to promote the less capital-intensive but higher value-added services sector as a new engine of economic growth. The Second Industrial Master Plan (IMP2), introduced in 1996, focused on attracting higher technology-intensive and knowledge-based industries. Hence, incentives were given to firms in selected activities such as regional headquarters, global procurement centres, logistics services, and research and development (R&D) activities. The Government also launched the 1996 Multimedia Super Corridor (MSC) initiative to spur growth in information technology (IT) and IT-related industries. While investment projects in the manufacturing sector continued to be encouraged, the emergence of the less-capital intensive services sector might have impacted the overall growth in private investment.

Furthermore, the majority of the privatised infrastructure projects and property development activities were completed during or immediately after the Asian Financial Crisis. In fact, most of the major privatised infrastructure projects such as the NSE, rail transport systems, KLIA and a number of independent power plants were already operational by 2000. In terms of property development activities, Chart 4 also showed that bulk of the construction projects was completed prior to 2000.

At the same time, public investment recorded positive growth during the third phase mainly because of counter-cyclical policies adopted by the Government. To address the shocks arising from global developments in 2001 and 2003, the Government introduced stimulus packages to restore and maintain positive economic growth.

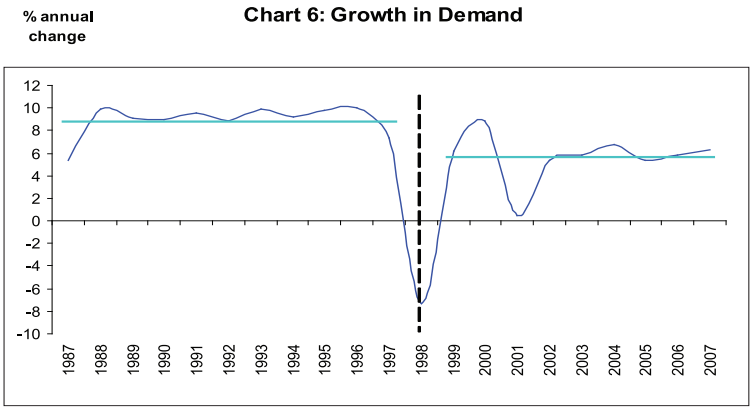
2.2 Comparison of Trends in Pre- and Post-Asian Financial Crisis Period

The previous sub-section (section 2.1) provides an analysis of the overall trends in investment. It should be noted that investment in the post-Asian Financial Crisis period (i.e. the third phase) was lower than the pre-crisis period (i.e. the second phase). This sub-section compares the investment trends in both periods by analysing the behaviour of the major investment determinants as commonly identified in the literature. In particular, this sub-section provides an assessment of the trends of the major determinants using three common investment models – the accelerator, neoclassical and cash flow models. Subsequently, a number of preliminary conclusions based on the analysis of these determinants are presented.

There are many traditional theoretical models to explain investment behaviour; the most common starting point is the accelerator model. The model proposes that firms' demand for capital goods as one of the factors of production relates to their production plans. If firms expect demand for their products to increase, they may decide to raise future production capacity and so will demand more capital goods. Recent demand conditions and production may influence firms' decision to invest in expanding their capacity, particularly if their current production capacity cannot fulfil the current demand.

Looking at the trends of relevant demand indicators, it is clear that the 1997-1998 Asian Financial Crisis and the subsequent economic shocks had affected total demand and output, generating excess capacity conditions across the economy. In fact, the current trends in demand-related indicators such as real GDP and capacity utilisation rate indicate that investment activity is still below the pre-crisis level, although it should be noted that the pre-crisis level is not necessarily a desirable target to reach.

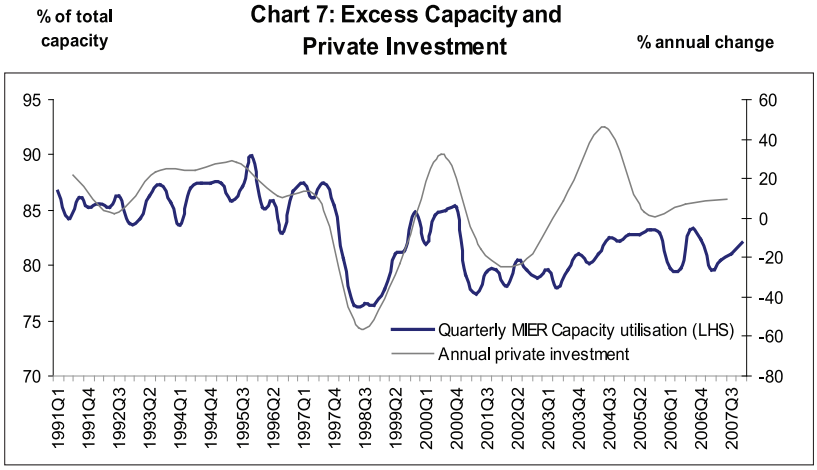
For instance, real economic growth, a common measure for overall demand, averaged at an annual rate of 5.7% between 1999 and 2007, which is considerably lower than the 8.9% growth achieved during the 1987-1997 period (Chart 6). Reflecting the lower growth in demand, total investment followed a similar pattern with a lower investment growth in the post-crisis period.



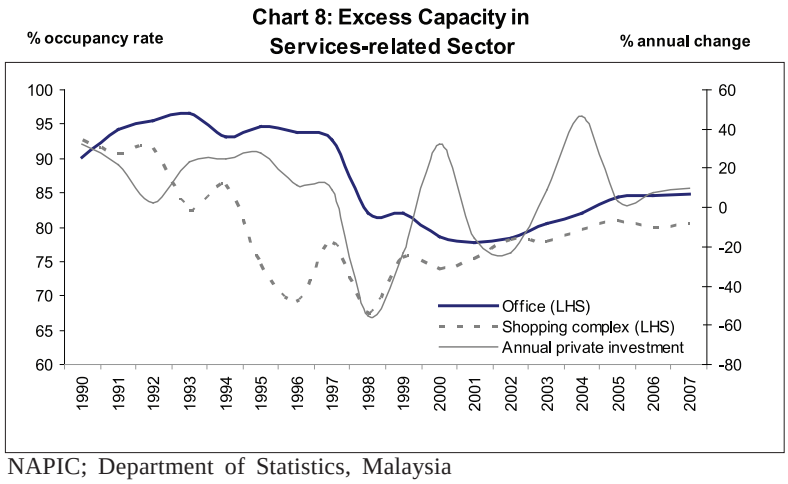
Source: Department of Statistics, Malaysia

The lower demand in the post-crisis period may imply that excess capacity situation still exists within certain sectors, hence reducing firms' willingness to invest. Prior to the crisis, firms embarked on capacity expansion exercises in response to high demand for their products. However, with the decline in and subsequently slower economic growth, it will take some time before firms start producing closer to its fully installed capacity. Until then, firms have lesser need to invest in additional capacity.

The following indicators can illustrate this trend. In Chart 7, the capacity utilisation rate in the manufacturing sector from the Malaysian Institute of Economic Research (MIER) shows a slow and gradual increase, especially after the 2001 economic shock. However, it is still lower than the average levels in the pre-crisis period. There are also some indications of excess capacity in the services sector. For example, in Chart 8, occupancy rates in office buildings and shopping complexes were much higher in the pre-crisis period. The high demand led to the construction of new office buildings and shopping complexes prior to the Asian Financial Crisis, as shown earlier in Chart 4. However, with the slower economic growth post-Asian Financial Crisis, the occupancy rates have also shown a slower increase and are trending well below the pre-crisis levels.

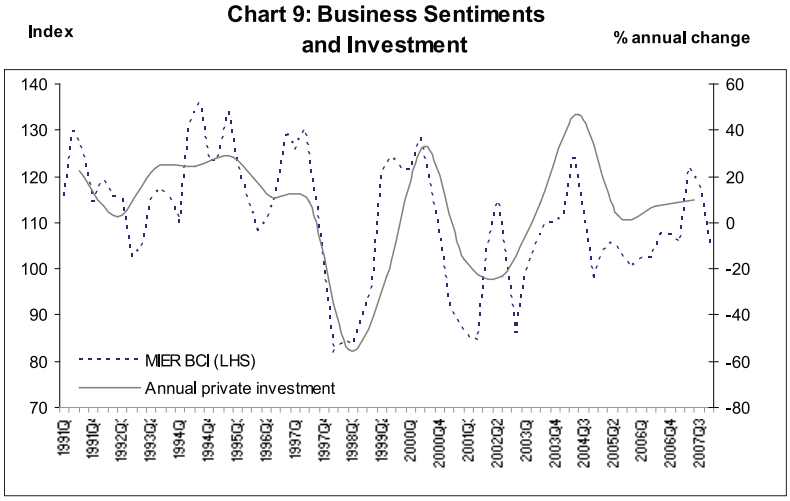


Source: MIER; Department of Statistics, Malaysia



Source: NAPIC; Department of Statistics, Malaysia

In addition, business sentiments were also affected by the economic shocks of 2001 and 2003. For instance, Business Conditions Index (BCI) from MIER is still not as high as the pre-crisis levels (Chart 9), especially since the impact of the successive shocks might have led to more cautious behaviour among investors. The current global financial crisis has also worsened investor sentiments, with BCI dropping below the 100-point confidence threshold in the third quarter of 2008 for the first time since 2004.



Source: MIER; Department of Statistics, Malaysia

Furthermore, the type of investment activities in the periods before and after the Asian Financial Crisis also differed. Prior to the crisis, investment activities involved more capital-intensive projects. First, there were several large public and privatised infrastructure and construction-related projects. As mentioned earlier, the construction of the NSE, KLIA, North Port and the light rail transit systems, for instance, were key components in improving the overall infrastructure by providing the backbone of transportation network and connectivity. By 2000, these major projects were already completed and operational. Secondly, the emergence of the services sector after the crisis, especially the IT-related industries, would involve relatively lower capital-intensive investment activities compared with the more capital-intensive manufacturing sector projects which were dominant prior to the crisis.

Therefore, based on the accelerator model of investment determinants, it indicates that the lower demand after the Asian Financial Crisis was due to lower output growth, completion of major infrastructure projects, and the emergence of the less capital-intensive services sector. As a whole, this lowered the overall spending on investment activities in the period after the Asian Financial Crisis compared with the period before the crisis.

The second common model of investment behaviour is the neoclassical model. This model touches upon the role of the cost of capital in determining investment, whereby a higher cost of capital will lead to lower level of investment. There are two ways how interest rate could negatively affect investment expenditure. First, interest rate is a cost of financing for the investment projects.

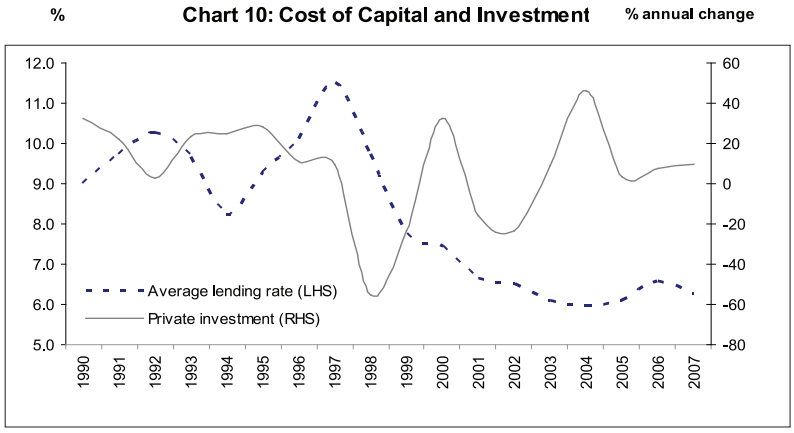
With higher interest rates, firms have to pay a higher cost of borrowing capital to fund their projects. This may discourage firms from investing. Secondly, interest rate return is an opportunity cost for firms. Instead of spending the money on investment activities, firms can earn interest income on the fund. As interest rate rises, firms may decide not to invest and rather save the money and earn income from the higher interest rates. This is particularly relevant for firms which prefer to tap into their internal funds to finance capital expenditure.

Table 5: Comparison of Real Interest Rate Between Pre- and Post-Crisis

	1990-1996	1999-2002	2003-2007
	%		
Real average lending rate (inflation-adjusted)	5.8	5.2	4.0

Source: Bank Negara Malaysia; Author's calculation

Malaysia has experienced a low and accommodative interest rate environment after the 1997-1998 crisis (Table 5 and Chart 10). Theoretically, this may lead to high investment. However, the lower investment observed implies that the positive impact from the low interest rate environment may have been negated by other factors, particularly the demand factors.

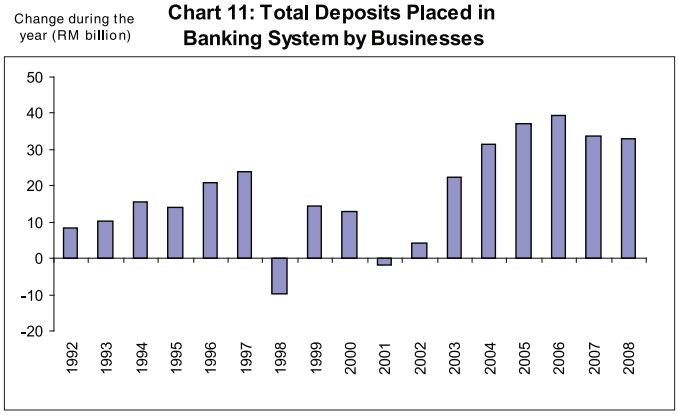


Source: Bank Negara Malaysia; Department of Statistics, Malaysia

Another model of determinants of investment behaviour is the cash flow model, which recognises the significance of financing requirements. As internal funds form an important source of financing investment activities, firms' cash flow – profit after taxes less payments to shareholders – represents an important indicator of investment trends. Firms with fairly high cash flow are in a better position to expand their capacity because of their stronger financial position.

While it is difficult to establish a long and fairly reliable micro series of firms' cash flow, it is quite reasonable to assume that firms' cash flow was relatively better in the few years after the Asian Financial Crisis. With corporate restructuring exercises and balance sheet adjustments, firms may take some time to resume healthier cash flow. However, even if their cash flow situation has improved, their more cautious behaviour after the 1997-1998 crisis, coupled with the effects from the subsequent economic shocks, might have influenced firms to preserve cash and increase savings rather than spend on investment activities (Chart 11).

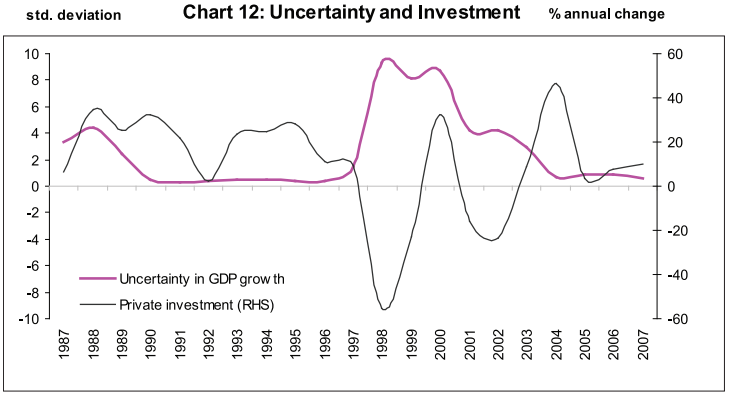
Chart 11: Total Deposits Placed in Banking System by Businesses



Source: Bank Negara Malaysia

Finally, recent research analyses have focused on modelling the role of uncertainty in affecting investment behaviour. Under uncertain demand and economic conditions, it may be better for firms to delay their capital expansion plans to have better idea and information on the prospective returns on investment. Hence, current investment spending will be affected. After the 1997-1998 Asian Financial Crisis, the subsequent shocks affecting the global and domestic economies caused uncertainties that could have influenced investment decisions. Chart 12 shows that the long period of high uncertainty after the Asian Financial Crisis between 1998 until 2003, was almost similar in length to the stable period prior to the Asian Financial Crisis. Firms' expectations of returns were affected,

and they might have decided to delay or cancel their investment plans during the long, uncertain period. Investors' cautious behaviour as discussed earlier may also be related to the existing uncertain conditions.



Note: Uncertainty is measured as the average three-year standard deviation of GDP growth
Source: Department of Statistics, Malaysia; Author's calculation

3. Major Policies Related to Investment

Major strategies and incentives for investment in Malaysia broadly follow the industrialisation policies pursued by the Government. Prior to the 1970s, Malaysia followed an import-substitution industrialisation (ISI) strategy. For this purpose, the Pioneer Industries Ordinance (PIO) was introduced in 1958 outlining the relevant tax incentives. To some extent, the ISI fulfilled its initial objectives, especially in creating employment opportunities for the growing labour force, and diversifying the economy away from being too dependent on rubber and tin. However, the Government subsequently recognised a number of key limitations with the ISI strategy, particularly the small domestic market size, lack of domestic capital resources and the continued high unemployment rate.

Subsequently, the Government adopted an EOI policy in the 1970s, among others, with the objectives of employment creation, access to bigger market size, and attracting foreign capital as well as technical experts. Hence, policies were undertaken to promote the local establishment of export-oriented firms and labour-intensive industries, especially by targeting FDI inflow from multinational corporations (MNCs). The focus was mainly to attract firms in the electronics assembly operations, textiles and other labour-intensive industries to take advantage of the abundance of low cost labour in Malaysia.

In this regard, the Government introduced the Investment Incentives Act (IIA) in 1968, replacing the earlier PIO (1958). Pioneer Status was given to firms based on their investment amount, which would enable them to get partial tax relief up to five years. Tax holidays were also given to firms based on their location, nature of products and local content of raw materials. Reinvestment allowance was introduced to encourage existing firms to reinvest, while import duty exemptions were given on selected raw materials, machineries and equipment.

In 1975, the Government also passed the Industrial Coordination Act (ICA) to regulate the orderly development of the manufacturing sector. Firms with shareholders' fund of at least RM250,000, and employed at least 25 full-time workers were required to apply for manufacturing licenses, and be subjected to all the necessary investment guidelines, for example, on foreign ownership equity. In accordance with the Government's New Economic Policy then, foreigners were allowed to own up to 70% equity. The Government also set up FTZs and LMWs in early 1970s for export-oriented firms to establish their operations and subsequently generate local employment opportunities.

In the second phase, the launch of the IMP1 in 1986 provided a greater push for the export-oriented manufacturing sector to drive economic growth. The IMP1 aimed to broaden the development of the manufacturing sector and reduce the reliance on the agriculture sector, which is typically characterised with volatile commodity prices. Selected priority areas in the manufacturing sector were identified, including heavy and capital-intensive industries, resource-based manufacturing industries, as well as small and medium industries (SMIs) deemed essential to develop inter-industry linkages.

In terms of tax incentives, the Government introduced the Promotion of Investments Act (PIA) in 1986 to replace the IIA (1968). Full income tax exemptions were given to eligible pioneer status companies in selected priority areas. For example, the Government provided 100% income tax exemption for five years to firms with products or activities in the high technology areas, and also to SMIs' producing intermediate goods in approved industrial linkages scheme. As an alternative to Pioneer Status, firms could also opt to apply for Investment Tax Allowance (ITA). Under the ITA, firms can claim up to 100% of their capital expenditure for that particular year, up to the next five years.

The ICA 1975 was also revised by relaxing the requirement for the manufacturing licence applications. Firms are only required to apply for the licences if they have at least RM2.5 million in shareholders' fund and employ

at least 75 full-time employees. Foreign equity restrictions were further liberalised. Foreign investors were allowed to own up to 100% equity ownership depending on their export intensity. For example, firms exporting at least 80% of its output could have 100% foreign ownership, while firms exporting 51%-79% of their output could have up to 79% foreign equity ownership.

In 1996, shortly before the onset of the Asian Financial Crisis, the Government launched the IMP2, covering most of the period in the third phase of growth. While it continued to promote the manufacturing sector, it also emphasised the importance of developing the services sector. Tax exemptions were given to attract investment into the selected services sub-sectors such as outsourcing and operational headquarters. Under further revisions to the PIA 1986, full tax exemptions were given to contract research and development (R&D) companies as well as MSC-status companies. Technology parks were established to encourage involvement in high technology, high value-added activities. Foreign equity ownership was further liberalised, with full foreign ownership allowed irrespective of the level of exports. In fact, the Government has also relaxed foreign equity rules in traditionally protected sectors such as the telecommunication and financial services industries[4].

In terms of administrative machinery, the main one-stop agency responsible for the promotion and coordination of the industrial development in Malaysia is Malaysian Industrial Development Authority (MIDA)[5]. It represents the first point of contact for potential investors interested in investing in Malaysia. Hence, MIDA's functions encompass the whole range of planning and making recommendations for new industrialisation strategies; promotional activities such as for attracting FDI and cross-border investment; evaluation of applications for manufacturing licenses, tax incentives and duty exemptions; as well as follow-up and monitoring services on approved investment projects in Malaysia.

Another aspect that was given due attention especially during the third phase was improvement to the government delivery system. In this respect, numerous measures were implemented to help reduce the bureaucratic process faced by investors. Conditions imposed by MIDA for the manufacturing licence were reviewed and some were removed, while fast-track licensing approval process

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4. At the time this paper is being written, the Government has made announcements of relaxations and liberalisations to the foreign equity rules in selected services sub-sectors to attract private investment.

5. MIDA was originally established as Federal Industrial Development Authority in 1967.

was adopted. Tax-related applications were also eligible for fast track approval. Furthermore, a public-private task force known as PEMUDAH was established in 2007 to identify and propose critical areas of improvement in the government delivery system. Thus far, PEMUDAH has suggested and helped to address several key areas to provide for simpler processes of doing business in the country.

4. Empirical Results and Analysis

4.1 Empirical Approach

The empirical approach applied in this paper follows the agreed overall methodology for the project - a vector error-correction model (VECM) framework that provides both the long- and short-run relationships for private investment. It is important to note that the data requirement of a VECM is fairly heavy while the available sample period for Malaysia is relatively short.

Furthermore, as with most countries, investment expenditure is one of the most volatile demand components of the Malaysian economy. As indicated in Table 6, private investment is by far the most volatile demand component. It is at least five times more volatile than GDP, and more than three times that of private consumption. Even public investment is more volatile than the other demand components, reflecting in part the counter-cyclical policy actions taken by the government during the periods of slowdown in economic growth. Hence, the empirical analysis has to be interpreted with caution given the short sample period and the volatile nature of the investment data.

Table 6: Volatility of Components of Real Gross Domestic Product (GDP) of Malaysia from 1975-2007

Component	Share of Real GDP in 2007 (%)	Volatility
Private consumption	50.5	5.7
Public consumption	12.9	6.2
Private investment	11.9	20.9
Public investment	11.4	15.9
Exports of goods and services	122.2	6.9
Imports of goods and services	107.7	12.0
Real Gross Domestic Product	**100.0**	**3.9**

Note: Volatility is measured as the standard deviation of growth rates from 1975 to 2007
Source: Department of Statistics, Malaysia; Authors' calculations

The dependent variable for the VECM is private investment, while the independent variables considered include common determinants as outlined in the literature. A dummy variable is also included specific to the crisis impact in 1998. Table 7 describes the variables involved and brief rationales for including them in the analysis. The variables are also transformed where appropriate. Data is obtained from various sources, primarily from the Monthly Statistical Bulletins of Bank Negara Malaysia and the Department of Statistics, Malaysia. The sample period covers annual series, mainly between 1975 and 2007. All the analysis has been done using the Eviews software.

Table 7: Description of Variables

Variable	Expected sign	Rationale
Real private investment (RM million; 2000 prices)	n.a.	n.a.
Real GDP (RM million; 2000 prices)	+	Higher demand leads to increase in investment due to better potential return on investment and higher capacity utilisation
Real effective exchange rate	+/-	Appreciation in exchange rate (↑ in REER) leads to cheaper cost of imported investment goods; hence, may lead to higher investment. However, the appreciation may also affect prices of and demand for exports and subsequently exporters' revenue; hence, they may cut their investment spending
Real interest rate (%; Average lending rate adjusted for inflation)	-	Higher cost of capital hinders investment financed mainly through borrowings. Higher interest rates also represent the opportunity cost of earning interest income on available funds rather than spend on capital expansion activities
Ratio of total gross exports to GDP (%)	+/-	A more open economy implies a bigger market; hence, may lead to higher investment in tradable goods. However, a substitution effect may occur, whereby firms switch from non-tradable goods, i.e. lower investment in non-tradable sectors
Ratio of loans to the private sector to GDP (%)[6]	+	Availability of credit leads to higher investment
Real public investment (RM million; 2000 prices)	+/-	Public investment may complement private investment through supporting private activities. On the other hand, public investment may also crowd out private investment in terms of either financial resources or raw materials
Uncertainty in real GDP growth (average 3-year standard deviation)	-	Higher uncertainty may lead to delay in investment particularly in the immediate term; hence, lower investment

6. The longer time series data on loans enabled it to be used as a proxy for financing to the private sector. It is acknowledged that private firms also access the capital market to source for funds. But the shorter data sample provided some restrictions to the use of this data in the analysis.

Overall, there are three main steps involved in the empirical analysis. First, variables are tested for stationarity using the Augmented Dickey Fuller (ADF) unit root tests. Results of the unit root tests are shown in Appendix 1. Secondly, the non-stationary variables are tested for possible cointegration with private investment. The cointegration test being applied is the more recent Johansen test, compared with the Engle-Granger two-step procedure. Finally, if the Johansen test finds the presence of any cointegrating relationship(s), then the VECM is estimated. Appendix 2 lists down selected VECM specifications that have been estimated[7].

4.2 Major Empirical Findings

This sub-section will discuss the major findings of the study. It has to be noted that seeking the best, parsimonious equation is a rather difficult process. More often than not, there will be some coefficients that are insignificant, most notably the error correction term in the VECM[8].

Table 8 provides an overview of the results of the empirical analysis across all estimated equations according to the variables involved. From Appendix 2, Equation 8 appears to be the most parsimonious specification, since almost all the important coefficients are significant including the error correction term, and the signs of the coefficients are as expected. However, it is also useful to look at the other specifications and the performance of the other major variables to get a better understanding of their overall impact on private investment. Hence, the following discussion will also mention the factors that consistently appear significant in most specifications.

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7. The results from the full range of estimated equations can be provided upon request.

8. The Johansen cointegration tests were conducted on all the non-stationary variables, i.e. real private investment, real GDP, REER, ratio of loans to the private sector to GDP and ratio of total gross exports to GDP. Coefficients for some of these variables were insignificant, and hence were dropped from the long-run cointegration relationship. The estimated VECM were also sensitive to the variables involved, i.e. the error-correction term tends to be statistically insignificant with the inclusion of some of these variables.

Table 8: Summary of Empirical Analysis

Variable	Expected sign	Statistical significance	Long-run coefficient (% impact)	Short-run coefficient (% impact)
Real GDP	+	Highly significant in both the long- and short-run specifications	+1	+3 to +5
Real effective exchange rate	+/-	Generally insignificant	n.a.	n.a.
Real interest rate	-	Significant in several specifications	n.a.	-0.02
Ratio of total gross exports to GDP	+/-	Highly significant in almost all specifications	n.a.	+1 to +1.7
Ratio of loans to the private sector to GDP	+	Significant in a few specifications only	n.a.	-0.7 to -0.9
Real public investment	+/-	Generally insignificant	n.a.	n.a.
Uncertainty in real GDP growth	-	Significant in most specifications	n.a.	-0.1

Equation 8 suggests that there are at least two major factors that significantly affect private investment. The first factor is demand, adhering to the accelerator theory of investment. Any increase in demand most likely will lead to higher investment. It can also be a measure of investors' potential returns on their investment. In other words, whether the investment is worth the money depends on whether the potential revenue generated provides sufficient return on the initial investment outlay. The potential revenue from the investment can be assessed based on the current demand performance and its outlook.

Consistent with an earlier IMF study (Guimaraes and Unteroberdoerster, 2006), private investment is cointegrated in the long run only with demand, with the impact on private investment almost one-to-one. A one percent change in demand, as measured by real GDP, will lead to a one percent increase in private investment. More importantly, the coefficient is stable at that level throughout different specifications, hence indicative of the robust estimate of the coefficient.

The error correction term of the long-run relationship in Equation 8 is statistically significant, with a negative coefficient of 0.11. Looking at other estimated specifications with statistically significant error correction terms also suggest coefficients with a range of 0.11-0.18. The negative sign indicates that private investment tends to return to the long run relationship, and based on the estimated coefficients, it takes between six to ten years before private investment fully adjusts to its long run path.

In the short term, growth in real GDP also has a significant impact on private investment, with coefficient estimates of three to five percent. This implies that an additional one percentage growth in real GDP can lead to further growth in private investment on a range of between three to five percentage points.

The second significant factor is the degree of openness, as measured by the ratio of gross exports to GDP. This is not surprising since Malaysia has pursued an export-oriented industrialisation strategy. Hence, private investment growth is closely associated with foreign companies setting up their operations or expanding their activities in Malaysia, and also local companies involved in production of exported goods. Another reason contributing to the significance of the degree of openness can also be related to the linkage between investment in the tradable and non-tradable sectors. If exports revenue is high, then it can bring positive impact on household income and purchasing power, especially among those involved in the tradable sector. The higher income may lead to an increase in consumption demand. This then may attract investment by firms in the non-tradable sector, which mostly serves the domestic market. The short term coefficient for the gross exports-to-GDP ratio is stable, ranging between 1 to 1.6 percent. This implies that a one percentage increase in the ratio of gross exports to GDP can lead to a higher growth in private investment by at least an additional one percentage point.

Apart from the two main factors, there are other factors that were found to be significant in several specifications. These include the ratio of private sector loans to GDP, cost of capital and uncertainty as measured by the GDP growth. However, these factors had to be dropped from the parsimonious equation as they become insignificant when combined with the other factors, or the signs of the coefficients were incorrect.

The ratio of private sector loans to GDP is used as a measure of financing availability. However, the negative sign of the coefficient was against expectation, since it implies easier credit availability leads to lower private investment. Furthermore, when combined with the ratio of exports to GDP which is consistently significant throughout all the specifications, the coefficient for the loans ratio becomes highly insignificant.

In several specifications, the real interest rate appeared significant in the short run, and the coefficient has a negative sign as expected. The coefficient is broadly stable at 0.02, implying minimal impact on private investment from

movements in interest rates. A one hundred basis point increase in real interest rate could lead to a drop of only .02 percentage point in private investment growth.

As shown earlier in Chart 10, Malaysia has had a relatively low interest rate environment especially after the Asian Financial Crisis. At the same time, firms' access to financing was effectively a non-issue as liquidity remains largely adequate. However, the positive impact from the accommodative monetary environment may have been offset by the relatively weaker demand conditions. This may explain the relatively minimal impact of interest rate movements on private investment behaviour, particularly after accounting for the large influence from the demand factors. Although the real interest rate was statistically significant in several specifications, it was eventually dropped because of the insignificance of the error correction term.

In addition, uncertainty in the real GDP growth tends to be significant in the short run in most specifications. The coefficient is negative as expected. However, the impact is still relatively small. The error correction terms also tend to be fairly insignificant, which leads to the exclusion of volatility in real GDP growth from the parsimonious equation.

5. Issues and Challenges

The empirical results show that private investment decisions depend critically on demand conditions and outlook, as indicated by the significance of both real GDP growth and the ratio of exports to GDP in determining private investment. Even the significance of uncertainty in real GDP growth in most specifications pointed to the strong influence of demand-related factors. It basically implies that with relatively lower average growth in demand after the 1997-1998 crisis, private investment spending would experience lower growth compared with the period prior to the crisis. In addition, due to the subsequent intermittent economic shocks since the Asian Financial Crisis, recovery in private investment spending takes a longer period as investors become more cautious in their investment decisions.

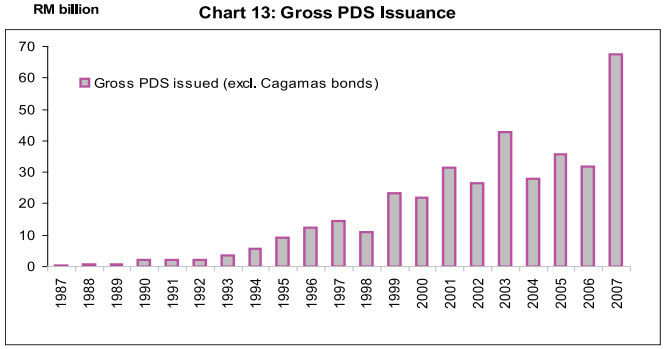
The current global financial crisis is also worsening the situation. From the above empirical analysis, the sharp decline in external demand as a result of global recession will be reflected through a drop in the exports-to-GDP ratio, which in turn will affect private investment. Total demand will also be affected, and since the uncertain conditions are expected to persist for some time, there

is a lesser need for firms to expand their capacity. Hence, the expected impact on private investment will be fairly large.

Although the interest rate variable did not appear significant in the final parsimonious equation, the fact that it is significant in several estimated equations suggests that there is still some scope for monetary policy to influence investment decisions. Low interest rate environment encourages lending and borrowing activities, not only for investment activities but also consumption spending as the cost of borrowing is low. Eventually, higher demand from consumers may lead firms to undertake new investment activities. In addition, the opposite case of high interest rate is not exactly supportive of economic activity especially in view of the current crisis. It would entail higher cost of borrowings not only for firms' investment activities, but also for credit-driven consumer expenditure.

Another aspect that is related to the monetary and financial policy is in ensuring adequate access to financing. The cost of financing can be low, but at the same time, firms must have sufficient access to financing. Once firms are willing to expand their capacity, the investment activity should proceed without any delays, especially in obtaining the necessary financing. Nonetheless, the empirical analysis covered only one aspect of financing resources, which is through loans from the banking sector. Firms can still finance their investment activities through different sources of funds, either from internal or external resources. More importantly, firms have increasingly source their funds from the capital market, especially since the mid-1990s. Chart 13 shows the rise in the amount of funds being raised through the issuance of debt securities, especially after the Asian Financial Crisis. Going forward, ensuring better access to financing, either through funds sourced from the banking system or the capital market, remains a significant factor in contributing to a supportive environment for investment.

Chart 13: Gross PDS Issuance



Source: Bank Negara Malaysia

6. Conclusion

This paper assessed the overall trends and determinants of investment expenditure in Malaysia. The trend of total investment expenditure largely follows the overall pattern of economic growth and industrialisation policy. In general, there are three different phases of investment growth period since early 1970s, separated with the two major crises in 1985-1986 and 1997-1998.

During the first phase (1975-1984), growth in investment was mainly supported by the export-oriented industrialisation policy of the Government, leading to a commendable average growth of 10% per year. In the second phase (1987-1997), the Government put more emphasis on the manufacturing sector to be the main driver of economic growth, and implemented strategies to support the performance of the sector, including attractive tax incentives and FDI-friendly measures. As a result, total investment growth was more impressive than the first phase, with an average growth rate of 16.7% per year. This was led by private investment which expanded strongly at an average rate of 20% per year. In the final phase (1999-present), investment activities were affected by subdued demand conditions amidst intermittent economic shocks, which led to the lowest average growth of 5.1% per annum among the three phases.

The assessment on the determinants of private investment in Malaysia suggested that the domestic investment expenditure adhere closely to the accelerator model of investment. In particular, total demand conditions as well as its prospects have strong influences on investment decisions. This can be seen from observations of the trends in selected demand-related indicators and their relationship with investment trends between pre- and post-crisis period. Empirical analysis also pointed to the importance of demand conditions, as indicated by the consistent significance of real GDP and exports-to-GDP ratio in the whole range of estimated equations. There are also other variables that generally appeared significant in several equations. In this case, the significance of cost of capital and the ratio of private sector loans to GDP shows that there is scope for monetary policy to influence investment decisions, although the impact may be much smaller relative to the demand factor.

Going forward, the current global financial crisis presents challenging conditions on the economy, particularly on private investment expenditure. Even when the global demand conditions improve, it may take some time before private investment recovers due to the presence of excess capacity. In this challenging environment, it becomes more critical for Government policies to remain

supportive of the overall economic activity including maintaining a low interest rate environment and ensuring the private sector has continued access to financing.

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Appendix 1: Unit Root Test

Table A1: ADF Unit Root Tests on Variables

Variable	Level	First difference	p-value	Integration order
Real private investment		***	0.0005	1
Real GDP		***	0.0003	1
Real effective exchange rate		***	0.0006	1
Ratio of loans to the private sector to GDP		***	0.0072	1
Ratio of total real exports to GDP		***	0.0001	1
Real interest rate	**	-	0.0250	0
Real public investment	**	-	0.0325	0
Uncertainty in real GDP growth	**	-	0.0331	0

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% respectively. Lag length is chosen according to the Schwarz criterion

Appendix 2: Selected Estimations of Vector Error Correction Model (VECM)

Table A2: Selected VECM Results

Dependent variable: Change in real private investment							
Equation no:	1	2	3	4	5	6	7
Cointegrating relationship							
Real private investment	1	1	1	1	1	1	1
Real GDP	-1.09 [-8.03]	-1.14 [-7.40]	-1.14 [-7.65]	-0.99 [-5.39]	-1.10 [-7.11]	-1.15 [-7.91]	-1.15 [-7.38]
Constant	3.03	3.58	3.59	1.76	3.12	3.67	3.77
Short-run factors							
Error correction term	-0.26 [-2.34]	-0.09 [-1.10]	-0.01 [-0.17]	-0.11 [-1.33]	-0.08 [-0.95]	-0.10 [-1.27]	-0.05 [-0.64]
Change in real private investment	-0.07 [-0.24]	-0.11 [-0.55]	-0.20 [-1.09]	-0.13 [-0.68]	-0.24 [-1.13]	-0.11 [-0.58]	-0.14 [-0.74]
Change in real GDP	3.30 [1.96]	3.13 [2.56]	3.40 [3.08]	4.09 [3.28]	4.15 [3.05]	3.38 [2.85]	3.20 [2.84]
Change in REER							
Change in ratio of private sector loans to GDP							
Change in ratio of total gross exports to GDP							
Change in real interest rate							-0.02 [-2.50]
Real interest rate						0.02 [1.80]	
Change in real public investment					-0.31 [-1.58]		
Uncertainty of real GDP growth				0.08 [1.80]			
Change in uncertainty of real GDP growth			-0.11 [-2.80]				
Crisis dummy		-0.84 [-5.24]	-0.69 [-4.47]	-0.88 [-5.98]	-0.86 [-5.41]	-0.89 [-5.68]	-0.99 [-6.25]
Constant	-0.15 [-1.48]	-0.11 [-1.49]	-0.13 [-1.95]	-0.28 [-2.71]	-0.14 [-1.89]	-0.21 [-2.34]	-0.10 [-1.47]
Adjusted R-squared	***0.19***	***0.57***	***0.66***	***0.69***	***0.59***	***0.60***	***0.64***

Note: T-statistics in square parentheses

Table A2: Selected VECM Results (cont'd)

Dependent variable: Change in real private investment

Equation no:	8	9	10	11	12	13	14
Cointegrating relationship							
Real private investment	1	1	1	1	1	1	1
Real GDP	-1.16 [-8.20]	-1.45 [-10.39]	-1.00 [-6.16]	-0.98 [-5.71]	-1.44 [-11.02]	-1.15 [-8.18]	-1.16 [-7.81]
Constant	3.82	7.32	1.88	1.66	7.24	3.74	3.80
Short-run factors							
Error correction term	-0.11 [-1.69]	0.02 [0.30]	-0.10 [-1.21]	-0.17 [-2.09]	0.06 [0.81]	-0.06 [-0.85]	-0.08 [-1.23]
Change in real private investment	-0.13 [-0.81]	0.03 [0.16]	-0.07 [-0.40]	-0.21 [-1.15]	-0.08 [-0.40]	-0.19 [-1.20]	-0.15 [-1.02]
Change in real GDP	4.16 [4.09]	2.94 [2.53]	3.64 [3.03]	3.80 [3.37]	3.24 [3.05]	4.17 [4.33]	4.13 [4.43]
Change in REER			-0.54 [-1.35]	-0.66 [-1.71]			
Change in ratio of private sector loans to GDP		-0.94 [-2.05]			-0.75 [-1.77]		
Change in ratio of total gross exports to GDP	1.66 [4.03]					1.39 [3.39]	1.52 [3.98]
Change in real interest rate							-0.02 [-2.48]
Real interest rate							
Change in real public investment							
Uncertainty of real GDP growth				-0.07 [-2.10]			
Change in uncertainty of real GDP growth					-0.10 [-2. 60]	-0.07 [-2.05]	
Crisis dummy	-1.00 [-7.43]	-0.95 [-6.28]	-0.86 [-5.69]	-0.68 [-4.04]	-0.77 [-5.05]	-0.87 [-6.17]	-1.11 [-8.47]
Constant	-0.21 [-3.30]	-0.06 [-0.86]	-0.14 [-1.89]	-0.12 [-1.73]	-0.09 [-1.37]	-0.21 [-3.43]	-0.19 [-3.30]
Adjusted R-squared	***0.72***	***0.61***	***0.64***	***0.69***	***0.68***	***0.75***	***0.77***

Note: T-statistics in square parentheses

Table A2: Selected VECM Results (Cont'd)

Dependent variable: Change in real private investment

Equation no:	15	16	17	18	19	20	21
Cointegrating relationship							
Real private investment	1	1	1	1	1	1	1
Real GDP	-0.96 [-5.77]	-1.01 [-6.27]	-1.43 [-11.16]	-1.15 [-7.96]	-1.11 [-6.69]	-1.08 [-6.06]	-1.49 [-10.25]
Constant	1.39	1.96	7.10	3.75	3.19	2.82	7.91
Short-run factors							
Error correction term	-0.18 [-2.26]	-0.15 [-1.75]	-0.04 [-0.66]	-0.08 [-1.27]	-0.01 [-0.13]	-0.12 [-1.84]	0.07 [1.10]
Change in real private investment	-0.21 [-1.13]	-0.26 [-1.37]	-0.13 [-0.80]	-0.14 [-0.94]	-0.37 [-2.21]	-0.14 [-0.85]	-0.03 [-0.15]
Change in real GDP	3.69 [3.32]	3.86 [3.40]	4.03 [4.16]	4.57 [4.61]	5.24 [5.13]	4.68 [4.44]	3.34 [3.27]
Change in REER	-0.52 [-1.35]	-0.57 [-1.46]					-0.68 [-1.69]
Change in ratio of private sector loans to GDP			-0.12 [-0.28]				-0.85 [-1.95]
Change in ratio of total gross exports to GDP	0.59 [1.34]		1.47 [3.50]	1.53 [3.96]	0.99 [2.32]	1.31 [3.32]	
Change in real interest rate		-0.02 [-1.01]	-0.02 [-2.18]				
Real interest rate				-0.02 [-1.90]			
Change in real public investment					-0.37 [-2.21]		
Uncertainty of real GDP growth	-0.07 [-2.17]	-0.07 [-2.23]		0.08 [2.32]		0.07 [1.93]	
Change in uncertainty of real GDP growth					-0.11 [-2.99]		-0.09 [-2.42]
Crisis dummy	-0.62 [-3.70]	-0.76 [-4.14]	-1.13 [-8.73]	-1.08 [-8.81]	-0.80 [-5.85]	-1.00 [-7.97]	-0.95 [-5.53]
Constant	-0.13 [-1.90]	-0.12 [-1.66]	-0.18 [-2.76]	-0.24 [-2.37]	-0.22 [-3.96]	-0.34 [3.83]	-0.09 [-1.50]
Adjusted R-squared	***0.70***	***0.69***	***0.75***	***0.81***	***0.78***	***0.78***	***0.71***

Note: T-statistics in square parentheses

Chapter 5

INVESTMENT IN MYANMAR IN THE POST–CRISIS ERA: ISSUES AND CHALLENGES

by
May Marlar Maung Gyi[1]

1. Introduction

The Union of Myanmar has a total land area of 676,577 sq. km. and an estimated population of about 56.5 million. Myanmar is a country blessed with abundant natural resources and enormous economic potential. Myanmar transformed its economy from a centrally-planned to a market-oriented economic system in 1988, thereby allowing the private sector to play a vital role alongside the state sector[2]. The country's abundant and fertile natural resources offer numerous investment opportunities for promotion of economic growth and development. To induce investment inflows with the accompanying technology and capital for the exploitation of the country's rich natural resources, the Foreign Investment Law was enacted in 1988. This Law provides incentives and rights to foreign investors.

1.1 An Overview of Myanmar's Economic Performance

Following the transition of its economic system into a market-oriented economy, Myanmar initiated various reform measures with a view of stimulating and accelerating the country's economic development. Due to the consistency and coherence of the reform implementation and due to the basic strength of the economy, the downward spiral of the economy was checked and economic recovery was achieved, as indicated by the GDP growth rates of 1989/90 and 1990-91 despite the attendant problems and difficulties accompanying the reforms. However, the country's economic performance declined slightly in 1991-92 due to abnormally adverse weather conditions which severely affected agricultural production, the mainstay of the economy. As a result of the concerted efforts made in formulating and implementing short-term economic plans successfully since 1992-93, Myanmar attained an average annual growth rate of 7.5%. During the first year of the current short-term plan, that is FY 2006/2007, the economy registered strong growth at 12.7 % against the targeted growth rate of 12.0%.

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Although the momentum of economic growth has been maintained, the remaining obstacle is the rise in inflation due to the increase in government employees' salaries, abolishment of the subsidised energy prices and the increase in public expenditure. Accordingly, the central bank rate was raised to 12 % from 10% with effect from 1st April 2006.

1.2 Objective of Report

The Asian financial crisis affected many economies in Asia. As an economy in transition lacking developed financial and capital markets, Myanmar felt the partial impact of the financial crisis. Its economic growth fell to 5.7 % in 1997-98 from 6.4 % in 1996-97. Following the floating of the Thai baht in June 1997, the Myanmar exchange rate depreciated, leading to a surge in inflation, partly owing to the importance of Thailand as a Myanmar's trade partner, with regard to border trade. The inflation increased from 20% in 1996-97 to 33 % in 1997-98, mainly due to the increase in prices of imported goods. Due to the economic downturn in the ASEAN countries, and the psychological impact of the crisis, foreign direct investment significantly declined to US$1,012.92 million in 1997-98 from US$ 2,814.25 million in 1996-97. Construction growth fell sharply to 9.8% in 1997-98 from a growth of 24.6% in 1996-97, mainly due to a sharp decline in private sector investment in construction. FDI flows as a percentage of gross fixed capital formation has been declining since 1997. Though Myanmar has financial and trade linkage with Asian countries, the contagion effect of Asian crisis was not as severe as expected.Inward FDI, however, as percentage of the GDP has been increasing steadily again in 1992. In this context, the trend of declining investment that began in the 1997 is the focus of this paper.

This paper consists of five sections. Following this introduction, Section 2 describes the trend of domestic investment and direct investment in the pre- and post-crisis periods. Section 3 outlines the major policies related to foreign direct investment and domestic investment. Section 4 discusses the issues and challenges regarding FDI and private investment. Finally, the conclusion and policy recommendation are presented in Section 5.

2. Trend of Domestic Investment and Foreign Direct Investment in the Pre- and Post-Asian Financial Crisis

2.1 Development of Domestic and Foreign Direct Investment in the Pre-crisis Period

2.1.1 Foreign Direct Investment

Since 1988, following Myanmar's transition to a market-oriented economy, special emphasis had been made to step up investments. One of the most important initiatives undertaken was the promulgation of the Foreign Investment Law in November 1988, and it was immediately followed by an endorsement of the procedure in December. The main aim of this law is to provide incentives for the inflow of foreign capital and technology, which is essential to expedite the development of the national economy.

Moreover, in order to promote the participation of foreign investors, the State Economic Enterprises Law was enacted. Under this law, eight sectors are opened to foreign participation. In addition, 12 different areas, which are exclusively the domain of the state economic enterprises, are opened to joint ventures with private entrepreneurs and organisations, if it is beneficial for the state. The permitted areas include production, sale and exports of teak, petroleum, natural gas, precious stones, fish, prawns, metal, and such services as banking, insurance, air and rail transport.

With the introduction of the Myanma Foreign Investment Law and State Economic Enterprise Law, a favourable climate conducive for investment has been created in Myanmar. This is reflected in the number of foreign investors that have taken advantage of the opportunities. As at the end of September 1994, 107 projects from 17 countries were approved. From the 1989-90 fiscal year to 1996-97 fiscal year, the total foreign investment reached US $ 6.05 billion in 1997-1997 as compared to US $ 449.5million in 1989-90. In terms of investment value, the United Kingdom headed the list with 23.80 % share of the total, followed by Singapore with 18.20 % share while Thailand came in third with 16.96 % share. In terms of the ownership structure, wholly foreign-owned venture dominated the list with 48.85 %, while joint ventures between the state-owned economic enterprises and foreign investors came in second with 36.66 % share, followed by production sharing with 14.49 % share in 1996-97. Until 1995-96, FDI was dominated by investments in oil and gas with 44.34 % share of the total FDI and hotel and tourism sector accounted for 20.00 % of the total FDI. However, the trend has moved in favour of the

manufacturing sector in 1996- 97. The industrial sector grew at over 10% annually during 1992-93 to 1997-98. This growth came mostly form the construction and the energy sectors as investors from the neighboring counties responded to the opening of the economy. FDI from ASEAN nations include Singapore, Thailand, Malaysia, Indonesia and the Philippines and they had amounted to US $2,808.733 million which was 46.41 % of the total FDI. Its share in the GDP was 4.5 % in 1996-97.

2.1.2 Domestic Investment

With the adoption of a market-oriented policy, the private sector has been encouraged to play an active and extensive role in the economy. The annual economic plans were formulated and implemented to drive the economy towards the twin objectives of achieving economic and price stabilisation. The economy responded well to the liberalisation of 1988. Myanmar's economic performance improved in the first half of the 1990s. Growth averaged at 7.3 % during 1992-93 - 1996-97, following an average decline of 5.5% in the late 1980s. The government enacted the Myanmar Citizen Investment Law in 1994 to give impetus to local investors enabling them to enjoy rights and investment incentives comparable to those accorded to foreign investors. The result was an impressive expansion in investment. Local investment (by companies registered under the Companies Act) grew and the number of registered private Myanmar companies reached 2,140 in 1996- 97. The Government promulgated the Private Industries Law and Cottage Industries Production Law. The Myanmar Industrial Development Committee was formed to assist private industrial enterprises and the Industrial Development Bank was established to provide financial assistance. Due to state encouragement, the percentage share of private investment in the GDP increased from 3.8% in 1988-89 to 7.0% in 1996-97. The share of private investment in fixed investment grew at an average rate of 59.18% during 1988-89 to 1997-98. The increase was mainly due to the extensive participation of private industries in the production of foodstuff and beverages, clothing and wearing apparels, personal and household goods, and industrial raw materials.

Subsequently, the reforms opened up banking to the private sector. The Financial Institutions of Myanmar Law and the Central Bank of Myanmar Law, which were enacted in July 1990, provided for the establishment of private banks in parallel with the state-owned banks. As at 1996-97, 15 private domestic banks were opened and 30 foreign banks were permitted to open representative offices in Myanmar, without license to do banking operation as yet. However, most of the foreign representative offices have correspondent banking arrangements with the domestic banks.

Regarding public investment, while the stated government policy has been to encourage the development of a market economy, many capital-intensive industries remain state-owned. The state dominates such key sectors as energy, communications, and oil and gas sector. The state has a large but declining share in fixed capital formation. In most of the years, the growth of private investment out-paced public investment following the implementation of the incentives and liberalisation measures. Total investment grew at an average annual rate of 17 % during 1992-93 to1996-97.

The total investment grew at an average annual rate of 17% during 1992/93 to 1996/97. In most years, the growth of private investment out-paced that of public investment following the implementation of the investment incentives and liberalisation measures. However, the share of investment in the GDP at round 13 % during this period is comparatively low by Asian standards.

2.2 Domestic Investment and Foreign Direct Investment in the Post-crisis Period

Due to the economic downturn in the ASEAN countries, the investment flows from the crisis-hit countries into Myanmar slowed down causing the foreign direct investment to decline to US$1,012.917 million in 1997/98 from US$2,814.25 million in 1996-97. This decline also reflected the winding down of the large energy and tourism projects begun earlier. Fewer foreign companies were entering Myanmar in 1998-99 relative to the preceding years and the rate of new domestic company formation slowed down. New investment approvals declined dramatically in 1998-99 to only about 5% of the level approved in 1997-98. Some representative offices of foreign banks from the crisis-hit countries were closed. Fixed asset prices declined sharply more than 200% since 1997, reflecting over-building of housing projects and drawback of some foreign investment companies following the financial crisis. The FDI in 1998-99 was concentrated in manufacturing, mining, hotels, livestock and fisheries, all sectors in which investment had slowed considerably in 1999.

Moreover, Myanmar encountered numerous trade sanctions by some western countries since 1997. The United States, for instance, banned all new investment by U.S companies in April 1997. In addition, the US and Europe organised campaigns to urge the multilateral companies to stop trading with and investing in Myanmar. It led to a number of companies ceasing operations in Myanmar or buying from Myanmar, etc. These obstacles to trade and investment added to contract the foreign direct investment.

However, since the 2002/2003 fiscal year, FDI inflow has gradually increased. It reached US$6,065.65million in the 2005-06 fiscal year, due to the amount of FDI investment in the energy sector by Thailand. After that period, the FDI inflow declined to US$205.700 million in 2007/2008 fiscal year.

Regarding the public sector construction, the growth rate fell sharply to 9.8% in1997-98, and further to 6.5% in 1998-99 from a growth of 24.6% in 1996-97, mainly due to the budget cuts for public works and a sharp decline in private sector investment on construction, reflecting a reduction in foreign direct investment and joint ventures with local partners in the wake of the regional crisis. Another factor for the decrease in public sector investment was the establishment of the Privatisation Commission in 1995. In 1997-98 fiscal year, 20 state holdings were privatised and the Privatisation Commission also leased eight facilities to the private sector.

The private investment under the Myanmar Citizen Law declined to Kyat 9,263.30 million in 1999-2000 fiscal year from kyat 24240.70 million in 1998-99 while the domestic credit declined to about 20% in 1998-99, which had increased by 30% to 40% in the previous year. Loans extended by private banks to the private sector, however, increased.

After a significant decline in domestic investment in 1999-2000, Myanmar citizen investment increased to 58% and 61.9% in 2000-01 and 2001-02, respectively. These increases reflected interest rates cut in April 1999 to encourage investment which, in turn, isexpected to stimulate the economy. The central bank discount rate was reduced from 15% to 12% with the prime rates of the commercial banks falling correspondingly. However, since the 2003-04 fiscal year, the domestic investment decreased and registered kyat 1488 million in the 2007-08 fiscal year. The gross capital formation stood at 11.1% of GDP in 1998/99.

The economy of Myanmar, however, was resilient to the impact of the Asian crisis. The export demand and remittances from workers abroad held up. Inflows of foreign investment declined, but remained substantial on account of the previous commitments.

A comparison of the ownership structure of solely foreign-owned ventures to total investment indicates that FDI investment in solely foreign-owned ventures stood at 53.07 % in the 1997-98 fiscal year, declined to 4.7% in the 2003-2004

fiscal year and rebounded again to 99.4 % in the 2005-2006 fiscal year. However, there was no FDI investment in solely foreign-owned ventures the in 2006-2007 fiscal year.

The investment of enterprises taken under the Foreign Investment Law was only a fraction of Union Investment policies and there was a mild effect on FDI and DI. However, measures had been taken in response to the impact of financial crisis.

Figure 1
Approved FDI by Sector as of 2007

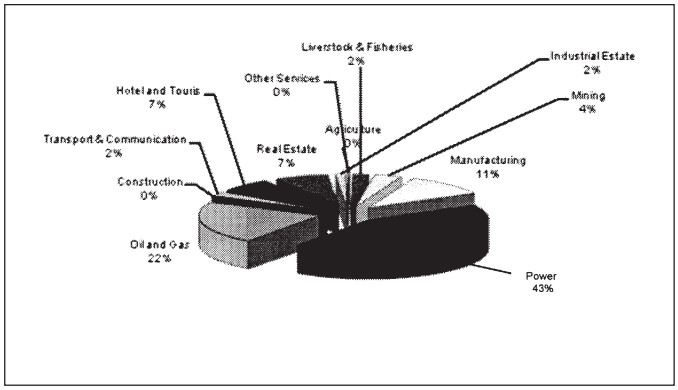


Figure 2
Approved Amount of Citizen Investment

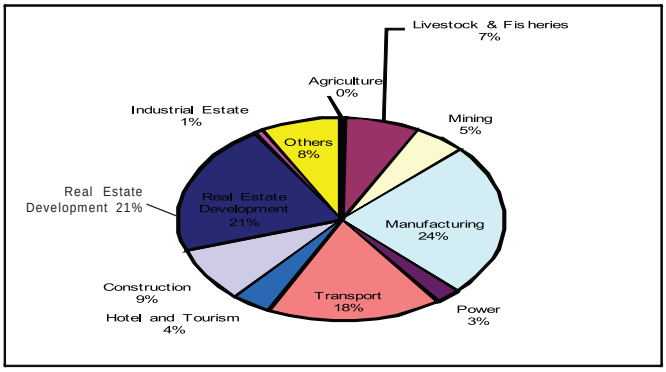
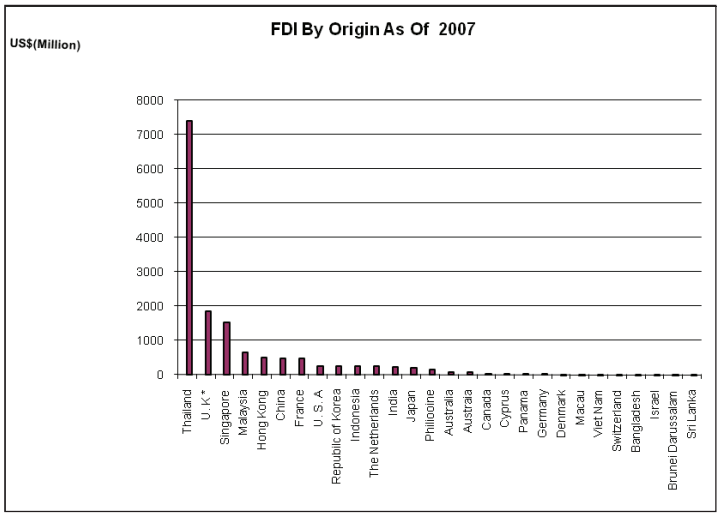


Figure 3
FDI by Origin as of 2007



3. Major Policies Related to Foreign Direct Investment and Domestic Investment

3.1 Myanma Foreign Investment Policy

The Government of Myanmar has made efforts, through the implementation of favourable foreign investment laws and tax incentives to attract foreign direct investment. The main components of the Myanma Foreign Investment policy are:

(a) Adoption of market-oriented system for the allocation of resources;
(b) Encouragement of private investment and entrepreneurial activity; and
(c) Opening of the economy for foreign trade and investment.

The policy objectives of the Foreign Investment Law are:

(a) Promotion and expansion of exports;
(b) Exploitation of natural resources which require heavy investment;
(c) Acquisition of high technology;
(e) Creation of more employment opportunities;
(f) Development of energy conserving activities; and
(g) Promotion of regional development.

To achieve the policy objectives referred above, the Law provides for the following incentives:-

Enterprises operating under the Union of Myanmar Foreign Investment are entitled to a tax holiday (exemption from income-tax) of three consecutive years, inclusive of the year of commencement of production or service. In addition, the following exemption relief may be granted by the Foreign Investment Commission:

(a) Where it is beneficial to the state, exemption or relief from income tax for a further reasonable period depending upon the success of the enterprise in which investment is made;

(b) Exemption or relief from income tax on profits of business if they are maintained in a reserve fund and reinvested therein within one year after the reserve is made;

(c) The right to accelerate depreciation in respect of machinery, equipment, building or other capital assets used in the business, at the rate fixed by the Commission to the extent of the original value for the purpose of income tax assessment;

(d) If the goods produced by any enterprise are exported, relief from income tax up to 50% on the profits accrued from the said export;

(e) The right of an investor to pay income tax payable to the state on behalf of foreigners who have come from abroad and are employed in the enterprise and the right to deduct such payment from the assessable income;

(f) The right to pay income tax on the income of the above-mentioned foreigners at the rates applicable to the citizens residing within the country;

(g) The right to deduct from the assessable income such expenses incurred in respect of research and development relating to the enterprises, which are actually required and are carried out within the state;

(h) The right to carry forward and set off losses up to three consecutive years from the year the loss is sustained;

(i) Exemption or relief from customs duty, or other internal taxes or both, on machinery, equipment, instruments, machinery components, spare parts and

materials used in the business, which are imported as they are actually required for use during the period of construction; and

(j) Exemption or relief from customs duty, or other internal taxes or both, on such raw materials imported for the first three years' commercial production following the completion of construction.

The Law also guarantees that foreign investments undertaken under the Foreign Investment Commission cannot be nationalised. It also guarantees the repatriation in foreign currency and the rightful entitlement of the foreign investor after the termination of the business. The repatriation of savings of the foreign employees engaged by the foreign investor is also allowed.

The objective of the Myanmar government is to encourage foreign investment in activities which will help establish basic industries so that its economy could attain a level of self-sufficiency and modernisation, and thereby achieve export promotion. This is expected to provide a base from which a higher level of industrialisation and economic development can be attained.

A foreign investor is allowed to invest in Myanmar with 100% foreign capital or to participate in a joint-venture with any Myanmar partner from the private sector or cooperative sector or state sector. He has the right to enjoy the appropriate economic benefits as well as tax incentives. A foreign investor is, however, required to contribute a minimum foreign equity of 35% of the total. The minimum amount of foreign capital is US$ 500,000 for investment in manufacturing and US$ 300, 000 in the service sector.

3.1.1 Tax Incentives

To attract foreign investors, the Income Tax Law was amended in March 1989. The tax incentives are provided under the amended Income Tax Law. Dividends received are exempt from income tax and these incomes are not treated as part of the total income of the recipient. The government may grant tax exemption, relief or other benefits in respect of any taxpayer, or any class of taxpayers, or any income, or any class of income. The governmentm a y also grant in respect of a newly established enterprise, or a class of newly established enterprises, whether in the government sector, the co-operative sector, or the private sector within the Union of Myanmar tax exemption up to a period of three consecutive years, inclusive of the year of establishment.

To further attract foreign investment, Myanmar signed a series of agreements with Malaysia, Singapore, Vietnam, and Thailand for the Avoidance of Double Taxation and the Prevention of Fiscal Evasion with respect to taxes on income on 9-3-1998, 23-2-99, 12-5-2000, and 7-2-2002, respectively. Myanmar also made agreements on DTA with Korea, Indonesia and India on 22-2-2002, 2-4-2003, and 2-4-2008, respectively. Agreements for double taxation with appropriate tax incentives are also as one of the means to attract foreign investment.

3.2 Myanmar Citizens Investment Policy

The objectives of the Myanmar Citizens Investment Law are as follows:

(a) Cause investment of Myanmar citizens to be beneficial to the State;
(b) Promote development of production and services;
(c) Cause production of goods by utilising the natural resources of the country;
(d) Establish enterprises for import substitution;
(e) Promote and expand export;
(f) Promote development of technology;
(g) Open up more employment opportunities;
(h) Promote development of private and co-operative sectors,
(i) Contribute towards regional development; and
(j) Enable extensive participation in the money market.

In order to promote investment by its citizens, the Myanmar Investment Commission (MIC) grants the investor exemption from income-tax for a period extending to three consecutive years, inclusive of the year of commencement of the economic activity.

The Commission may, by notification, grant the investor any, or more than one, of the following exemptions or relief from taxes, in addition to the above-mentioned:

(a) If foreign currency is included in the investment of any economic activity, relief from income-tax in accordance with the stipulation, depending upon the amount of such foreign currency;

(b) If the prescribed foreign currency is accrued from the export of goods or services by any economic enterprise for the activity, relief from income tax up to 50% on such profits accrued, for the time specified;

(c) In the case of an economic activity which is beneficial to the State, if there is an increase of domestic and foreign income to the extent of the prescribed rate, due to production of goods or services, relief from income tax in accordance with the stipulation;

(d) If the economic activity is for import substitution for production of goods or services which is determined to be mainly necessary for the state, and where it is operated with little profit, relief from income tax in accordance with the stipulation for a reasonable period;

(e) If it is an economic activity utilising technology and operating for the development of high technology, relief from income tax in accordance with the stipulation, for a reasonable period;

(f) Exemption or relief from income tax on profits accrued from the economic activity, if they are maintained in a reserve fund and reinvested therein within one year after the reserve is made;

(g) The right to accelerate depreciation in respect of machinery, equipment, building or other capital assets used for the economic activity at the rate fixed and to the extent of the original value, within a short term, for the purpose of income-tax assessment;

(h) Exemption or relief from customs duty, or other internal taxes or both, on machinery, spare parts equipment, machinery components and materials used for the economic activity, which are not available locally and are imported as they are actually required for use during the prescribed period of initial investment;

(i) Exemption or relief from customs duty, or other internal taxes or both, on imports of raw materials and materials used for the economic activity and permitted by the Commission to be imported for the first three years' commercial production following the completion of the prescribed period of initial investment;

(j) Exemption or relief from commercial tax on goods produced for export; and

(k) If it is an economic activity which contributes mainly towards the development of remote areas determined by the Commission, relief from income tax in accordance with the stipulation for a reasonable period.

The Myanmar Citizens Investments Law also guarantees that an economic enterprise which has obtained a permit shall not be nationalised during the tenure of the permit.

3.3 Measures Taken to Address the Impact of Asian Financial Crisis

In response to the economic slowdown, the authorities embarked on a major agricultural push to tap an alternative source of exports and investment. Under a land reclamation programme that began in late 1998, domestic entrepreneurs as well as foreigners are allowed to participate in the production of cash crops and perennial crops through the leasing of lands on a long-term basis. The government provides a package of incentives as follows:

(a) Land is made available in a 30-year lease, free of charge, under the condition that the land is to be developed for agricultural production within three years;

(b) Government agencies assist in supplying the heavy earth-moving machinery used to level the fields for paddy production, at subsidised rates;

(c) The government provides technical assistance in developing the project, free of charge;

(d) Local private banks are encouraged to provide loans to the projects on a preferential basis;

(e) The public works required for flood control, drainage, and irrigation are provided free of charge;

(f) Fuel required for project construction and land preparation is provided at the government price;

(g) Project investors may export half the rice they produce and are exempted from the rice procurement system;

(h) Telephone services, including cellular phones and land-based lines are provided on a preferential basis;

(i) Security services to project staff and equipment are provided free of charge;

(j) Custom-duty exemptions for equipment; and

(k) Permission for exports.

The authorities are also giving priority to the development of the industrial sector. Eighteen industrial zones have been set up and assistance given to those who are investing in the manufacturing and processing sector.

The central bank lowered its discount rate from 15 % to 12 % in April 1999 to enhance investment. In the fiscal front, the Myanmar authorities have been trying to improve its fiscal position by prioritising and slashing unproductive expenditures. Meanwhile, measures were taken to increase revenue by broadening the tax base, strengthening tax administration and extending the tax collection to cover new types of taxable services.

3.4 Liberalisation Measures

Myanmar became a member of ASEAN on 23 July 1997 with the aim of increasing its regional and international ties. Since then Myanmar has made much progress engaging in regional cooperation in the various sectors. In 1998, Myanmar signed the Framework Agreement on ASEAN Investment Area. As a member of ASEAN, Myanmar is taking part in the FTA negotiations with its dialogue partners for the investment chapter.

Myanmar has implemented the Common Effective Preferential Tariff (CEPT) Scheme since 1998 and Myanmar removed the Temporary Exclusion List (TEL) in industrial sector since 2003. For ASEAN Investment Liberalisation, Myanmar will phase out the TEL in agriculture, forestry, mining and services incidental to manufacturing on 1st January 2015 for ASEAN investors, and in 2020 for non-ASEAN investors.

For service liberalisation, Myanmar has gradually liberalised seven sectors. The areas include tourism, telecommunication, financial services, maritime, transport, air transport, construction and business services. For financial liberalization, cautious steps havebeen taken in the financial sector. Before the 1997 crisis, several MoUs have been signed to form joint-venture banks between Myanmar and the foreign banks, and plan is afoot to allow foreign banks to open bank branches and conduct bank operation in Myanmar. However, due to the crisis of 1997, the JV banks have not materialised as yet. Two sub-sectors of the insurance services, namely, the Average and Loss adjustment and Actuarial Services, are to be liberalised for ASEAN, Korea and China.

Myanmar has also signed the Investment Promotion and Protection Agreement with Philippines on 17th February 1998, Vietnam on 15th February

2000, China on 12th December 2001 and Lao PDR on 13th May 2003, respectively.

3.4.1 Current Account and Capital Account Liberalisation

As Myanmar is an Article XIV member of the IMF, Myanmar exercises foreign exchange control over its BOP and current account transactions. Myanmar's exchange rate is officially pegged to the SDR. 1SDR is equivalent to 8.50847 kyat. However, Myanmar liberalised its current account and capital account to a certain extent. State approval is needed for all capital transactions. In January 1989, permission has been granted to all Myanmar citizens for them to open foreigncurrency account with the Myanma Foreign Trade Bank, with regard to foreign exchange they have received on account of pensions and compensations received from abroad, services rendered to foreign government, international organisations and companies, and rentals received from house, motor vehicles.

Private registered importers are allowed to open foreign currency accounts at the Myanma Foreign Trade Bank from their export proceeds. In addition, with their foreign currency holdings, exporters are entitled to import under valid import licenses issued by the Ministry of Commerce. The proceeds from exports must be fully repatriated.

The liberalisation measures undertaken for foreign exchange transactions are as follows:

(a) Myanmar nationals are allowed to open foreign currency accounts who earn foreign 'exchange;

(b) Private exporters are allowed to retain 100 % of export earnings in their foreign currency account;

(c) Private services receipts and transfers are allowed in foreign-currency account locally;

(d) Foreign companies operating in Myanmar can pay the wages and salaries of their employees in foreign exchange;

(e) In 1993, the Central Bank of Myanmar issued foreign exchange certificates (FECs) against hard currencies at the rate of 1 FEC = US$ 1 initially for the convenience offoreign visitors and subsequently for investors in

Myanmar. Any person can accept, use and hold FECs freely in Myanmar, and people are allowed to open foreign exchange accounts with FECs with the banks; and

(g) Authorised dealer licenses and money changer licenses are issued to state-owned banks and public enterprises while FEC changer licenses are issued to private businesses.

100% retention of foreign exchange is allowed to foreign investors who bring foreign exchange into Myanmar, and who generate foreign exchange income in Myanmar. Myanmar citizen investors who earn foreign exchange earnings are also eligible for this retention incentive.

To encourage foreign investments and stabilise the exchange rate, such measures have been taken.

4. Issues and Challenges Regarding FDI and Private Investment

Theoretically, the availability of credit financing encourages investment in the private sector and it is also an important factor in private investment. During the socialist period from 1962 to 1988, medium- and large-scale enterprises were nationalised and many capital-intensive industries were state-owned. However, most of the private sector firms were small. This reflected the challenges that private sector firms face in expanding, including a lack of access to credit.

After 1988 Myanmar allowed the private sector to participate in the economy. The non-agricultural private sector activity picked up from 1989 onwards with the liberalisation measures and the opening of the economy to sole foreign-ownership and joint-venture companies. However, access to credit, and specifically access to foreign exchange credit, is a problem faced by the private sector due to fact that Myanmar practices foreign exchange control and control over capital accounts. Foreign borrowings by the private sector are not allowed. The lack of access to long-term credit is another obstacle in doing business.

Individuals or families operate most of the micro-enterprises. The Myanma Economic Bank and the Myanma Investment and Commercial Bank provide short-term and long-term loans only with security. Therefore, smaller enterprises face a similar case of the lack of access to credit. The only option is borrowing from local moneylenders, who charge high interest rate. A few micro-enterprises lending programmes are run by the NGOs. Smaller entrepreneurs face difficulties

in maintaining sufficient working capital and accessing finance for capital formation.

Although agriculture remains the largest sector in terms of private-sector output and employment, only one state-owned bank, the Myanma Agricultural and Rural Development Bank, and some private banks that have set up branches in townships, lend agricultural loans with low interest to farmers. Furthermore, land cannot be used as collateral, for the state owns all the land and farmers possess only use rights. Use rights for land cannot be used as collateral for loans from formal banks. The lack of access to credit is the challenge that the private sector firms face in expanding their activities.

The exchange rate can influence the level of private sector investment as it is one of the components that determine the real cost of imports. Regarding the exchange rate for Myanmar, the government maintains an official exchange rate pegged at about 6 kyats per US dollar. Since 1993 foreign exchange certificates (FEC) have been issued against the hard currency at the rate of 1 FEC = 1 US$ to help solve the problem of exchange rate difference between the official rate and the market rate. Although the official rate remained at its pegged rate, the parallel- market rate resulted in de-facto devaluation.

During 1980-1997, before the crisis, the official exchange rate was in a depreciating trend, due to the mismanagement of the economy to a large extent for about two and one half decades following the adoption of the centrally-planned economic system. A currency devaluation increases the real cost of purchasing imported goods, thereby reducing the profitability of the private sector and creating the possibility of causing investment to decline. However, after the post crisis, the downward trend of the exchange rate was reversed from the impact of pursuing more liberalised policies. One obvious factor was a surge in exports earnings from the natural gas projects. Natural gas exports came to constitute some 30% of total export earnings in 2002/03. The overvalued official exchange rate impedes agricultural and private sector development. It also creates incentives for rent-seeking activities.

The gap between the official rate and the market-determined parallel exchange rate became wide creating uncertainties and risks for traders and investors, and exchange control places impediments in attracting foreign direct investment. This is not attractive to the foreign direct investment. Presently Myanmar’s private sector is constrained from further expansion due to the lack of a formal market for share trading. Treasury bond issuance is still not significant because it is not popular with the general public who has yet to understand it

better. Although the government has carried out privatisation through a variety of strategies, investors show lack of interest and reluctance to widen private sector ownership. The absence of foreign banks is also one of the reasons that reduces the attraction of Myanmar as an investment destination to foreign investors.

Finally, in the absence of international assistance for more than two decades, Myanmar was compelled to rely mainly on her own resources to implement infrastructure development and reforms, which have caused continued government budget deficit, inflation and low investor confidence.

5. Conclusion and Policy Recommendations

It is an accepted fact that Myanmar's economic potential is considerable given its rich endowment of natural and human resources. It is also agreed that an infusion of capital and technology is needed to develop private investment, given the relatively low level of savings at present.

Myanmar is in a transitional stage of development, and is fully aware that a framework of sound macroeconomic policies and conducive economic environment are needed to realise its economic potential. This will assist in promoting exports and attracting additional FDI inflows and technology into the economy. Myanmar like many other developing countries faces constraints in both the domestic and external financial resources for private investment. Therefore, it is necessary to raise fiscal revenues. To mobilise domestic savings and reduce the budget deficit, it is necessary that the fiscal measures be complemented by monetary measures. In order to encourage the mobilisation of domestic financial resources, a flexible interest-rate policy should be introduced. Long-term bonds may be considered that may provide additional liquidity in the financial system.

The capital market (stock market) should be established in order to promote further expansion of the private sectors' capitalisation. The emergence of the stock market will also facilitate full and partial privatisation of the state economic enterprises (SEEs). With large inflows of foreign investment expected, the streamlining of the SEEs, including the leasing of industrial plants to domestic and foreign investors would be needed. To establish and facilitate the smooth functioning of the financial and capital markets, Myanmar needs intensive infusion of technical as well as financial assistance for both the public and the private sectors.

Steps should be taken to unify the exchange rates. The foreign exchange reserves of Myanmar, which is equivalent to about nine months of imports, would be helpful to pay for increased imports and instill confidence among traders and investors. The impact of the unification on trade and investment would be favourable in the medium term, because foreign investors' confidence will rise upon the adoption of a realistic exchange rate system. However, the budgetary balance may deteriorate in the short run, but as the economic activity picks up, revenues may rise in the medium term. The unification of the unification of the exchange rate will also have an impact on inflation, budget, SEEs, trade and investment and the social sector, mostly at the grass-root level. Therefore, adjustments need to be made gradually.

With regard to the improvement of the incomplete infrastructure, private power producers should be permitted on a broader base to provide a constant power supply, particularly to industries. Export Processing Zones should be permitted giving in effect sufficient incentives for the foreign investors to enjoy tax and other incentive facilities.

Markets for the trading of foreign currency under the supervision of the Central Bank of Myanmar may be considered in order to stabilise the foreign exchange market. The authorities should reconsider allowing the opening of foreign joint-venture banks for the convenience of foreign investors. The procedures and regulations governing foreign investments need to be streamlined and simplified and the economy should be firmly market-based and with competition and fair play prevailing.

We can conclude that stimulating the expansion of private investment and FDI, even in this era of globalisation, will require state participation. Furthermore, the country needs to strengthen the fundamental mix of economic policies, such as having an appropriate real interest rate, low inflation, a competitive exchange rate and availability of long-term credits from development banks. These goals should be consistent in line with both internal and external equilibrium.

Figure 4

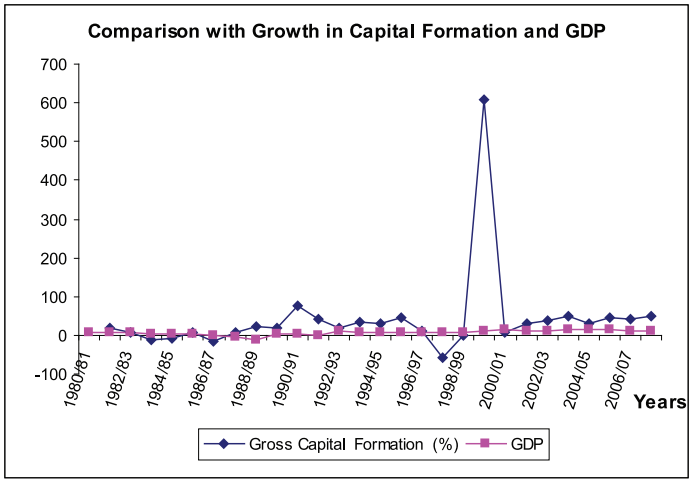


Figure 5

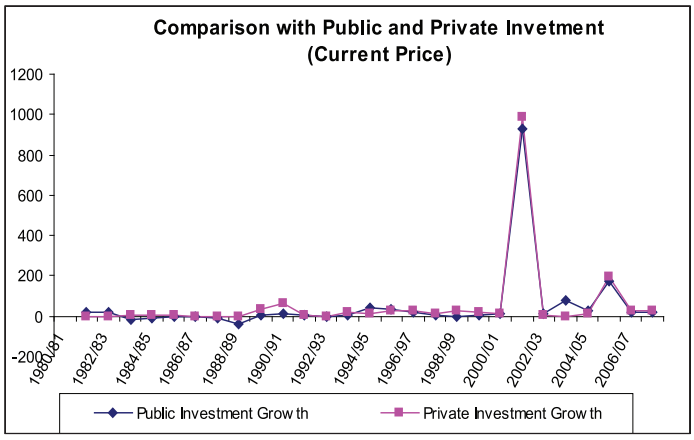


Figure 6

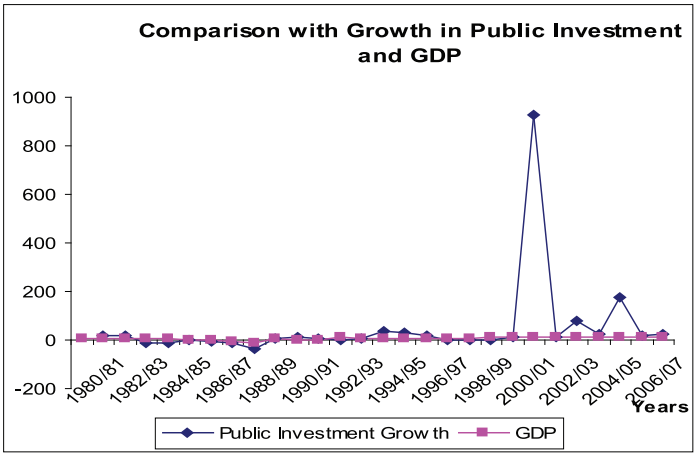
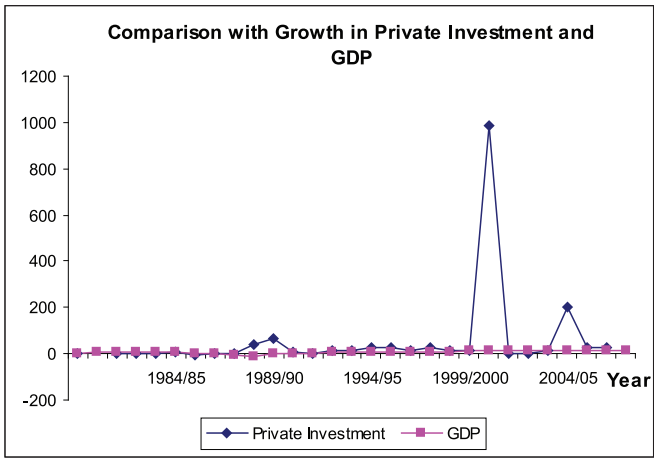


Figure 7



Chapter 6

INVESTMENT IN NEPAL IN THE POST-CRISIS ERA: ISSUES AND CHALLENGES

by
Pitambar Bhandari[1]

1. Introduction

Nepal is a landlocked country located between two fast growing giant economies, India and China. She is a less developed country with annual average per capita income below US$ 500 and about one third of its total population still living in absolute poverty. Low per capita income and rampant poverty led to the low level of saving and high dependency on foreign saving for the country's economic development. Vulnerable agriculture, fragile industrial base, insufficient physical infrastructure, political instability and topological complexities appear as the main constraints for sustainable development of the country.

Nepal initiated its planned development process since 1950s after its political transition from the autocratic Rana regime to democracy. Since then, Nepal has implemented ten development plans and now the country is in the second year of the eleventh plan, which is a three-year interim plan. The development strategy till the early 1980s emphasised the leading role of the government not only for the construction of the physical and social infrastructure but also for industrialisation. Large investment in public enterprises and over expansion of government expenditure without due attention towards revenue mobilisation led to substantial widening of the budgetary deficit, high inflation and balance of payment deficits. The serious macroeconomic instability forced the country to enter into a structural adjustment programme and adopt liberalisation policies to restore stability and achieve high economic growth.

Nepal implemented the Structural Adjustment Facility (SAF) of the IMF in 1987 and the Enhanced Structural Adjustment Facility (ESAF) in 1992. These were the milestones in the opening of Nepal's trade and investment with the outside world. In the process of adhering to the conditions agreed upon in implementing the structural adjustment programmes, Nepal removed its

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1. Author is Deputy Director, Research Department, Nepal Rastra Bank. The views expressed in this paper are those of the author and do not necessarily represent those of the NRB.

quantitative restrictions on international trade, reduced its tariff rates substantially, and simplified its tariff structure. The Nepalese currency was made fully convertible on the current account in 1993[2]. Nepal also accepted the Article VIII of IMF in 1994. Similarly, some relaxations were also introduced on the capital account.

The adoption of liberal economic policies together with the implementation of the structural adjustment programmes promoted macroeconomic stability, and moved the country from its low growth path of about 2.5% during 1960s and 1970s to a moderate growth path of about 4.5% during the 1980s and 1990s. The escalation of domestic violence and political instability during the early years of the 21st century eroded the investment climate leading the country into a slower growth path in the recent years.

1.1 Real Sector

Nepal is traditionally an agricultural economy in terms of its contribution to income and employment. Though the contribution of this sector is gradually declining over the years, it still accounts for about one third of the GDP. The Nepalese economy witnessed a moderate growth performance in the 1980s. During the first half of the 1990s, Nepal further accelerated its liberalisation process which promoted private sector investment. Consequently, the impressive growth of the non-agricultural sector accelerated the GDP growth at 5.3% despite the sluggish performance of the agricultural sector.

Figure 1
Real Sector Indicators
(% of GDP, unless otherwise specified)

Sector/ FY	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2008
GDP(average annual growth)	4.5	4.8	5.3	4.2	3.8	3.8
Agriculture and Forestry	64.2	49.6	44.5	39.5	37.3	36.5
Non-agriculture	35.8	50.4	55.5	60.5	62.7	63.5
Gross Domestic Savings	10.7	12.0	10.8	14.9	12.1	11.2
Gross Fixed Capital Formation	18.4	19.4	20.7	22.9	21.0	22.0
o/w Private	10.4	11.3	13.2	15.3	16.6	18.9

Source: Various issues of Economic Survey, Government of Nepal.

2. Nepal introduced the dual-exchange-rate system opting for partial convertibility on the current account on March 4, 1992. And the Nepalese rupee was made fully convertible on current account on February 12, 1993.

Nepal's saving rate is low in relation to its need for resources, and this has not improved remarkably over the last two and half decades. Its gross fixed capital formation has also increased at a very slow pace during this period. However, private investment increased rapidly since the beginning of the 1990s.

1.2 Fiscal Sector

The fiscal sector is also historically weak, running a budget deficit as a permanent feature. Though the total government expenditure appears stable at about 19% of the GDP, the capital expenditure has shrunk significantly after the mid-1990s. Due to the slow pace of revenue mobilisation, the country is still heavily dependent on foreign saving for its development activities.

Figure 2
Fiscal Sector Indicators
(Percent of GDP)

Sector/ FY	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2008
Total expenditure	18.5	19.5	19.3	19.4	18.5	19.5
o/w Capital Expenditure	12.8	12.8	12.5	9.6	5.8	5.7
Revenue	9.1	9.4	9.7	11.8	12.1	12.9
Foreign Grant	3.3	2.3	1.7	1.9	1.9	2.5
Foreign Loan	6.3	7.3	6.9	5.6	4.0	4.0

Source: Various issues of Economic Survey, Government of Nepal.

1.3 External Sector

A policy shift from import substitution to an outward-looking strategy and other liberalisation measures in the late 1980s and early 1990s led to a surge in external trade. The trade/GDP ratio, which was about 34% in the 1980s, surged to about 55% in the 1990s. However, the trade deficit remained a chronic feature. The gap between export and imports intensified in the recent years due to weak exports. However, a sharp rise in the inflow of remittances especially after 2000 not only financed the widening trade gap but also contributed to generate surplus in the current account and maintain a reasonable surplus in the balance of payments.

Figure 3
External Sector Indicators
(% of GDP)

Sector/ FY	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004	2005-2008
Export	12.4	12.5	17.8	26.2	20.8	14.4
Import	21.0	22.2	28.0	37.3	32.7	33.8
Trade Deficit	-8.6	-9.7	-10.1	-11.2	-11.9	-19.4
Remittance	1.7	1.9	1.8	2.4	9.9	15.3
Current a/c	-2.6	-5.5	-6.7	-5.3	2.4	1.8
BOP(-indicate increase in NFA)	0.0	-0.6	-3.4	-1.5	-1.7	-2.5

Source: Quarterly Economic Bulletin, Nepal Rastra Bank.

2. Trend of Investment Since 1980s

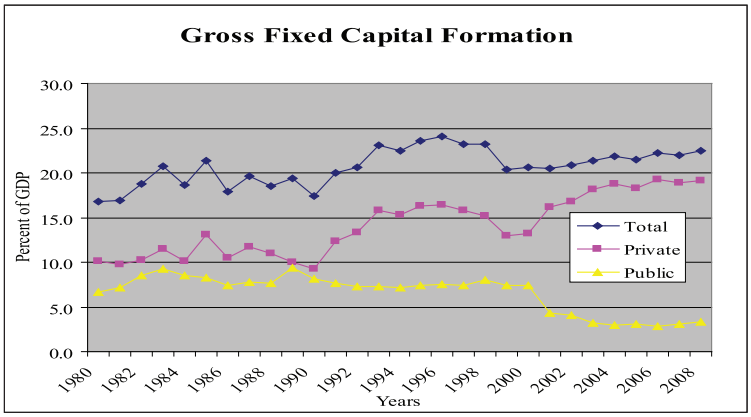
Investment is the process by which an economy accumulates capital and enlarges its productive capacity. Though net investment gives a more accurate picture of an economy's rate of capital accumulation, due to the complexities involved in measuring capital consumption, the usual practice is to use gross fixed capital formation to analyse the investment trends and behavior. This study also uses gross fixed capital formation to analyse the investment trends in Nepal.

The total domestic investment exhibits nearly a stable pattern in terms of its ratio to the GDP. However, if we observe its composition, public investment is shrinking gradually while private investment is increasing gradually since the early 1990s. Though Nepal has opened up to the inflow of foreign direct investment (FDI), the data of the actual amount of such investment is not available. The observation of the approval-based data exhibits a massive surge in FDI inflow during the early years of 1990s.

2.1 Domestic Investment

The total fixed capital formation has remained around 20% of the GDP over the past twenty years. While the share of private investment as percentage of the GDP has increased over the years, the share of government investment has decreased.

Figure 4



During the early years of the 1980s, the total gross fixed capital formation was around 17% of the GDP. Of the total, private investment was around 10% and public investment was around 7% of the GDP. The private investment reached 13.1% of the GDP while the public investment stood at 8.2% of the GDP in the mid-1980s. Consequently, the total investment reached 21.3% of the GDP in 1985. The public investment reached its peak (9.4% of the GDP) in the final year of the 1980s whereas the private investment declined to 10% of the GDP. Consequently, the total investment stood at 19.4% of the GDP at the end of the 1980s.

Figure 5
Gross Fixed Capital Formation in 1980s
(% of GDP)

Years	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Private	10.1	9.7	10.3	11.5	10.2	13.1	10.5	11.8	11.0	10.0
Public	6.7	7.2	8.6	9.3	8.5	8.2	7.4	7.8	7.6	9.4
Total	16.8	16.9	18.8	20.8	18.7	21.3	17.9	19.6	18.6	19.4

The trend of the private and public investment reversed since the early years of the 1990s. The private investment, which was 9.4% of the GDP at the end of 1980, reached 16.5% of the GDP in 1996, while the public investment declined to 7.5%. The structural adjustment programme and the liberalisation measures, such as the privatisation of state-owned enterprises, export-oriented bilateral treaty with India, various incentives for promotion of private sector investment, and rationalisation of the tariff structure, created a conducive trade and investment climate for the private sector in the aftermath of the political

regime shift to democracy in the early 1990s. Consequently, the total investment reached its peak at 24% of the GDP in 1996.

Figure 6
Gross Fixed Capital Formation in 1990s
(% of GDP)

Years	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Private	9.3	12.4	13.3	15.8	15.3	16.3	16.5	15.8	15.2	12.9
Public	8.2	7.6	7.3	7.3	7.2	7.4	7.5	7.4	8.0	7.5
Total	17.4	20.0	20.6	23.0	22.5	23.6	24.0	23.2	23.2	20.4

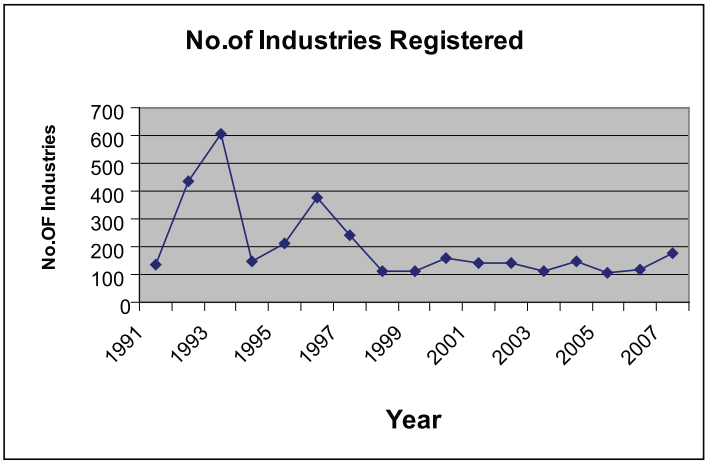
The investment climate began to erode since the mid-1990s due mainly to political instability and inception of the Maoist insurgency in the country. Private investment began to decline in terms of percentage of the GDP since 1997, while public investment plunge massively since 2001 as government could not continue its development activities due to a surge in internal violence, political instability, frequent closures and transportation strikes.

Figure 7
Gross Fixed Capital Formation since 2000
(% of GDP)

Years	2000	2001	2002	2003	2004	2005	2006	2007	2008
Private	13.2	16.1	16.8	18.1	18.8	18.3	19.3	18.9	19.1
Public	7.4	4.4	4.1	3.2	3.0	3.1	2.9	3.1	3.3
Total	20.6	20.5	20.9	21.3	21.8	21.4	22.2	22.0	22.5

The trend with regard to the number of industries registered also reveals a similar picture. The number of industries registered surged massively during the early years of the 1990s. However, the rate of registration of industries is almost stagnant during the last decade.

Figure 8

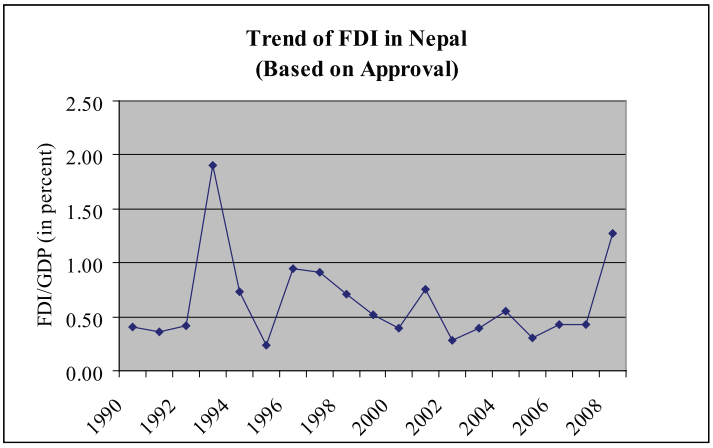


2.2 Foreign Direct Investment

The history of foreign investment in Nepal dates back to 1951-52 when the Nepal Commercial Corporation was set up as a joint venture with 67% equity participation by Indian investors. The FDI inflow was quite slow during the 1960s. In 1961, a provision was introduced for foreign investment in medium-scale industries with the investment of Rs. 50,000 to Rs. 500,000 and large-scale industries with the investment of more than Rs. 500,000. There is a lack of complete data capturing the actual amount of FDI inflows. The Department of Industry (DOI) maintains the FDI data only on the basis of approval or commitment. However, an appropriate mechanism to monitor the realisation of such commitment is still lacking. Therefore, our discussion on FDI is based on the approved or committed FDI.

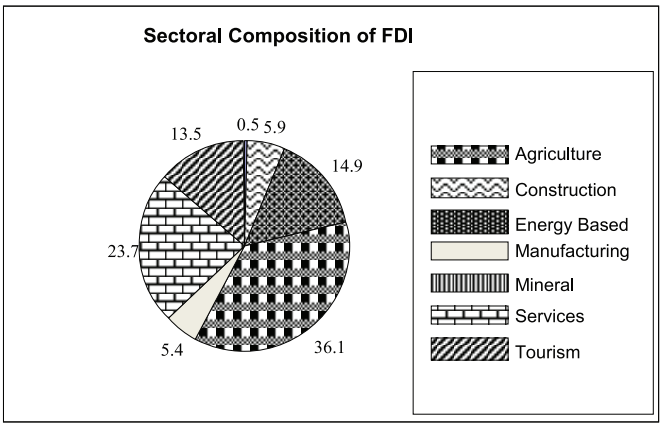
After the political regime shift of 1990, the move towards liberalisation was further accelerated. It not only encouraged domestic investment but also foreign investment in the country. As a result, the FDI commitment in the early nineties surged remarkably. The FDI commitment which was around 0.4% of the GDP till 1992 surged massively to about 2% of the GDP in 1993. However, this trend could not be sustained and it declined to its lowest level at 0.2% of the GDP in 1995. Though the FDI commitment remained quite low after 1995, some signs of recovery can be envisaged in 2008. This is mainly due to the improved expectation of the business community in light of the improvement in the country's political and security situation.

Figure 9



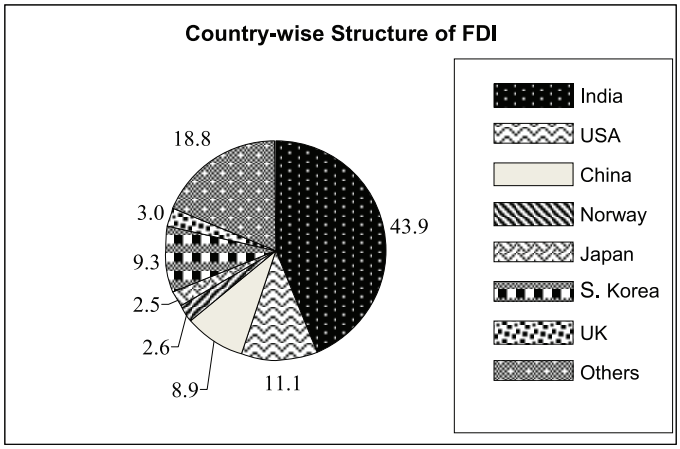
Analysis of the approved FDI by sector reveals that the highest share of FDI is held by the manufacturing sector. The DOI-approved joint-venture projects since 1990 amounted to about Rs. 42 billion of the FDI. Of the total approved FDI, the manufacturing sector alone accounted for 36% of the FDI. The services sector is in the second position with about 24% share, and the energy sector occupied third position with 15%. The FDI commitment to the tourism sector accounted for 13.5%. The share of the FDI in construction, mineral and agricultural sectors are 5.9%, 5.4% and 0.5%, respectively.

Figure 10



Analysis of the FDI by country of origin reveals that India alone comprised about 44% of the total FDI. Open-border and preferential-bilateral-trade treaties with India as well as social and cultural similarities are believed to have stimulated Indian investors in Nepal. USA, South Korea and China occupied second, third, and fourth position with 11.1%, 9.3%, and 8.9% shares, respectively. UK, Norway and Japan accounted for about 2.5% each of the total approved FDI.

Figure 11



3. Major Policies Related to Domestic and Foreign Direct Investment

In the aftermath of the balance of payments crisis of the early 1980s, Nepal adopted a liberal economic policy framework. In 1985, Nepal agreed to receive support from the IMF to improve its situation. The Structural Adjustment Programme (SAP) supplemented by the Structural Adjustment Lending (SAL) of the World Bank, offered an opportunity to these creditors to impose their terms and conditions. The SAF agreement with the IMF in 1987 and the ESAF in 1992 were implemented. These were the milestones in the opening of Nepal's trade and investment with the outside world. In the process of adhering to the conditions agreed upon in implementing the structural adjustment programmes, Nepal removed its quantitative restrictions on international trade, substantially reduced its tariff rates and simplified its tariff structure. The Nepalese currency was made partially convertible on the current account in 1992 and full convertibility was adopted in 1993. Nepal also accepted the Article VIII of IMF in 1994. Also some relaxations were introduced on the capital account. The Industrial Policy, 1992, and Foreign Investment and Technology Transfer Act, 1992, made provisions for non-resident Nepalis to repatriate their capital and dividend. The policy to allow Nepali nationals to open foreign currency account with evidence of source

was introduced and the domestic banks were given the freedom to keep their balances abroad. All these were directed towards accelerating the reform initiatives and also were in compliance with the commitments under the SAF and ESAF. Nepal also joined the WTO in 2004. It is expected to further deepen Nepal's trade and financial ties with the rest of the world.

3.1 Trade and Investment

The policies and institutional frameworks necessary for enhancing the competitiveness of the industrial sector were devised in the early 1990s. Basically, the laws and policies that govern the industrial activities and related services are: The Industrial Policy, 1992; Industrial Enterprises Act, 1992; Foreign Direct Investment Policy, 1992; Foreign Direct Investment and Technology Transfer Act, 1992; Privatisation Act, 1993; Electricity Act, 1992; and Water Resources Act, 1992. These initiatives were aimed at both deregulating and streamlining the investment procedures and at encouraging domestic and foreign investment. Of these, some of the noteworthy institutional arrangements that have played a pivotal role in promoting domestic and foreign direct investment are discussed below:

3.1.1 Foreign Investment and Technology Transfer Act, 1992

The Foreign Investment and Technology Transfer Act, 1992, laid down the country's present investment mechanism. It was enacted to promote the inward transfer of technology and foreign investment. According to the Act, foreign investment implies an investment made by a foreign investor in any industry as investment in share (equity), re-investment of the earnings derived from the investment in share (equity) and investment made in the form of loan or loan facilities. The Act stipulates that industries set up with foreign investment are also entitled to enjoy all the facilities and incentives. Permission is given to the foreign investors to repatriate the following income outside the country:

- Amount procured from the sale of share of FDI as a whole or any part thereof;
- Amount procured as profit or dividend;
- Amount procured as payment of principal and interest on foreign loan; and
- Amount procured under the agreement for the transfer of technology in such currency as agreed upon in the contract accepted by the Department of Industry.

Other incentives include the waiver of income tax on interest earnings from foreign loan and a lower tax rate of 15% on income from foreign technical, management services and royalty. Moreover, the industries set up with foreign investment are entitled to enjoy the following additional facilities:

- No royalty in the generation of electricity for self-use;
- Priority in the supply of electricity and water as well as communication facilities to the industries; and
- Priority to arrange logistic or infrastructural facilities required for the establishment of industries.

The Act, amended in 1996, has allowed for 100% foreign equity participation in all industrial enterprises, except for cottage and some specific types of industries especially reserved for domestic investment. Moreover, the transfer of technology is possible even in case of cottage industries. The government requires that a business enterprise set up with foreign investment or technology should acquire the prior approval of the Department of Industry.

In July 2000, the government constituted a seven-member Fast Track Committee (FTC), under the chairmanship of the Prime Minister, with a view of expediting a decision with regard to projects linked to foreign investment. As a result, a foreign investor could directly send a proposal to the FTC, and a decision would be made within two weeks.

3.1.2 One Window Committee and Industrial Promotion Board

There is a provision to establish the One Window Service (OWS) under the Industrial Enterprises Act, 1992. The aim of the OWS is to provide all the services needed to foreign investors under a single roof. Specially, the policy spells out two types of services to be provided by the OWS: a) permission, facilities, and other administrative services under the Foreign and Technology Transfer Act; and b) other infrastructural facilities (such as registration, land, electricity, telecommunication, water) and other services as required by the investors. Unfortunately, the One Window Policy has remained inactive for the last few years.

It has been acknowledged that the One Window Committee has not fully addressed the genuine needs of the investors. Under the Industrial Enterprises Act, 1992, an Industrial Promotion Board was also formed under the chairmanship of the Minister of Industries. The primary objectives of the Board are to:

- Provide the necessary co-operation in developing and implementing policies, laws and regulations relating to industrial development;
- Provide the guidelines to achieve the aims of liberal, open and competitive economic policies to be followed by the country in order to make the industrial sector competitive;
- Coordinate between the policy level and the implementation level of the industrial policy; and
- Provide advice to the government on the classification of industries.

3.1.3 Board of Investment

Nepal formed a Board of Investment under the chairmanship of the Prime Minister in December 2001. The Board was set up in order to promote investment and make it more transparent and reliable. The other objectives of the Board include formulation of new policies by reviewing the existing investment policy, maintaining coordination between various government and non-government organisations for the promotion of investment, identifying priority sectors for investment promotion, monitoring the activities associated with investment promotion and providing directives to the concerned department to boost up investment.

3.2 Financial Sector

In the backdrop of the early 1980s's BOP crisis, major statutory reforms were also undertaken on the financial front to attract foreign investment and encourage domestic investment. These were:

- The amendment of the Commercial Bank Act, 1974, in 1984 mainly to attract foreign joint-ventures;
- The enactment of the Finance Companies Act, 1985, to allow for the establishment of finance companies in order to meet the demand of small borrowers and consumer credit; and
- The enactment of the Development Bank Act, 1996, in order to impart dynamism to the development of the nation's industrial, trade, and agricultural sectors.

The institutional, legislative and regulatory reforms paved the way for the development of the financial sector. This is reflected in a sharp increase in the number of banks and financial institutions established by the private sector. There were only two state-owned (one with partial ownership) commercial banks and two development banks in the early 1880s. The number of commercial banks

increased to 23 at the end of 2008. Similarly, the number of development banks increased to 58. Besides, there are a number of finance companies and micro-finance institutions offering financial serves in the country at present.

Figure 12
Number of Bank and Financial Institutions

Type of Financial Institutions	Number of Institutions in mid-July						
	1980	1985	1990	1995	2000	2005	2008
Commercial Banks	2	3	5	10	13	17	25
Development Banks	2	2	2	3	7	26	58
Finance Companies	-	-	-	21	45	60	78

The financial liberalisation not only supported the quantitative growth but also fostered the investment climate leading to the higher levels of financial deepening and private sector credit. Broad money (M2) to the GDP ratio increased more than 50% in 2008 from about 23% in 1980. Similarly, the ratio of private sector credit to the GDP reached to 37% from less than 10% in 1980.

Figure 13
Financial Development Indicators

	1980	1985	1990	1995	2000	2005	2008
Financial Deepening (M2/GDP)	24.1	27.9	32.3	39.5	52.3	54.8	64.4
Private sector credit/GDP	8.8	9.2	12.0	20.5	30.8	35.9	44.2

Source: Quarterly Economic Bulletin, Nepal Rastra Bank.

4. Empirical Analysis of Private Investment

4.1 Analytical Framework and Data

Investment is a process to accumulate capital stock and enlarge the productive capacity of an economy. For a developing country like Nepal, a high rate of investment is needed to attain high economic growth. Therefore, to design the appropriate strategies that stimulate private investment, it is necessary to identify the determinants of private investment. Investment is basically dependent on the

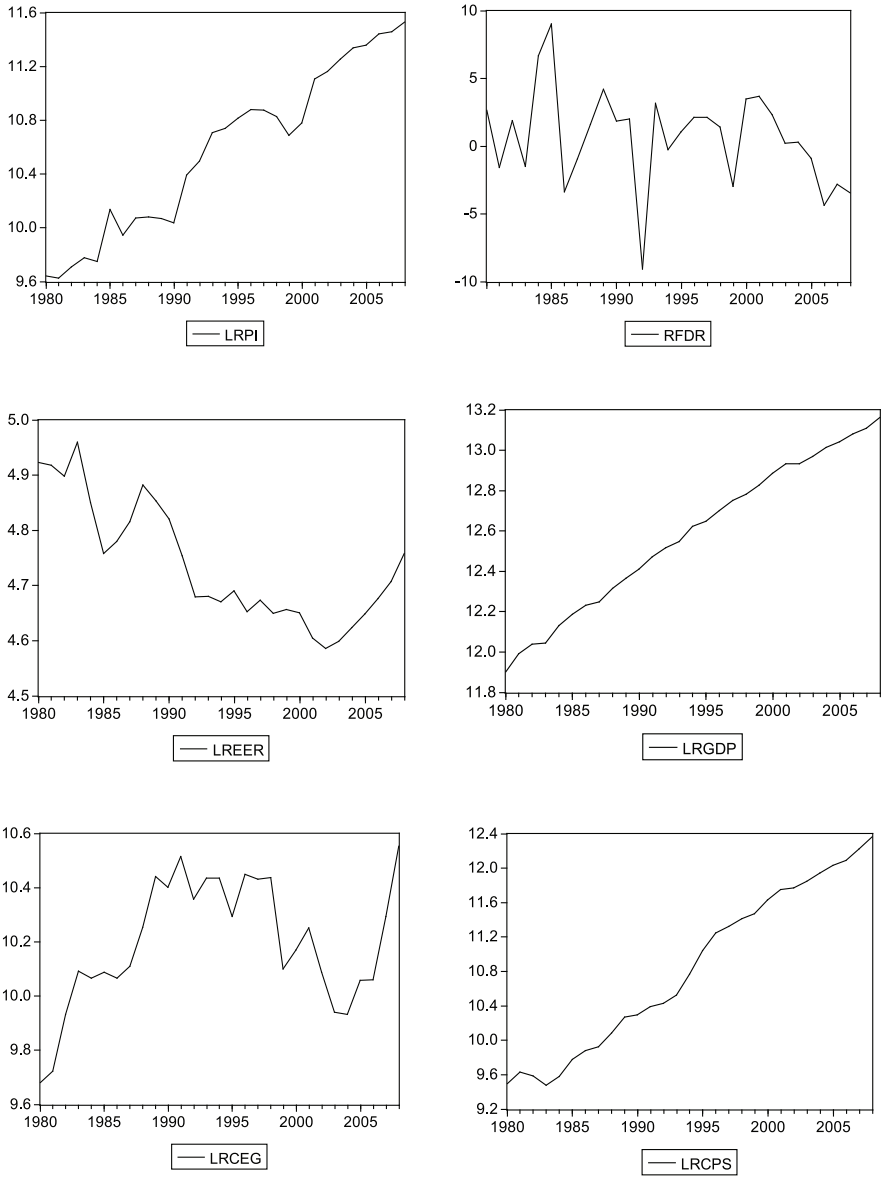
rate of return. Therefore, the factors that influence the rate of return are the factors determining investment. The economy's growth performance, cost of capital, exchange rate, availability of fund, and political stability are the major areas of investors' concern. The following specification is used to analyse private investment in Nepal.

$$LRPI_t = \alpha + \beta_1 LRGDP_t + \beta_2 LRCPS_t + \beta_3 RFDR_t + \beta_4 LREER_t + \beta_5 LRCEG_t + \beta_6 D + \varepsilon_t \quad (1)$$

Where, the first letter 'L' in each variable represents the natural logarithm of the corresponding variable. RPI is the real private investment, RGDP is the real gross domestic product, RCPS is the real domestic credit to private sector, RFDR is the real fixed deposit rate, REER is the real effective exchange rate, and RCEG is real capital expenditure by the government. D is the dummy variable for the Asian financial crisis, which assumes '0' from 1980 to 1997 and '1' from 1998 to 2008. In the above specification, $\alpha, \beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ are the regression parameters, ε is the error term and t stands for the time period.

The annual data from 1980 to 2008 is used to analyse the private investment in Nepal. The data was collected from the various issues of the Economic Survey of the Government of Nepal, Department of Industry, Quarterly Economic Bulletin of Nepal Rastra Bank and International Financial Statistics of IMF. Quarterly data is not available for most of the variables included in the equation. Therefore, only the annual data is used. The GDP deflator is used to produce the real GDP series, while the Consumer Price Index (CPI) is used to convert the nominal values of all the variables into real terms. Then, all the variables, except the RFDR, were converted into the natural logarithmic scale. The plots of the variables are presented below (Figure 14) and the detail description of the variables and data are presented in Annex 1.

Figure 14
Plots of the Data Series (1980-2008)



4.2 Unit-Root Test

The relationship between the time-series variables can be analysed by the cointegration test. Prior to conducting the cointegration test, it is essential to check each time series for stationarity. The plots of the data series of the variables included in our model specification (Figure 14) provide some preliminary information that most of the series are non-stationary at level. If a time series is non-stationary, the regression analysis carried out in a traditional way will produce spurious results. Therefore, at first, it is necessary to conduct the unit root test of each variable to determine whether the variables included in the model specification are stationary or not. The following form of the Augmented Dickey-Fuller (ADF) test equation which includes the intercept, but not trend, was used for this purpose.

$$\Delta Y_t = \mu + \delta Y_{t-1} - \sum_{j=1}^{p} \gamma_j \Delta Y_{t-j} + \varepsilon_t \qquad (2)$$

Where, Δ is the difference operator. The optimum lag length in the above specification was determined by using Akaike's Information Criterion. The ADF test revealed that the LRFDR is stationary at level while all the other variables are non-stationary at level, but stationary at their first difference. The ADF test results are presented below in Figure 15.

Figure 15
Results of Unit Root Tests

Variables	ADF test Statistics	
	Levels	1st difference
LRPI	-0.51	-6.46*
LRGDP	-2.78	-6.98*
LREER	-1.82	-3.85*
LRCPS	0.022	-3.47**
LRCEG	-2.156	-4.358*
RFDR	-4.83*	-8.20*

* indicates significant at 1% level.
** indicates significant at 5% level.

4.3 ARDL Modeling to Cointegration Analysis

Several methods are available for conducting the cointegration analysis. The most commonly used methods include the residual-based Engle-Granger (1987) test, and the maximum-likelihood-based Johansen (1991; 1995) and Johansen-Juselius (1990) tests. However, some weakness and other problems associated with these test methods induced researchers to use the OLS-based autoregressive-distributed lag (ARDL) approach to cointegration in recent years.

The main advantages of the ARDL modeling are: (i) it can be applied to the variables of different order of integration; (ii) it takes sufficient numbers of lags to capture the data-generating process in a general-to-specific modelling framework; (iii) a dynamic error-correction model (ECM) can be derived from the ARDL through a simple linear transformation; (iv) the ECM integrates the short-run dynamics with the long-run equilibrium without losing long-run information; and (v) the test is relatively more efficient in small or finite sample data sizes (Shrestha and Chowdhury, 2005).

The ADF unit root test results presented in Figure 15 reveal that the variables specified in the model specification (eq. 1) are of mixed order of integration. The RFDR is stationary at level while all other variables are integrated of order 1, i.e., I(1). As the variables considered in this study are a mix of I(0) and I(1) series, the cointegration test methods based on Johansen and the Johansen-Juselius which require all the variables to be of the same order of integration, cannot be applied. Hence, to empirically analyse the long-run relationships and dynamic interactions among the variables of interest, an ARDL cointegration approach is applied. The error correction version of the ARDL model pertaining to the variables in Equation 1 is as follows:

$$\begin{aligned}\Delta LRPI_t &= \delta + \sum_{i=1}^{p}\phi_i \Delta LRPI_{t-i} + \sum_{i=1}^{p}\varphi_i \Delta LRGDP_{t-i} + \sum_{i=1}^{p}\phi_i \Delta LRCPS_{t-i} + \sum_{i=1}^{p}\gamma_i \Delta RFDR_{t-i} \\ &+ \sum_{i=1}^{p}\eta_i \Delta LEER_{t-i} + \sum_{i=1}^{p}\kappa_i \Delta LRCEG_{t-i} + \lambda_1 LRPI_{t-1} + \lambda_2 LRGDP_{t-1} + \lambda_3 LRCPS_{t-1} \\ &+ \lambda_4 RFDR_{t-1} + \lambda_5 LEER_{t-1} + \lambda_6 LRCEG_{t-1} + \lambda_7 D_t + \mu_t \end{aligned} \quad (3)$$

In the above equation, the terms with the summation signs represent the error correction dynamics while the second part (terms with λs) correspond to the long-run relationship. The null hypothesis is $\lambda_1 = \lambda_2 = \lambda_3 = \lambda_4 = \lambda_5 = \lambda_6 = \lambda_7 = 0$, which indicates the non-existence of the long-run relationship. Considering the number of variables and the span of the annual data, only one lag is selected. The optimal model is selected on the basis of Akaike's Information Criteria.

4.4 Empirical Results

The long-run coefficients of the ARDL models are presented in Figure 16. The ARDL estimates presented in the Column 2 of Figure 16 reflect that no one coefficient of the variables is significant indicating the non-existence of long-run relationship among the variables included. However, the examination of the correlation matrix presented in Annex 7, reveals that there is a very high correlation (0.99) between the two repressors: LRGDP and LRCPS. To avoid the multi-colinarity problem in the estimation, one of the variables is to be removed. The LRCPS is sometimes used as the proxy for private investment itself. Therefore, the LRCPS is removed while the LRCEG is included. The inclusion of the LRCEG is justifiable in the sense that the role of the government should be crucial in creating the physical and social infrastructure in the initial stage of development to promote private investment. The long-run coefficient of the ARDL estimates after the removal of the LRCPS and the incorporation of the LRCEG are presented in Column 3 of Figure 16.

The results show that the long-run coefficient of the LRGDP is positive and is highly significant (1%). The coefficient of the LGDP indicates that 1% increase in the real GDP results in a 1.6% increase in the real private investment in the long run. The sign of the coefficient of the real effective exchange rate (LREER) is also as expected and significant. This indicates that if the home currency appreciates in relation to the currencies of its major trade partners, private investment likely to decline. This result is in line with the general expectation because the appreciation of the home currency reduces the competitiveness of the home products, both in the domestic and foreign markets, which, in turn, discourage investors to expand their business or make new investment. The long-run coefficient of the real capital expenditure by the government is negative and statistically significant at 10% level. The negative coefficient of the LRCEG is indicative of the crowd-out effect of government investment in the long run. This study found no evidence of the significant effect of the real interest rate on real private investment.

Surprisingly, the ARDL estimation reveals that the dummy assigned for the Asian financial crisis is significant with a negative coefficient. Nepal is believed to be not much affected by the Asian financial crisis of 1997. Though we cannot completely ignore the impact of that financial crisis in Nepal, it must be cautiously interpreted because the investment climate was not much conducive, due to the escalation of internal violence and political instability after the mid-1990.

Figure 16
Estimated Long-run Coefficients

(1)	(2)	(3)	(4)
Variables	**ARDL (1,0,0,0,0)**	**ARDL (1,1,0,0,1)**	**ARDL (1,1,0,0,0,1)**
LRGDP	1.89 (1.50)	1.59* (5.04)	2.33** (2.36)
LREER	-0.56 (-0.73)	-1.35** (-1.83)	-1.37 (-1.71)
RFDR	0.012 (0.73)	0.002 (0.17)	0.003 (0.30)
LRCPS	-0.051 (-0.13)		-0.24 (-0.66)
LRCEG		-0.35*** (-1.98)	-0.42*** (-1.94)
DUMY	-0.19 (-1.11)	-0.31** (-2.24)	-0.31*** (-2.06)
C	-9.73 (-0.76)	-0.43 (-0.07)	-5.07 (-0.55)

Note: 1) The t-values are in parenthesis.
2): *, **, *** means that estimates are significant at the 1%, 5% and 10% level, respectively.

The short-run dynamics of the model is shown in Figure 17. Our special interest is in the estimation results presented in Column 3 for the reason specified earlier. The coefficient of the DLRGDP is not statistically significant. This implies that although there is a statistically significant long-run impact of real income on real private investment, it has no significant effect in the short run. The change in the real effective exchange rate is influential to real private investment in the short run. The coefficient of the DLRCEG is positive but insignificant. The error correction version of the ARDL estimation also reveals that the real interest rate has nothing significant to do for private investment even in the short run.

Figure 17
Error Correction Representations

(1)	(2)	(3)	(4)
Variables	**ARDL (1,0,0,0,0)**	**ARDL (1,1,0,0,1)**	**ARDL (1,1,0,0,0,1)**
DLRGDP	0.96 (1.63)	-0.19 (-0.20)	0.23 (0.20)
DLREER	-0.29 (-0.74)	-0.93** (-2.13)	-0.88*** (-1.96)
DRFDR	0.005 (0.88)	0.001 (0.17)	0.002 (0.32)
DLRCPS	-0.031 (-0.13)		-0.16 (-0.72)
DLRCEG		0.27 (1.28)	0.26 (1.21)
DDUMY	-0.096 (-1.03)	-0.21*** (-1.98)	-0.198** (-1.79)
DC	-4.94 (-0.81)	-0.30 (-0.059)	-3.27 (-0.54)
ECM(-1)	-0.51** (-2.49)	-0.58* (-3.85)	-0.64** (-3.43)
Adj. R^2	0.24	0.46	0.45

Note: 1) The t-values are on parenthesis.
2): *, **, *** means that estimates are significant at the 1%, 5% and 10% level, respectively.

The coefficient of the error correction term, ECM (-1), is found to be high in magnitude and is statistically significant. It also demonstrates that there is a long-run relationship between the variables. The coefficient of the ECM term is -0.58 which suggests a rapid adjustment process. Specifically, it reveals that about 58% of the disequilibria of the previous year's shock adjust back to the

long-run equilibrium in the current year. It suggests the necessity of quick policy response to the issue related to private investment as it would quickly dissipate shocks.

Overall, our findings demonstrate that real income has a significant positive impact on investment in the long run while appreciation of the real effective exchange rate has a significant negative impact on private investment in both the long run and short run. Likewise, the real interest rate is found to have no significant impact on private investment. The estimate of the error correction term demonstrates a rapid adjustment process towards long-run equilibrium. The value of the Adj. R^2 (0.46) of the ARDL models show that the overall goodness of fit of the models is satisfactory. The F-statistics measuring the joint significance of all the repressors in the model are statistically significant.

5. Issues and Challenges regarding Private Investment and FDI

The rapid development of the economy is possible only through the commercialisation of agriculture and the creation of employment opportunities in the industrial and service sectors to absorb the excess labour prevailing in the agricultural sector. This requires a high rate of investment both in the agricultural sector and non-agricultural sector. Conducive policy and institutional reform together with political stability could only strengthen the investment climate. In this section, we discuss the issues and challenges in relation to private investment in Nepal.

5.1 Physical Infrastructure

The poor state of the physical infrastructure, such as roads, electricity, water, etc., discourages prospective investors because it reduces the rate of return from their investment. Moreover, the uncertainty of procuring regular supply of industrial fuel and its high price also has an adverse effect on entrepreneurs. Thus, steps must be taken to ameliorate the state of physical infrastructure in order to provide quality service and at reasonable prices.

5.2 Channeling Savings into Productive Activities

There have been massive inflows of workers' remittances from foreign employment into the country since the last few years. However, a large proportion of the remittance is believed to be invested in real estate activities. Similarly, domestic banks are interest much for consumer financing for quick and less risky returns. If such resources are used for more productive industrial activities,

it would help to increase the productive capacity of the economy and accelerate economic growth. Therefore, channeling savings into more productive activities through policy reform and incentive programmes appears as a challenge before the nation.

5.3 Transparent and Predictable Policy Framework

Transparent and predictable policy framework is inevitable to boost domestic and foreign investment within a country. The government repeatedly announces its commitments to provide investment-related services in a transparent manner from one window within the stipulated time. However, the weakness in the effective implementation of such policies creates doubts and confusion among domestic as well as foreign investors. Likewise, frequent changes in policies deteriorate investor's confidence as such events erode the predictability of their future business.

5.4 Reforming Institutional Framework and Enhancing Competitiveness

Nepal's international ties are getting stronger due to its gradual liberalisation and membership of the WTO. However, the domestic institutional framework has not been reformed adequately to face the changing need of economic development and the more globally integrated market. Moreover, Nepal is located between the world's two fastest- growing giant economies: India and China. This strategic location offers ample opportunities as well as presents many challenges. One of the greatest opportunities is the huge potential market for the produce of Nepal. Therefore, to take advantage of this opportunity, Nepal needs to identify the areas of comparative advantages, enhance its competitiveness and encourage domestic and foreign investment.

5.5 Monitoring Mechanism

Currently, there is an absence of an effective monitoring mechanism to monitor private investment, especially the flow of FDI. The Foreign Investment Promotion Division of the DOI only records the foreign investment that is approved but not the FDI that actually flows into the country. Similarly, the Nepal Rastra Bank is also not able to monitor FDI inflows completely. Against this scenario, the responsibility of monitoring FDI inflows in a systematic and timely manner should be entrusted to the Nepal Rastra Bank through its links to the different commercial banks of the countries.

5.6 Activation of the Board of Investment

The Board of Investment (BOI) constituted under the chairmanship of the Prime Minister has not been functioning actively. The BOI should place private investment as its highest priority and provide investors with the right signals that the government is serious in encouraging investment in the country. Moreover, the Board should also include more personalities from the private sector.

5.7 One Window System

The bureaucratic rules and processes in Nepal are complicated and time-consuming. The One Window System, which was established to provide quick and efficient services to the investors, has not been effectively utilised for providing proper follow-up and the stated facilities. Against this scenario, a system of automatic approval and registration of foreign investment projects up to various limits in different sectors would significantly sort out the delays in clearances and permissions that are still required. The One Window System needs to be re-assessed and made more effective for providing infrastructure and services.

5.8 Create Strong Backward Linkage

Most of the industries in Nepal are heavily dependent on imported raw materials. High import content means low national value addition and weak backward linkage. On the one hand, it creates problems to sustained growth and to the national objective of poverty reduction. On the other hand, it increases the vulnerability of the economy to external shocks. Therefore, domestic-resource-based industrialisation that creates strong backward linkages is necessary to meet the national objective of poverty reduction.

5.9 Diversification of Trade

Nepal's trade has largely been concentrated with India. This trend is increasing over the years. Reliance on a single country could pose challenges if any of the shocks take place in the partner economy. Thus, Nepal needs to diversify its trade with other countries, and also with the diversification of its products.

5.10 Access to Foreign Credit

The domestic firms and companies have no access to foreign credit due to the restriction on capital account. Recently, selected industries are allowed to

borrow in foreign currency from local banks. But, if the economy moves to a high growth path, local entrepreneurs need to be provided access to foreign credit for large investment, such as investment in hydropower projects.

5.11 Promotional Activities

The international business community has little idea about the prospects of joint-venture industries in Nepal and the policy reforms being undertaken by the Government to facilitate FDI. In order to resolve this problem, different promotional measures should be initiated to publicise the prospects and potential of foreign/joint-venture investments in Nepal and the policy reforms undertaken by the Nepalese Government in this regard.

5.12 Political Stability

Political stability is also a prerequisite for a conducive investment climate because political instability increases the risk and thereby the cost of investment projects. Nepal witnessed frequent changes in government after the mid-1990s. Maoist insurgents launched an armed insurrection to overthrow the political regime of the day. The escalation of the domestic violence eroded the law and security situation which is very crucial to private investors in making their investment decision. The security concerns of investors for their safety and for the safety of their families and their business put prospective investors on the sidelines. After the "People's Movement" of April 2006, election for the constituent assembly was held and the ex-rebel leader is currently heading the government. However, the frequent closure of business organisations, recurrent conflict between management and labour and the prevailing confusion about the attitude of the new government towards the private sector have adversely affected business confidence. Once the political stability is restored, with the ongoing peace process brought to a logical conclusion and the business community assured of the security of their investment, an investment-friendly environment will prevail in the country.

6. Conclusions and Policy Recommendations

Investment is the process by which the capital stock of an economy is enhanced. For an underdeveloped country with abundant labour and scarce capital, like Nepal, capital stock accumulation is necessary to increase the productive capacity of the economy. Nepal has traditionally been heavily dependent on foreign savings for its public investment. Public investment might be necessary

to develop the physical and social infrastructure at the initial stage of economic development. However, to move the country forward in the direction of rapid industrialisation, the promotion of private investment cannot be overlooked. The liberalisation measures, initiated in the mid-1980s and accelerated in the 1990s reflects such a sentiment of the government.

The analysis of the investment/GDP ratio demonstrates a diverging picture of private and public investment after the early 1990s. Public investment to the GDP ratio is slightly lowered while private investment to the GDP ratio is gradually increasing. This clearly reflects the influence of the liberalisation policies adopted by the government of Nepal. Though the data on realised foreign direct investment is not available, the sharp increase in the number of industries approved for foreign direct investment and the amount of FDI tied therein demonstrates the favorable investment climate in the early years of the 1990s.

The empirical results of the study show that the real GDP has a significant positive impact on real private investment. Positive business expectations that a growing economy creates in the outlook of investors is crucial to increase private investment. The study also demonstrates that the real effective exchange rate has a significant negative effect on real private investment. This means that if the Nepalese currency appreciates against the Indian rupee and US dollar in real terms, it results in lower private investment. Likewise, if the Nepalese rupee depreciates against these currencies in real terms, it encourages private investment.

The estimation results also showed that the dummy variable assigned for the Asian financial crisis is significant with a negative coefficient. Though we cannot completely ignore the impact of the Asian financial crisis in Nepal, it must be cautiously interpreted because the investment climate was not much conducive due to the escalation of internal violence and political instability after the mid-1990s.

The statistically significant long-run coefficient of capital expenditure by the government supports the 'crowd-out effect' argument of public investment. However, the coefficient is positive and statistically insignificant in the dynamic version of the Model. Therefore, we cannot ignore the role of public investment in the development of the physical and social infrastructure to attract private investment in the early stage of development.

This study failed to establish any significant effect of the interest rate on private investment. In our estimation results, the coefficient of the real interest

rate is statistically insignificant in both the long-run and error-correction version of the ARDL model. Statistically significant and high negative coefficient of the error correction term, ECM (-1) reveals a fast adjustment process toward long-run equilibrium.

One of the policy implications of our findings is that Nepal needs to give priority to the attainment of high economic growth and maintenance of a conducive macroeconomic environment. Macroeconomic stability increases business expectations and stimulates private investment.

Though our findings fail to establish any significant effect of the real interest rate on real private investment, the real effective exchange rate plays a significant role in determining private investment in the long-run as well as short-run dynamic adjustment. This has serious policy implications for the central bank because it has the sole authority for the implementation of monetary and foreign exchange policies. The Nepal Rastra Bank, the central bank of Nepal, officially fixes the nominal exchange rate of the Nepalese rupee with the Indian rupee. In this regard, the NRB must be watchful of the movement of the real effective exchange rate and to maintain it at the optimum level because the appreciation of the real effective exchange rate of the Nepalese currency is found to have a significant negative impact on real private investment.

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Annex 1: Description of the Variables

Variables	Description	Sources
RPI	Real private gross fixed capital formation. Data on current market prices were taken form Economic Surveys and converted into real terms using CPI.	Economic Surveys, GON
RGDP	Real Gross Domestic Product.	Economic Surveys, GON
RCPS	Real domestic credit to private sector. Data on current market prices were taken form Economic Bulletin of Nepal Rastra Bank and then converted to real terms using CPI.	Quarterly Economic Bulletin, NRB
RFDR	Real fixed deposit interest rate. The data on one year nominal fixed deposit rate were converted to real deposit interest rate by using CPI.	Quarterly Economic Bulletin, NRB
REER	Real effective exchange rate. Published data on real effective exchange rate indexes are not available in Nepal. To derive nominal effective exchange rate, nominal exchange rate of Nepalese Rupee with Indian Rupee and US dollar weighted by the respective trade share. The Indian rupee and US dollar are taken into account because India alone accounts for one third of the total trade and US dollar dominates the trade transaction with the rest of the world. Then the nominal effective exchange rate adjusted for price differences by using CPI of Nepal, CPI of India and CPI of the industrial countries to derive real effective exchange rate.	Constructed by using data from Quarterly Economic Bulletin, NRB, Inflation in Nepal, and International Financial Statistics, IMF.
RCEG	Real capital expenditure by government. Data on current market prices on capital expenditure of the government of Nepal were converted into real term using CPI.	Economic Survey, GON.
D	Asian financial crisis dummy which assumes value '0' from 1980 to 1997 and '1' from 1998 to 2008.	

Annex 2: Macroeconomic Indicators

Year (Ends mid-July)	GDP growth	Inflation rate	Growth of money supply	US dollar Exchange Rate*	NEPSE Index	Current Ac./GDP (%)	Fiscal Deficit/ GDP (%)
1980	-2.3	9.3	17.2	12.00		-1.6	-3.6
1981	8.3	13.6	19.3	12.00		-1.2	-3.2
1982	3.8	10.6	18.2	13.00		-1.4	-5.8
1983	-3.0	14.0	23.7	13.88		-5.3	-9.6
1984	9.7	6.3	13.4	15.50		-3.6	-8.5
1985	5.7	4.0	17.6	17.9		-4.2	-8.1
1986	4.7	15.9	23.3	20.0		-4.7	-7.5
1987	2.0	13.4	15.4	21.7		-4.8	-7.0
1988	7.0	10.9	22.4	22.2		-6.3	-6.5
1989	5.4	8.3	24.2	25.6		-7.5	-10.1
1990	4.9	9.7	18.6	28.6		-7.8	-8.6
1991	6.3	9.7	19.5	32.0		-8.3	-9.4
1992	4.6	21.1	21.1	42.7		-7.1	-7.9
1993	2.9	8.8	27.7	45.7		-6.2	-7.4
1994	7.6	9.0	19.6	49.3	226.0	-4.3	-6.2
1995	2.7	7.7	16.1	49.9	195.5	-5.8	-5.1
1996	5.4	8.1	14.4	55.2	185.6	-9.2	-5.9
1997	4.8	8.1	11.9	57.0	176.3	-6.3	-5.5
1998	3.3	8.3	21.9	62.0	163.4	-5.4	-6.3
1999	4.5	11.4	20.8	68.0	216.9	0.1	-5.6
2000	6.1	3.5	21.8	69.1	360.7	-2.5	-5.0
2001	4.9	2.4	15.2	73.8	348.4	4.9	-5.9
2002	0.1	2.9	4.4	76.9	227.5	4.2	-5.3
2003	4.0	4.8	9.8	77.8	204.9	2.5	-3.6
2004	4.7	4.0	12.8	73.8	222.0	2.9	-3.2
2005	3.1	4.5	8.3	72.1	286.7	2.1	-3.3
2006	3.7	8.0	15.6	72.3	386.8	2.3	-4.1
2007	3.2	6.4	13.8	70.5	683.9	-0.1	-4.5
2008	4.7	7.7	21.6	65.0	963.4	2.8	-4.3

Annex 3: Number of Industries Registered

(Rs. in million)

FY	No. of industries	Total project cost	Total fixed cost	Total no of employees
Up to 1989/90	30	2466.78	2139.42	8621
1991	136	1681.29	1111.74	5798
1992	437	7510.54	4676.89	38085
1993	607	9628.11	5749.26	88515
1994	147	18347.67	16483.59	20937
1995	213	17543.31	12892.73	21339
1996	375	20072.27	16768.04	34938
1997	242	14062.46	11027.43	23970
1998	112	10531.68	8689.83	10136
1999	109	11437.34	8407.34	8432
2000	158	25958.36	21408.9	15290
2001	144	10766.61	8064.46	9165
2002	139	22661.64	18747.48	11741
2003	109	13203.46	8666.02	12877
2004	146	13163.41	10169.63	11687
2005	107	18003.13	13758.76	8490
2006	120	9527.85	7105.84	10398
2007	177	8123.68	5973.02	9232
Total	3508	234689.59	181840.38	349651

Source: Government of Nepal, Department of Industry. Industrial Statistics.

Annex 4: Industries Approved for Foreign Investment

(Rs in Million)

FY	No. of industries	Total project cost	Total fixed cost	Foreign Investment	Total no of employees
Up to 1988/89	59	5425.92	4581.82	466.84	10586
1989/90	30	2438.19	2139.6	398.51	9515
1990/91	23	863.56	690.74	406.28	2974
1991/92	38	3508.17	2902.1	597.84	5615
1992/93	64	17886.22	16210.81	3083.67	13873
1993/94	38	3733.23	3175.66	1378.76	4734
1994/95	19	1627.28	1247.85	477.59	2386
1995/96	47	10047.47	9398.54	2219.86	8032
1996/97	77	8559.25	6692.15	2395.54	9347
1997/98	77	5569.38	5142.32	2000.28	4336
1998/99	50	5324.42	4380.17	1666.42	2146
1999/00	71	2669.09	1910.24	1417.61	4703
2000/01	96	7917.62	6122.49	3102.56	6880
2001/02	77	3318.53	1559.59	1209.65	3731
2002/03	74	4921.82	3608.25	1793.77	3572
2003/04	78	4323.74	3775.86	2764.8	2144
2004/05	64	1801.1	1150.89	1639.52	5576
2005/06	116	4121.08	3296.95	2606.31	7358
2006/07	184	2996.88	2349.56	2919.79	7150
2007/08	211	20398.86	16894.86	9807.25	10660
Total	1493	117451.81	97230.45	42352.85	125318

Source: Government of Nepal, Department of Industry.

Annex 5: Sectoral Composition of FDI (up to FY 2007/08)

(Rs in Million)

Sector	No. of industries	Total project cost	Total fixed cost	Foreign investment	Total number of employees
Agriculture	27	572.35	489.19	214.11	1420
Construction	36	3305.64	2494.57	2494.72	2687
Energy Based	27	27160.42	25437.36	6300.05	5866
Manufacturing	582	42610.06	30546.35	15287.33	70297
Mineral	11	4793.14	3926.17	2285.98	1979
Services	416	21810.68	18106.72	10035.28	23114
Tourism	394	17199.52	16230.09	5735.38	19955
Total	1493	117451.81	97230.45	42352.85	125318

Source: Government of Nepal, Department of Industry. Industrial Statistics.

Annex 6: FDI by Country of Origin (up to FY 2007/08)

(Rs in Million)

Country	No. of industries	Total project cost	Total fixed cost	Foreign investment	Total number of employees
India	396	44733.53	34262.37	18579.12	48855
USA	127	13580.14	12313.32	4680.98	10873
China	190	10360.89	8425.16	3748.65	12182
Norway	9	8090.59	6745	1115.83	619
Japan	130	3028.6	2595.78	1052.33	6037
S. Korea	94	7939.12	7525.98	3954.17	4753
UK	73	4347.08	3876.5	1278.6	7035
Others	474	25371.87	21486.33	7943.18	34964
Total	1493	117451.82	97230.44	42352.86	125318

Source: Government of Nepal, Department of Industry. Industrial Statistics.

Annex 7: Correlation Matrix

	LRPI	LRGDP	LRCPS	LRCEG	LREER	RFDR
LRPI	1.000000	0.979236	0.972690	0.317376	-0.843190	-0.256663
LRGDP		1.000000	0.990631	0.343382	-0.839965	-0.264698
LRCPS			1.000000	0.267267	-0.812390	-0.255845
LRCEG				1.000000	-0.293022	-0.006877
LREER					1.000000	0.095747
RFDR						1.000000

Chapter 7

STATE OF INVESTMENT IN THE PHILIPPINES

by
Eloisa Tatlonghari-Glindro [1]

1. Introduction

The dynamics of investment has long been an interest among economists and policymakers because of its role in inducing or exacerbating business cycles. The investment process entails long lead times with enduring consequences. It is the most volatile component of Gross Domestic Product (GDP), rising sharply during economic booms and slowing down substantially during recessions, a phenomenon referred to as the accelerator model of investment. This accelerator effect alongside liquidity constraints are more acute for smaller firms and may thus explain investment volatility. However, as industrial production shifts away from strongly cyclical industries such as manufacturing, the strength of cycles in business fixed investment may also weaken. This moderating process is also likely to be helped by the shift toward less durable investments requiring shorter planning and construction periods, such as computers (Auerbach, undated).

2. The Philippine Economy and the State of Private Investment

The Philippine's economic history may be considered a development puzzle because among the newly independent countries after the second world war, its initial conditions were deemed to be generally favourable (Balisacan and Hill, 2003). Yet by any yardstick, the development path has been generally disappointing, except for the notable progress in recent years. The country's economic potential has been severely pulled back by what has been regarded as the "lost decade" of the 1980s when gross domestic product (GDP) averaged a mere 1% growth, a sharp contrast to the 6% average growth experienced by other Southeast Asian countries. The dismal performance in the 1980s had a profound impact on the speed of economic recovery such that the country failed to keep pace

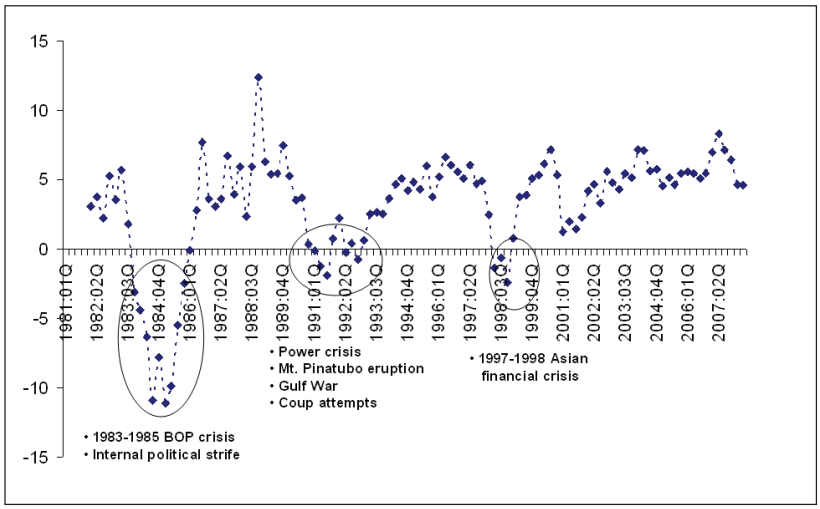
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1. Bank Officer at the Center for Monetary and Financial Policy, Bangko Sentral ng Pilipinas. This section is part of the SEACEN research project on investment in SEACEN countries in the post-Asian crisis period. The author wishes to thank Mr. Jade Eric Redoblado for assistance in data conversion of annual private investment series into quarterly series. The views expressed herein are those of the author and do not necessarily reflect those of the Bangko Sentral ng Pilipinas (BSP) or The SEACEN Centre.

with its neighbours over a long period. Consequently, the flow of foreign direct investment (FDI) was not as encouraging as in other Asian countries.

The overall business cycle characteristically mirrors the developments in the political landscape (Deveza, 2006).[2] The economic collapse in the early 1980s was exacerbated by an internal political strife amidst an unfavourable external environment. The decade of the 1990s, on the other hand, was affected by two episodes of recession. The early part of the decade was characterised by succession of coup attempts, power shortages, highly destructive Mount Pinatubo eruption and the Gulf War. Toward the end of the decade, the economy was hit by the regional financial crisis in 1997-1998 that was compounded by the El Niño phenomenon (Figure 1).

Figure 1
Philippine GDP Growth Rate (y-o-y), 1970-2008



Nonetheless, the major structural reforms introduced in the 1990s that paved the way for greater deregulation and liberalisation appeared to have increasingly helped the economy withstand global and political shocks in later years as borne by its experiences with the Asian financial crisis as well as the internal political crisis and global information technology bubble in the beginning of the 21st

2. Deveza, Teresita, B. "Early Warning System on the Macroeconomy: Business Cycles and Leading Economic Indicators" BSP Review January 2006.

century.[3] As can be seen in Figure 1, there has been a discernible moderation in the economic cycle since the crisis in the mid-1980's. In general, the inflation rate has moderated, notwithstanding the supply-fed run-up in inflation in 2008. With concomitant downtrend in key interest rates alongside greater flexibility in the exchange rate, there has also been a downward shift and flattening of the yield curve since 1998.

2.1 Snapshot of Investment Policy Environment

The investment condition is affected not only by local and external developments but certainly of the policy environment. This section discusses the salient features of the investment policy environment.

First, unlike most of the countries in the region, foreigners are not permitted to own land, except through hereditary succession. They are allowed, however, to purchase condominium units or apartments in high-rise building (subject to the restrictions in the Condominium Act) or lease land for a maximum of 75 years.[4] In terms of equity ownership, there are no restrictions on the extent of foreign ownership of export enterprises. Foreigners can invest as much as 100% equity in domestic market enterprises, except in areas included in the negative list. [5]

Second, fiscal incentives compare favourably with those in other countries in the region. Tax holiday is the centrepiece of the country's tax incentive structure. While data on the costs and benefits of tax incentives are hard to come by, it may be safe to conjecture that tax holiday may have in fact partly contributed to the erosion of the corporate tax base as the confidence in the efficiency of tax service has materially waned particularly after the crisis. Chalk (2001) [6] provides a comprehensive report on how the Philippine fiscal incentive

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3. One was the festering Presidential legitimacy issue that culminated in 2001 with the civilian-backed overthrow of the Estrada administration. Quite inauspiciously, the latter part of the year 2001 also witnessed the September 2001 terror attacks on the United States and the major slump in the global information technology sector.

4. Leases on land up to 50 years, renewable for another 25 years, are available. Global Property Guide <http://www.globalpropertyguide.com/Asia/Philippines/Buying-Guide>

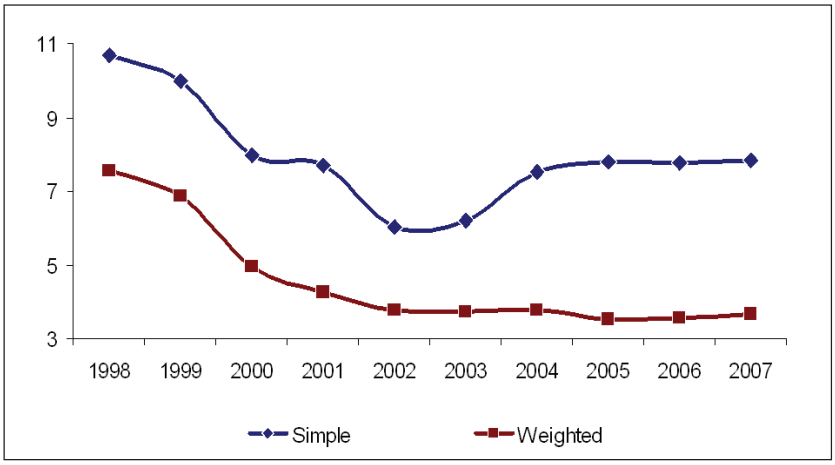
5. The Philippine Foreign Investment Act of 1991. Negative List A covers areas reserved for Filipino nationals as already enshrined in the Constitution and specific laws. These include mass media, educational institutions, public utilities, services involving the practice of licensed professionals, medicine and allied professions, cooperatives, and small-scale mining, among others. Negative List B encompasses national defense, risk to health and morals, and protection of local small and medium scale enterprises (SMEs).

6. Chalk, Nigel (2001). Tax Incentives in the Philippines: A Regional Perspective. IMF Asia and Pacific Department. International Monetary Fund, Washington, D.C.

system fares with the rest of the region and the challenges such an incentive system imposes.[7]

Third, significant strides have been achieved in the area of tariff policy, a trend that is consistent with significant trade liberalisation. Average tariffs have gone up beginning 2003 when the government decided to take advantage of the opportunity to slow down and align the pace of tariff reduction with those of other countries. When corrected for trade volume, trade weighted tariff rates have, in fact, been on a downtrend (Figure 10).

Figure 2
Philippine Tariff Rates, 1998-2007



Source: Philippine Tariff Commission (http://www.tariffcommission.gov.ph)

Fourth, applicable taxes comprise of corporate tax rate of 35% which will go down to 30% in 2009 (provision in the RVAT law), 12% VAT and 20% capital gains tax. While tax holidays are available to non-resident investors, withholding tax on dividend earnings is not. These taxes, alongside other transaction costs, raise the effective tax rates for the corporate sector.

Fifth, reforms in the foreign exchange regulatory framework have been implemented since 2006. The liberalisation of the foreign exchange regulatory framework is part of the continuing efforts of the BSP to improve the overall

7. Just recently, efforts to rationalise fiscal incentives have seen better light with the Department of Trade and Industry (DTI) and the Department of Finance (DOF) finally agreeing to a draft bill that provides sunset provision for the grant of fiscal incentives, that is, when infrastructure spending-to-GDP ratio reaches five percent.

economic and financial regulatory environment. The reforms sought to make the regulatory environment more responsive to the needs of an economy that has become increasingly integrated with global markets. In the medium term, it is expected that the resulting freer flow of capital will provide additional resources to the domestic economy and allow portfolio diversification.

The first phase of reforms—approved by the Monetary Board (MB) on 22 February 2007 and implemented in April 2007— liberalised the regulations on non-trade transactions and outward investments by raising the allowable limit on foreign exchange purchases from banks by residents. Prudential regulations on banks' open foreign exchange positions were also relaxed.[8] Subsequently, on 20 December 2007, the second phase of reforms was made into effect. It streamlined documentation and reporting requirements on the sale of foreign exchange by banks.

Sixth, in an effort to attract more stable source of flows such as foreign direct investment, there has been a spate of bilateral treaties (BTIs) and double taxation treaties in recent years. The ultimate impact, however, cannot be assessed yet. It has been noted that the Philippines entered into BTIs mostly with countries with which FDI flow has been marginal, with the intent of encouraging interest and eventually induce more FDI inflows.[9]

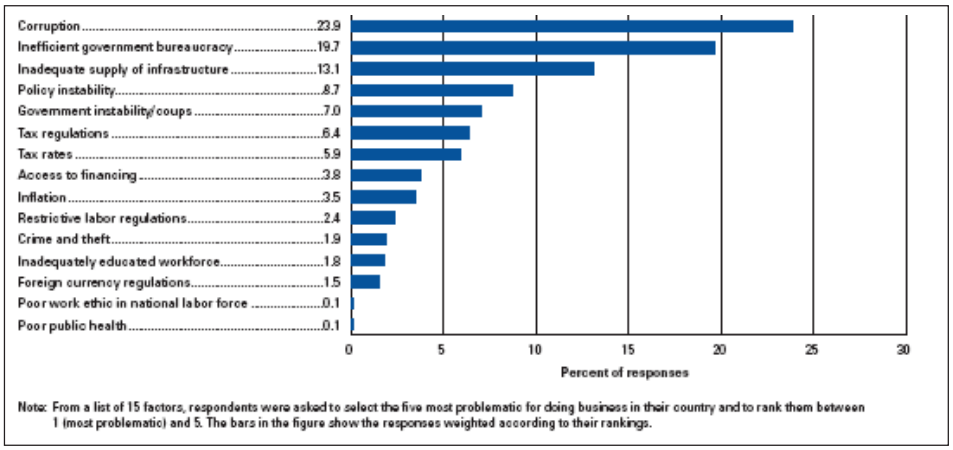
Lastly, the 2004-2010 Medium Term Philippine Development Plan highlights the key areas of reform. These include focused investment promotion in priority markets; increased spending on public infrastructure through private-public partnership; streamlining of exports and exports procedures; exports promotion with focus on priority areas where the country has comparative advantage because of its human resources and geographic location (e.g., information, communications and technology (ICT), automotive, electronics, mining, health care, and tourism); revitalisation of the power, airlines, and shipping industries; enhancing SME financing; rationalisation of government structure and corporate governance reforms, which center on promoting greater adherence to the enhanced standards on transparency, accountability, and fairness.[10]

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8. Box Article in 2007 BSP Annual Report. Covered under BSP Circular No. 561 dated 08 March 2007. The BSP, through Circular No. 565 dated 03 May 2007, also authorised the foreign currency deposit units (FCDUs) of thrift banks to invest in readily marketable debt instruments.
9. Alburo, F. (undated). Foreign Direct Investment in the Philippine Amidst Crisis and a New Global Environment. (http://www3.pids.gov.ph/ris/taps/tapspp9815.pdf)
10. Medium-Term Philippine Development Plan, 2004-2010 (2004). National Economic and Development Authority, Pasig City, Philippines.

While the overall policy environment is supportive of investment promotion, there are other extraneous factors that impinge strongly on the performance of private investment. The system of incentives and institutional structure are relatively slow to adapt to the changing needs of economic development in a more globally-integrated market. By all comparative indices on competitiveness, [11] the Philippines has not lived up fully to its potentials. These results are echoed in the 2008 index of economic freedom compiled by the Heritage Foundation[12] wherein the Philippines posted low scores (below 50) for investment freedom, property rights and freedom from corruption. Similarly, the ADB affirmed in its 2005 survey the often-mentioned impediments to private investment, classifying these into broad themes of macroeconomic instability and policy uncertainty; infrastructure gaps; and governance and institutional rigidities.

Figure 3
Most Problematic Factors in Doing Business in the Philippines



Source: Global Competitiveness Index (2008-2009), World Economic Forum

2.2 Weaknesses in Domestic Investment are Beyond the Effects of the Asian Crisis

2.2.1 Structural Shifts in the Economy Towards Less Capital-Intensive Services Sector

While the macroeconomic environment has significantly improved, there remains a major kink, that is, the tepid and erratic growth in domestic investment

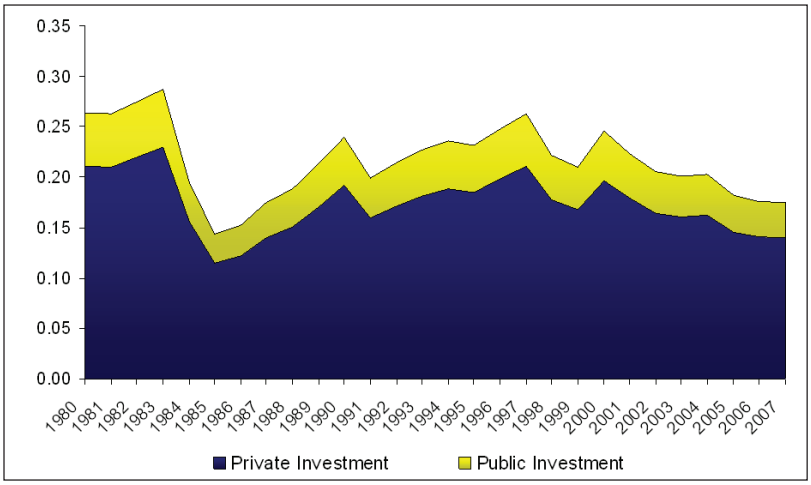
11. Global Competitiveness Report (2008), World Economic Forum and Index of Economic Freedom (2008), Heritage Foundation.

12. < http://www.heritage.org/index/PDF/2008/Index2008_Chap4.pdf > contains the definition of the 10 indices of economic freedom.

whose share to GDP has been declining since the Asian crisis. (Figure 4), except in 2000 when the government bankrolled a pump-priming programme. This trend may be symptomatic of deeper structural problem in domestic capital formation with the country caught up in a low 'capital-stock' equilibrium (Bocchi, 2008).[13]

Investment-to-GDP somewhat stabilised after 2004 (albeit still low) when the major fiscal consolidation programme was initiated[14] alongside financial sector reforms. The ensuing confidence generated by the reforms fostered a more positive economic outlook that helped attract more capital inflows.

Figure 4
Investment-to-GDP, 1980-2007 1/



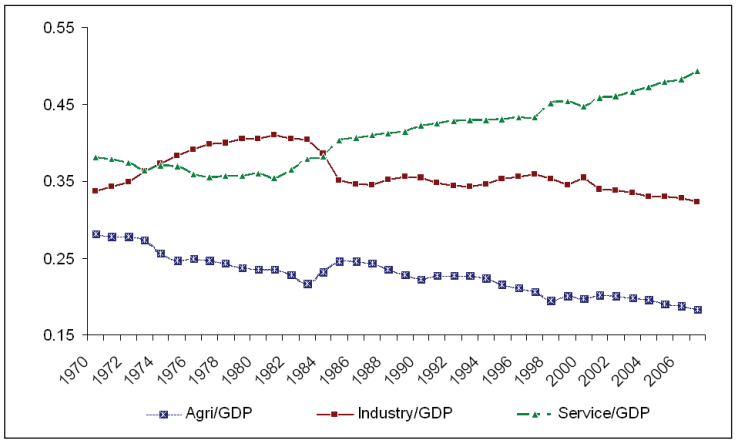
1/ In real terms
Source of basic data: NEDA-National Planning and Policy Staff
Note: Author estimates 2005-2007 values using historical share-to-GDP

More importantly, there are well known structural shifts in the economy with the corresponding re-allocation of resources. The biggest troughs were experienced in industry, whose sluggish recovery is felt up to the present and is reflected in declining share to GDP. The *less capital-intensive* services sector has grown substantially, accounting for nearly half of GDP in recent years (Figure 5).

13. Bocchi, A. M (2008). "Rising Growth, Declining Investment: The Puzzle of the Philippines. Breaking the 'Low Capital Stock' Equilibrium." WB Policy Research Paper 4472, World Bank East Asia and the Pacific Region. The World Bank.

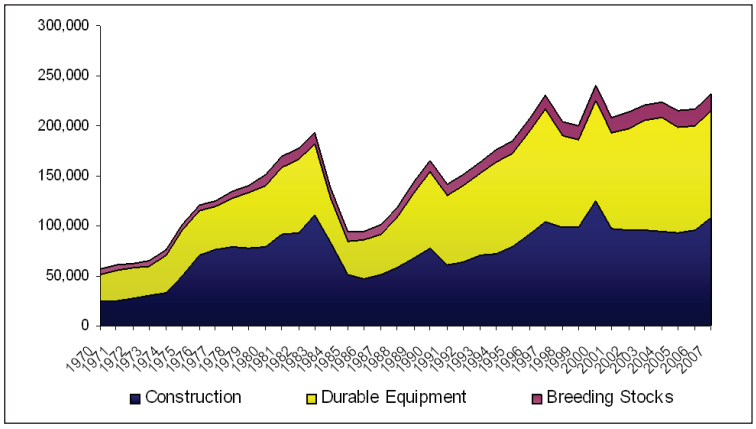
14. Includes major tax administrative measures, rationalisation programme for the bureaucracy, and the 2005 landmark reform in value-added taxation.

Figure 5
Share of Major Production Sector in GDP (in %), 1970-2007



Fixed capital,[15] which consists of construction, durable equipment and breeding stocks, was relatively stagnant (Figure 6) for most part of the post Asian crisis period. This may largely reflect diminishing comparative advantage of the manufacturing sector, which accounts for the bulk of industrial output as well as of foreign direct investment.

Figure 6
Composition of Fixed Capital, 1970-2007
(In million pesos, real terms)



Source: National Income Accounts, National Statistical Coordination Board

15. Gross domestic capital formation consists of (i) gross fixed capital formation and (ii) change in stocks. Gross fixed capital formation refers to outlays on construction, durable equipment and breeding stocks, orchard development and afforestation. (Philippine System of National Accounts Sources and Methods).

2.2.2 Protracted Period of Fiscal Imbalance Curtailed Vital Infrastructure Programme

As the government grappled with the fiscal imbalance and debt sustainability issues, public capital investment (both physical and human capital) has been severely constrained. To contain the deficits, the government often embarked on expenditure rationalisation, adversely affecting vital productive investments.

Shoring up government finances has not been easy. Revenue effort has considerably deteriorated since 1998 and has yet to revert to the pre-crisis level despite the substantial turnaround when the Value-Added Tax Reform Law was implemented in 2005. While the decline in revenue effort after the crisis has been a region-wide phenomenon, other ASEAN countries have already recovered beginning 2001 whereas Philippines' fiscal recovery process was quite late. The heightened fiscal vulnerability then has spawned crisis of confidence that not only undermined government's efforts to attract investment and promote long-term growth but also limited its flexibility for fiscal maneuver during economic downturns.

2.3 Flow of Funds and the Widening Savings-Investment Gap[16]

The flow of funds[17] provides complementary insights on the state of investment. The last five years saw a reversal in the financial positions across sectors. The economy has become a net lender beginning 2003, the year when the financial sector regained traction following the implementation of financial sector reforms. The non-financial corporate sector followed suit in 2004 with the privatisation of the National Power Corporation (NPC). With limited investment options, households have been a perennial net surplus sector. Regardless of incomplete data capture, the flow of funds reflects substantial cash holdings. This may be partly ascribed to remittances from overseas Filipinos. Lastly, fiscal consolidation efforts contributed to the marked improvement in the financing position of the government (Table 1).

As national savings expanded, investment remained stagnant, thereby, leading to higher savings-investment (S-I) gap (Figure 7). Given the current state of economic development and investment deficit, such expansion in the S-I gap

16. A more detailed discussion on the implications of the Philippine flow of funds on the transmission channels of monetary policy can be found in the draft working paper by Amador, C., Claveria, R and Glindro. E. (2009)

17. Flow of funds data are available from 2001-2006.

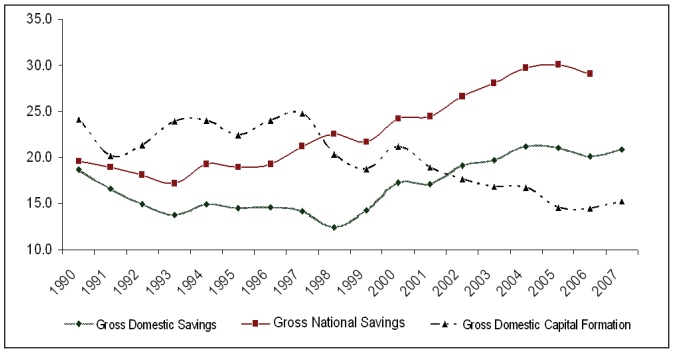
Table 1
Flow of Funds: Summary of Net Financing, 2000-2006 [1/]
(in Billion Pesos)

Year	Financial	Non-Financial	Government	Households	Domestic Economy
2000	-36.65	-9.34	-163.93	121.49	-88.44
2001	-13.27	-58.86	-140.56	125.60	-87.08
2002	-19.16	-24.29	-141.05	168.82	-15.68
2003	13.58	-94.97	-162.40	263.92	20.13
2004	29.07	300.31	-332.16	95.21	92.42
2005	24.81	151.35	-101.17	36.06	111.05
2006	43.26	168.72	-0.75	97.57	308.80

[1/] *Net Lender (+) / Net Borrower (-)*
Source: Philippine Flow of Funds, Bangko Sentral ng Pilipinas

may not be welfare-enhancing and may, in fact, just induce greater exchange rate appreciation pressures. Of late, there has been a remarkable easing up of government finances that permitted the government to engage in time-bound subsidy programme to address spiraling commodity prices in the first half of 2008 and to finance its public infrastructure and social safety net programme to help the economy hold out amidst the pressures of the on-going global economic crisis.

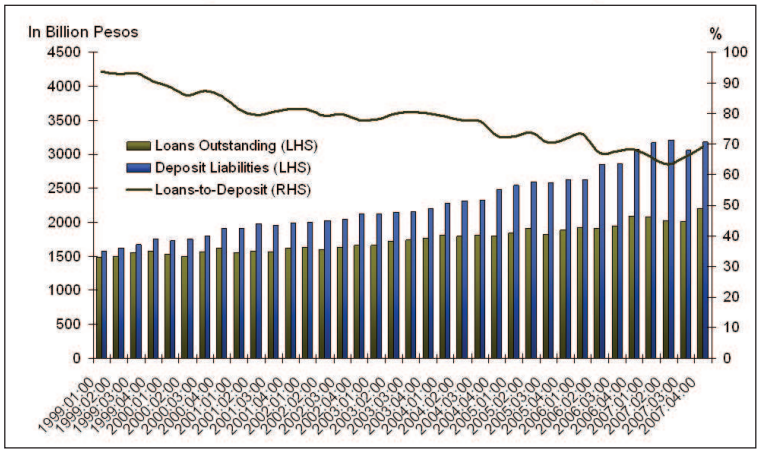
Figure 7
Savings and Investment, 1990-2006
(Percent of GDP at Current Prices)



Source: 2008 Asian Development Outlook
The significant rise in 1998 of national savings is due in part to the change in the data reporting system of remittances from overseas Filipinos

Despite ample liquidity, credit take-up continued to be lackluster as loans-to-deposit ratio has been declining since 1998 (Figure 8), a trend that may be partly ascribed to the balance sheet consolidation by banks. Further breakdown of the flow of funds would indicate that the surplus registered by the financial system has largely been on account of securities accumulation. This is not surprising as banks may have been more concerned about preservation of collateral. With the marked improvement in the financial conditions across all sectors and tepid investment response, demand for lending is likewise weakened in the process.

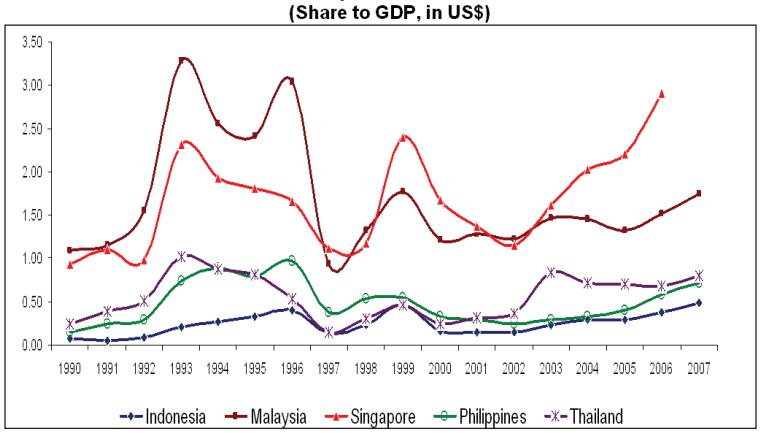
Figure 8
Loan-to-Deposit Ratio of Universal/Commercial Banks, 1999-2007



Source: Bangko Sentral ng Pilipinas (http://www.bsp.gov.ph/banking/bspsup_universal.asp)

Access to other sources of funds such as equity and bond issuance may also partly explain the weak demand for loans as evidenced by the rise in market capitalisation during the period of financial consolidation (Figure 9). In terms of bond issuance, however, the issue and issuer base remain highly concentrated (Table 2). Interestingly, the 2005 ADB survey shows that there has been growing reliance on internal funds and even informal sources for financing of working capital by firms. This has been attributed to rigid collateral requirements that hamper small firms from sourcing needed capital from banks.

Figure 9
Market Capitalization in ASEAN
(Share to GDP, in US$)



Source: World Federation of Exchanges

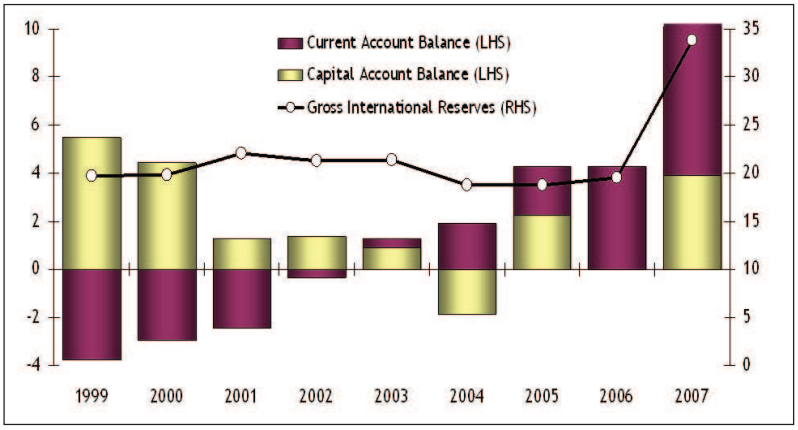
Table 2
Corporate Bond Issue and Issuer Concentration Ratios
for the period June 2004-June 2008 [1/]

Market	Issuer Concentration Ratio	Issue Concentration Ratio
CHINA	6.86	16.12
HONGKONG (Mar 2008)	9.01	20.41
INDONESIA	6.5	22.10
JAPAN (Dec 2007)	0.81	19.74
KOREA	2.21	15.36
MALAYSIA	8.45	24.55
PHILIPPINES	11.91	26.17
SINGAPORE	5.16	14.20
THAILAND	1.21	10.14

[1/] Ratio of top three (3) to total. *Issuer* refers to the number of institutions that issue bonds while *issues* refer to the value of bond issuance (as of June 2008).
Source: AsianBondsOnline

The period of financial consolidation also saw concomitant reversal in the composition of flows. The balance of payment reflects huge inflows, largely on account of current account surplus (Figure 10). Unlike other countries where net exports account for current account surpluses, current transfers owing largely to remittances from overseas Filipinos explain the current account surplus in the post Asian crisis period.

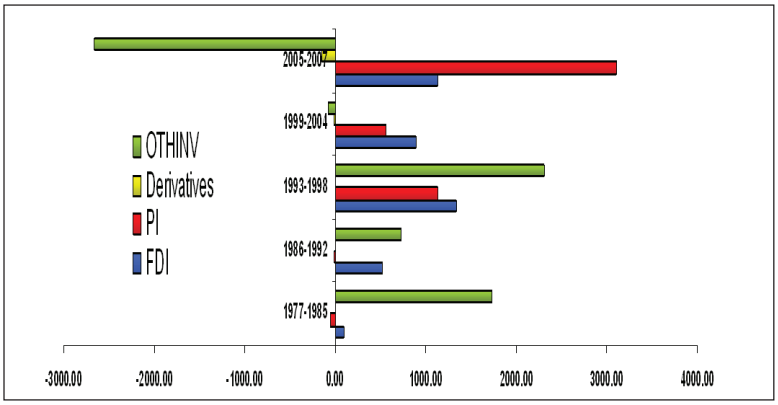
Figure 10
Balance of Payments and Reserve Accumulation, 1999-2007
(in percent of GDP)



2.4 Foreign Direct Investment Has Been Erratic

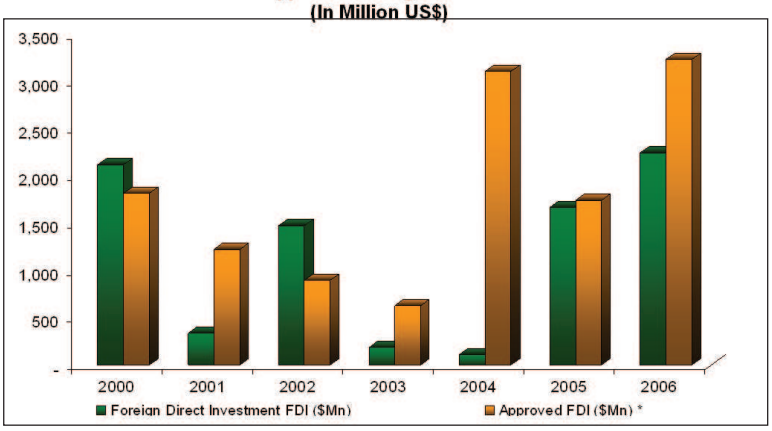
The generally weak domestic investment environment is mirrored in the foreign direct investment (FDI) condition as well. Portfolio inflows exceed FDI in the latter years when corporate and government finances staged a recovery. During the same period, other investment (consisting of trade credit, loans and currency and deposits) reflects the repayment of loans during the time of huge inflows and appreciating currency (Figure 11).

Figure 11
Composition of Capital Flows, 1977-2007
(In Million US$)



FDI trends have been erratic with actual FDI falling short of approved FDI most of the time (Figure 10). Much of the FDI flows are joint investment projects among several foreign investors. In terms of recipient industry, manufacturing and non-residents investment in non-banks account for most of the FDI.

Figure 12
Actual vs. Approved Foreign Direct Investment
(In Million US$)



* Approved FDI consists of committed foreign direct investments in the Board of Investment, Philippine Economic Zone Authority, Subic Bay Metropolitan Authority and Cooperative Development Corporation. Converted into US$ using average exchange rate.

Weaknesses in the pull factors also appear to have had the most dampening effect on investment. Manufacturing was already experiencing difficulties, particularly with regard to high power costs, weak infrastructure and quite possibly, intense competition from China. Some basic investment-related cost indicators remain high in Manila relative to other ASEAN cities (Table 4). Corruption, government inefficiency and inadequate supply of infrastructure were cited as the three most problematic areas for doing business in the Philippines.[18] With inadequate support system and increasing pressures from globalisation, the manufacturing sector may have suffered from import competition via squeezed margins and reduced market share. This trend is symptomatic of the diminishing comparative advantage of the manufacturing sector, which accounts for most of industrial output.

18. The Global Competitiveness Report, 2008-2009. World Economic Forum.

Table 3
Selected Investment-Related Cost Indicators in Some ASEAN Cities (in US$)

	Bangkok	Kuala Lumpur	Jakarta	Manila	Singapore
Telephone Charge					
■ Monthly basic charge	3.00	3.99 - 7.68 6.14 - 13.82	6.13	14.92 – 31.06	6.24 – 9.36
■ Call charge per minute	0.1*	0.01	0.02	nil/0.12/0.34 **	0.01
Electricity rate					
■ Monthly basic charge	6.88	5.99	3.14	23.98+10.42	4.93
■ Rate per kWh	0.08	0.07	0.09	0.13	0.14
Water rate					
■ Monthly basic charge	nil	nil	14.18	6.14	nil
■ Rate per cu.m.	0.29 – 0.48	0.59	1.34	0.61 – 0.68	1.48

* per call
** city call/ long distance call / to cellular phone

Source: Japan External Trade Organization (JETRO)'s 18th Survey of Investment-Related Cost Comparison in Major Cities and Regions in Asia (May 2008).

3. Determinants of Private Investment in the Philippines

3.1 Description of the Data and Empirical Methodology

Quarterly series for the period 1988-2007 are used in the regression.[19] The choice of 1988 as the beginning year corresponds to the availability of merchandise imports series consistent with the BPM5-format.[20] Except for the real interest rate and the ratio of gross domestic borrowings to total revenues of the national government, all regressors (GDP, exchange rate volatility and credit to the private sector) are expressed in real terms and are in logarithmic form.

The annual *private* investment series has been converted into quarterly series using the RATS sub-routine which implements the Chow and Lin (1971) procedure.[21] The choice of indicators used in the Chow-Lin procedure is based

19. Data were obtained from the National Income Accounts compiled by the National statistics Coordination Board (NSCB) and the BSP-SPEI.

20. The BPM5 refers to the IMF's 5th edition of the BOP Manual, which reflects the many developments in international trade and finance such as increased trade in services, widespread abolition of capital controls, innovations in new financial instruments, and new approaches to external debt restructuring. Hence, the methodology for recording transactions had to be adjusted accordingly.

21. Chow, G. and A.L. Lin (1971). Best linear unbiased interpolation, distribution, and extrapolation of time series by related series. *The Review of Economics and Statistics 53, 372-75.*

on the set of regressors used in the specification of investment equation in the preliminary annual macroeconometric model of the BSP, i.e., merchandise imports, capital stock, real interest rate, real gross value added in industry and dummy for the Asian crisis.

Private investment essentially takes off from the concept of marginal efficiency of investment (MEI), which posits some form of increasing costs to investment. The optimum condition for the firm's investment decision is where the marginal efficiency of investment is equal to the rate of interest. When interest rate increases, it must be that investment declines, thus, the inverse relationship between investment and interest rate. Relating investment to capital, an increase in investment demand raises the cost of new capital goods due to short-run supply constraints. Thus, at any single period, optimal investment is given by $MEI = r$. [22] Demand conditions, represented by GDP, also affect the pace of private investment, a relationship embodied in the accelerator principle.

Given the bank-dominated nature of the Philippine financial system and the preponderance of small and medium-scale industries, availability of greater credit to the private sector extended by the banking system is expected to exert a positive effect on private investment.

Uncertainty in the business environment, proxied by the exchange rate volatility, is seen to impact negatively on private investment. Considering that the domestic bond market remains dominated by government issuances, greater domestic borrowings by the national government relative to its revenue-generating capacity implies crowding out of private investment, hence, an inverse relationship is predicted. [23]

With the inherent inertia in private investment, short-run disequilibrium is expected. Hence, error correction mechanism (ECM) framework developed by Sargan (1984) and popularised by Engle (1986) has been used to model the behavior of real private investment in the Philippines for the estimation period. The ECM framework is anchored on cointegration theory, which states that

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22. Profits from investment can be derived as revenues less cost, *i.e.*, $\pi = Y_t - (1 + r)I_t$. Total cost of investing is $(1 + r)I_t$ Solving the first order condition $(\partial\pi / \partial I)$ will yield the optimal investment decision at $f'(I) = (1 + r)$. The expression $\{f'(I) - 1\}$ is what is known as the *"marginal rate of return over cost"* or in Keynesian parlance, the *"marginal efficiency of investment (MEI)."*

23. The use of data of capital outlay by the national government could have provided a better gauge of the crowding-in effect of public investment. However, lack of quarterly series prevented this exploration.

even with two nonstationary series, Y_t and X_t, there could exist some value β such that Y_t- βX_t is I(0), i.e., they share a common trend, hence, they are cointegrated. While the relevant asymptotic theory is non-standard, one can consistently estimate β from an ordinary least squares (OLS) regression of Y_t on X_t. In this case, the estimator b is said to be super consistent for β because it converges to β at a much faster rate than conventional asymptotic. The presence of cointegrating relationship implies that there exists an error-correction model that describes the short-run dynamics consistently with the long-run relationship (Verbeek, 2004). The ECM framework essentially uses the error term in the cointegrating equation (equilibrium error) to pin down the short-run behaviour to its long-run value.

3.2 Empirical Findings

3.2.1 Long-Run Determinants of Private Investment

The determinants of long-run private investment for the period 1988-2007 generally conform to theoretical expectations (Table 5).[24] Since the adjusted sample size (79) is reasonably large,[25] the estimation method made use of heteroskedasticity-and-autocorrelation-consistent (HAC) or the Newey-West procedure to correct OLS standard errors for both autocorrelation and heteroskedasticity. The results also confirm the posited structural shift in private investment in the post-Asian crisis period, as shown by the significance of the dummy variable for the Asian financial crisis (at 5% level of significance).

Table 4
Determinants of Private Investment in the Philippines

Dependent Variable: Real Private Investment			
	Coefficient	t-statistic	Prob.
Constant	5.41	8.15	0.00
GDP less agriculture $_{t-2}$	0.24	2.98	0.00
Real credit to the private sector $_{t-2}$	0.31	6.90	0.00
Exchange rate volatility $_{t-1}$	-0.11	-3.77	0.00
Ratio of government's domestic borrowings-to-revenue $_{t-1}$	-0.07	-2.70	0.01
Real lending rate $_{t-6}$	-0.01	1.95	0.05
Dummy for the Asian crisis	-0.09	-1.97	0.05

Dummy for Asian crisis equals 1 for the period 1997Q3 to 1998 Q4 and 0 otherwise
Adjusted R^2 = 0.89
Durbin Watson = 1.24
Prob(F-statistic) = 0.00
Sample period: 1988.02 2007.04

24. Eviews 6.0 was used to estimate the regression.
25. Newey-West procedure is valid for large sample (Gujarati, 2003).

Private investment responds positively to gross domestic product.[26] An increase in real GDP indicates higher income, hence, greater capacity for undertaking private investment. It is a barometer for improved economic conditions that bode well for better profit prospects for new private sector investment.

With a bank-dominated financial system, credit intermediated by banks plays an important role in the determination of private investment. The six-quarter lag is consistent with the estimated 15-21 months of monetary policy. Given the inherent difficulty in disentangling demand and supply of loans from outstanding loans data used in OLS regression, [27] this paper loosely defines the variable credit to the private sector as an indicator of overall credit condition, hence, capturing both the demand and supply effects. It may be worth reiterating that during the estimation period, the loans-to-deposit ratio by commercial banks has been consistently declining. This may possibly indicate, on one hand, the cautious lending stance taken by banks during the period of financial consolidation after the Asian crisis. On the other hand, the surplus fund position of the households and non-financial corporate sector may also reflect weak demand for loans.

Expectedly, private investment is found to be inversely related to real exchange rate volatility[28] measured in terms of broad index of real effective exchange rate, real lending rate and ratio of gross domestic borrowings to revenues by the national government.

With the protracted period of fiscal imbalance problem and the dominance of government securities in the domestic capital market, higher domestic borrowings by the government relative to its revenue-generating capacity implies crowding out of private investment as it translates in higher cost of capital goods. Aside from signaling greater uncertainty in the business environment, greater exchange rate volatility vis-à-vis competing countries impinges on the cost competitiveness of major industries, which import most of their raw materials and capital requirements. This is particularly true for the semiconductor industry, which accounts for approximately 60 % of the country's total exports.

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26. The GDP used is net of agriculture, fisheries and forestry (AFF). Excluding AFF improves the significance of GDP as an explanatory variable. This may be ascribed to the marked decline in the share of highly labour-intensive AFF sector in the GDP alongside the dominance of the industry and services sector.

27. Worms, A (2001). *The Reaction of Bank Lending to Monetary Policy Measures in Germany.* Working Paper No. 96. European Central Bank.

28. Moving average of standard deviation of real effective exchange rate broad index (Singapore, South Korea, Taiwan, Malaysia, Thailand, Indonesia, Hong Kong).

Higher real lending rates affect the cost of borrowing and lower the present value of the future stream of income and have, therefore, a dampening effect on new investment ventures due to short-run supply constraints. However, the magnitude of real rate's impact is miniscule during the period under review as both interest and inflation rates were on a downtrend. The result of weak effect is consistent with results in traditional empirical research and general weaknesses in the effective demand for loans. One potential explanation for this pattern has been that these estimates are biased downward due to the endogeneity of interest rates, i.e., monetary authorities tend to lower interest rates in response to negative shocks to investment.

3.2.2 Short-Run Determinants of Private Investment

The regression residuals are found to be stationary (Table 6), indicating that there is cointegration between private investment and the set of regressors discussed above. As a reiteration, cointegration means that although many developments can cause permanent changes in the individual time series (they may individually exhibit random walks), there is some **long-run equilibrium relation** (static relation) tying the individual components together. In other words, there is a stable long-run relationship between them. A test for cointegration is important because it is a pre-test to avoid spurious regressions. [29]

Table 5
Stationarity Tests on the Regression Residuals[1]

	Augmented Dickey Fuller	Phillips-Perron	Elliott-Rothenberg-Stock DF-GLS	Kwiatkowski-Phillips-Schmidt-Shin [3/]
t-statistic [1/]	-6.1079	-6.0368	-3.8095	0.0751
Test critical values: [2/]				
1% level	-3.5167	-3.5167	-2.5949	0.7390
5% level	-2.8991	-2.8991	-1.9450	0.4630
10% level	-2.5869	-2.5869	-1.6140	0.3470

[1/] LM statistic for KPSS test
[2/] Asymptotic critical values for KPSS test
[3/] Null hypothesis is that the residual is stationary.

29. C.W. J. Granger (1986). Developments in the Study of Co-Integrated Economic Variables. Oxford Bulletin of Economics and Statistics, vol. 48, p 226.

30. The results are also confirmed by the Johansen cointegration test, which for brevity purposes, were no longer reported.

Even assuming that it is possible to directly estimate the long-run model, it is also of interest to consider the short-run dynamics of the variables as equilibrium (i.e. steady state) may rarely be observed. Since it has been established through the cointegration tests that a long-run relationship exists, the error correction mechanism can be adopted. The error term in the cointegrating equation can be interpreted as the equilibrium error, which will be used to pin down the short-run behavior to its long-run value.

In the short-run, private investment is closely tied to the developments in the external and labour markets. It exhibits strong responsiveness to real imports and labor productivity (Table 6). Imports of goods, as one of the identified leading economic indicators[31], are also seen to impact positively on private investment in the short-run. Its significance in the short-run is not surprising since bulk of imports are capital and semi-processed raw materials, which are largely used by the manufacturing sector (the biggest contributor to industrial output) as well as the buoyant services sector.

Table 6
Short-run Determinants of Private Investment in the Philippines

Dependent Variable: Change in Real Private Investment			
	Coefficient	t-statistic	Prob.
Constant	0.00	0.78	0.44
Change in exchange rate volatility $_{t-1}$	-0.08	-3.52	0.00
Change in real imports of goods $_{t}$	0.50	8.43	0.00
Change in the ratio of government's domestic borrowings-to-revenue $_{t-1}$	-0.02	-2.744	0.01
Change in labor productivity $_{t-4}$	0.17	3.174	0.00
Speed of adjustment to equilibrium (β)	-0.29	-3.84	0.00

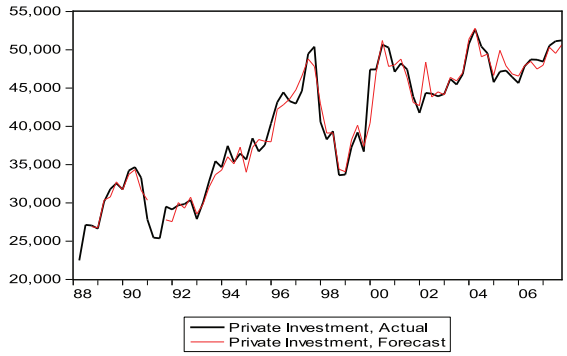
* All regressors are in logarithmic form except for the ratio of government's domestic borrowings to revenues
Adjusted R^2 = 0.72
Durbin Watson stat = 1.82
Sample period: 1988.04 2007.04

The significance of the annual change in labour productivity measured in terms of full-time equivalent employment provides an indication of the strength of the quality of labour input in influencing the behaviour of private investment. This is consistent with the structure of the economy that is characterised by the fast-growing labour-intensive services sector.

31. National Statistical Coordination Board (NSCB)'s Leading Economic Indicators (http://www.nscb.gov.ph)

Adjustment towards equilibrium is slow, indicating lower frequency of the fluctuation process. This is evidence of the sluggish recovery of private investment during the estimation period. The sustainability of the recent recovery in private investment remains to be seen.

Figure 13
Private Investment (Actual vs. Predicted)



Mean Absolute Percentage Error (MAPE) : 2.468978
Theil Inequality Coefficient : 0.017482
Bias Proportion : 0.006051
Variance Proportion : 0.000632
Covariance Proportion : 0.993317

4. Issues and Challenges

A striking feature of the current economic structure and growth performance is that it is buoyed mainly by the less capital-intensive services sector. Foreign exchange inflows are largely accounted for not by FDI nor portfolio inflows by more so by current account surplus, specifically by remittances from overseas Filipino workers. Estimates made by Bocchi (2008) show that the marginal productivity of capital of the Philippines has been falling behind its peers in the region from 1997 up until available estimate for 2005.

Although institutional factors are not *explicitly* captured in the regression due to data limitations, some broad conjectures can be made.[32] The credit condition variable (proxied by real credit to the private sector) and the fiscal condition variable (gross domestic borrowings-to-revenue ratio) capture major, albeit incomplete, facets of the country's institutional structure that characterise the investment environment in the Philippines. Major reforms in the fiscal, monetary and financial fronts have gained significant momentum in the more recent period. The sustainability of these reforms largely hinges on disciplined economic stewardship.

32. Future extension of the paper intends to look into the effects of specific institutional factors on private investment.

While it is recognisably difficult to make definitive statement because the rebound has yet to fully take off, the prospects remain one of guarded optimism. Although recent trends point to financial consolidation by both the corporate sector and the government, the greater challenge is to channel savings into productive investments to make growth more broad-based and conducive to private sector initiative.

5. Conclusion and Policy Recommendations

Clearly, the growth of private investment in the Philippines has been affected by a number of structural factors. These are the shift towards the less capital-intensive service sector and the changing composition of inflows. In addition, the weaknesses observed in private investment are closely linked to tepid manufacturing growth and weak institutions.

Access to credit and productive investments will have to be continuously enhanced to encourage greater private investments. Consistent monetary policy and pro-active financial supervision are critical in facilitating improved access to credit. The enactment of the Credit Information System Act in 2008 is seen to instill greater market discipline, reduce credit risk and boost lending, particularly to productive yet underserved sectors of the economy. Promotion of micro-finance and SME lending will have to be sustained alongside capital market development efforts. The BSP's public information campaigns on savings mobilisation and investment options by ordinary Filipinos are a step in the right direction.

Monetary and financial policies can only go as far as the efficacy of fiscal policy. The fiscal reform programme will have to be maintained to prevent future expenditure compression that impinges severely on human and capital investment. In this regard, the efficiency of tax administration and expenditure management will have to be significantly improved. A disciplined fiscal programme will help tide the economy over during times of economic difficulties. It means lesser wastage of resources as well as lower borrowing requirement, and hence, lesser debt payments. Debt reduction will free up substantial portion of government resources that would have otherwise been automatically appropriated for interest payments. Sustained reforms in fiscal management will have confidence-boosting effects as it will reduce perception of corruption and bureaucratic inefficiency, the two most critical factors that undermine competitiveness of Philippine industries.

Public provision of strategic infrastructure system in a country stuck in a low capital stock equilibrium could play a pivotal role in revving up confidence and hence, in inducing growth in private investment. The infrastructure component of the 2009 Economic Resiliency Plan (NEDA, 2009) focuses on accelerating spending for fast, off-the-shelf infrastructure which has simple engineering requirements and no right-of-way problems.

It goes without saying that sustained economic growth particularly in the skill-intensive and high-return industrial and services sectors are critical for the recovery in private investment. Institutional reform is key to ensuring that economic growth remains broad-based. Institutional system covers the entire gamut of property rights, financial market sophistication, legal framework, fiscal management, and government regulations, among others. The national government necessarily needs to undertake a proactive and supportive role in order for new businesses to develop and grow. Transaction costs related to business start-ups such as the acquisition of permits and clearances will have to be simplified to make it less cumbersome and less costly for new business initiatives. The property rights system will have to be significantly enhanced to guarantee freedom from expropriation as well as improve the collateral value of property.

As the Philippines ranks high in the quality of labour skills and managerial competence and service orientation, the educational system and skills development programme should be geared towards facilitating tighter business–academe linkages. In this manner, the educational system is made more attuned to the requirements of private businesses and the economy can better capitalise on the productivity of its most important asset, its labour force.

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Appendix

I. Unit Root Test on Variables Used

Group unit root test: Summary
Series: LOG(INVEST2), LOG(REERBROADSTDEV), LOG(GDPLESSAGRI), LOG(CREDITPRIV/PGDP), GROSSDOMBOR/REVN, LENDRATE-CPIINFL2
Date: 01/06/09 Time: 17:44
Sample: 1988:1 2007:4
Exogenous variables: Individual effects, individual linear trends
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 5
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.43020	0.0075	6	478
Breitung t-stat	-1.35457	0.0878	6	472
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-6.29237	0.0000	6	478
ADF - Fisher Chi-square	69.8488	0.0000	6	478
PP - Fisher Chi-square	83.4962	0.0000	6	478

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

II. Cointegration Test: Unit Root Test on the Residuals of Long-Run Equation

Null Hypothesis: RESID_INVESTF has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		**-6.107913**	**0.0000**
Test critical values:	1% level	-3.516676	
	5% level	-2.899115	
	10% level	-2.586866	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: RESID_INVESTF has a unit root
Exogenous: Constant
Bandwidth: 4 (Newey-West using Bartlett kernel)

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		**-6.036833**	**0.0000**
Test critical values:	1% level	-3.516676	
	5% level	-2.899115	
	10% level	-2.586866	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: RESID_INVESTF has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic based on SIC, MAXLAG=11)

		t-Statistic
Elliott-Rothenberg-Stock DF-GLS test statistic		**-3.809482**
Test critical values:	1% level	-2.594946
	5% level	-1.945024
	10% level	-1.614050

*MacKinnon (1996)

Null Hypothesis: RESID_INVESTF is stationary
Exogenous: Constant
Bandwidth: 3 (Newey-West using Bartlett kernel)

		LM-Stat.
Kwiatkowski-Phillips-Schmidt-Shin test statistic		**0.075099**
Asymptotic critical values*:	1% level	0.739000
	5% level	0.463000
	10% level	0.347000

III. Serial Correlation Test

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	6.502987	Prob. F(2,70)	0.0026
Obs*R-squared	12.37829	Prob. Chi-Square(2)	0.0021

IV. Heteroskedasticity Test

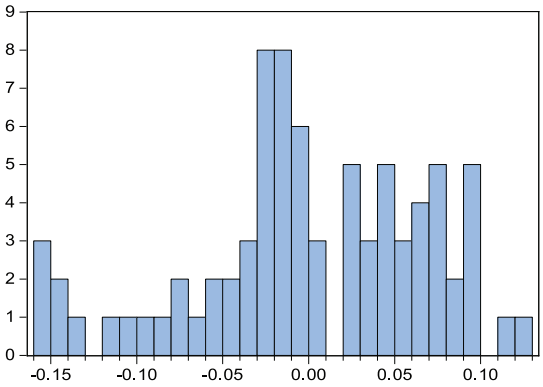
	Prob. Chi-Square
Heteroskedasticity Test: White (with cross terms)	0.3150
Heteroskedasticity Test: White (no cross terms)	0.3529
Heteroskedasticity Test: Breusch-Pagan-Godfrey	0.3458

V. Test for Redundant Variables

Redundant Variables: LOG(REERBROADSTDEV)
LOG(GDPLESSAGRI(-2)) LOG(CREDITPRIV(-2)/PGDP(-2))
DASIANCRISIS GROSSDOMBOR(-1)/REVN(-1)
LENDRATE(-6)-CPIINFL2(-6)

F-statistic	106.1329	Prob. F(6,72)	0.0000
Log likelihood ratio	180.6654	Prob. Chi-Square(6)	0.0000

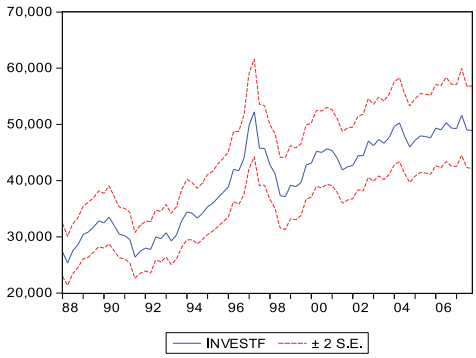
VI. Normality Test on the Residuals



Series: Residuals
Sample 1988:2 2007:4
Observations 79

Mean	-1.96e-15
Median	-0.004899
Maximum	0.124220
Minimum	-0.157423
Std. Dev.	0.068868
Skewness	-0.493504
Kurtosis	2.747665
Jarque-Bera	3.416284
Probability	0.181202

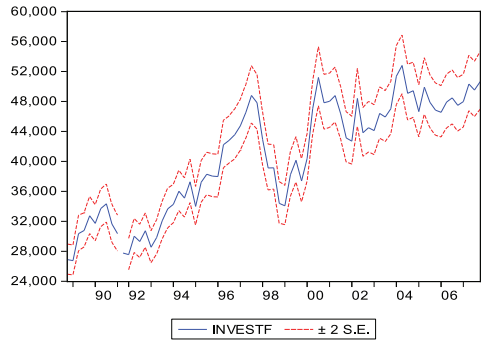
VII. In-Sample Forecasting Performance of Long-Run Equation



Forecast: INVESTF
Actual: INVEST
Forecast sample: 1988:1 2007:4
Included observations: 79

Root Mean Squared Error	2720.946
Mean Absolute Error	2148.797
Mean Abs. Percent Error	5.503539
Theil Inequality Coefficient	0.033436
Bias Proportion	0.000905
Variance Proportion	0.015583
Covariance Proportion	0.983512

VIII. In-Sample Forecasting Performance of the Short-Run Equation



Forecast: INVESTF
Actual: INVESTF
Forecast sample: 1988:1 2007:4
Adjusted sample: 1988:4 2007:4
Included observations: 75

Root Mean Squared Error	1446.683
Mean Absolute Error	997.1815
Mean Abs. Percent Error	2.468978
Theil Inequality Coefficient	0.017482
Bias Proportion	0.006051
Variance Proportion	0.000632
Covariance Proportion	0.993317

VIII. Correlogram of Residuals

Date: 01/06/09 Time: 11:52
Sample: 1988:4 2007:4
Included observations: 75

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	0.036	0.036	0.0991	0.753
		2	-0.152	-0.153	1.9229	0.382
		3	0.002	0.014	1.9232	0.589
		4	-0.052	-0.077	2.1392	0.710
		5	0.034	0.043	2.2327	0.816
		6	0.011	-0.013	2.2437	0.896
		7	0.121	0.139	3.4843	0.837
		8	-0.202	-0.232	7.0120	0.535
		9	-0.069	0.008	7.4288	0.593
		10	0.181	0.116	10.348	0.411
		11	-0.150	-0.172	12.368	0.337
		12	-0.007	0.030	12.372	0.416
		13	-0.007	-0.050	12.377	0.497
		14	-0.013	-0.000	12.394	0.575
		15	-0.010	-0.002	12.404	0.648
		16	0.164	0.178	15.025	0.523
		17	0.067	-0.042	15.476	0.561
		18	-0.113	0.045	16.765	0.539
		19	0.058	0.022	17.106	0.583
		20	-0.020	-0.063	17.148	0.643
		21	-0.215	-0.197	22.105	0.394
		22	-0.047	-0.065	22.346	0.439
		23	0.131	0.078	24.262	0.389
		24	-0.028	-0.045	24.349	0.442
		25	0.003	0.093	24.350	0.499
		26	0.102	0.031	25.575	0.487
		27	0.053	0.171	25.915	0.523
		28	0.037	0.089	26.082	0.569
		29	-0.061	-0.134	26.547	0.596
		30	-0.011	-0.038	26.561	0.646
		31	-0.069	-0.036	27.179	0.663
		32	0.090	0.019	28.267	0.656

Chapter 8

INVESTMENT IN SINGAPORE IN THE POST-CRISIS ERA: ISSUES AND CHALLENGES

by
Christian De Guzman, Liew Yin Sze and Luk Man Chi [1]

1. Introduction

Since its independence in 1965, Singapore has transformed itself from an underdeveloped backwater to a world-class trade and financial hub that also features a strong manufacturing sector. The linchpin of Singapore's industrial development has been the country's strategic emphasis on investments, particularly those sourced from multinational corporations (MNCs), as an engine of growth. With hardly any natural resources, the government recognised early on the importance of attracting foreign direct investment which would not only raise the economy's long term growth potential but also provide jobs and income to the large number of unemployed. Foreign investors also bring with them new technology, ideas, and extensive marketing and distributional networks. At the same time, the government focused on creating a stable, conducive, pro-business domestic environment by providing suitable tax incentives, weeding out corruption, and setting up an efficient infrastructure network, among others. Fractious wage-bargaining and industrial actions were discouraged in favour of tripartite negotiations involving the unions, employers and the government. By and large, the emphasis on creating and maintaining a pro-business climate in Singapore has helped to attract and retain an adequate level of investment over time, even amidst challenging economic conditions.

2. Trend of Investment in Singapore Since 1980

2.1 Key Macroeconomic Indicators

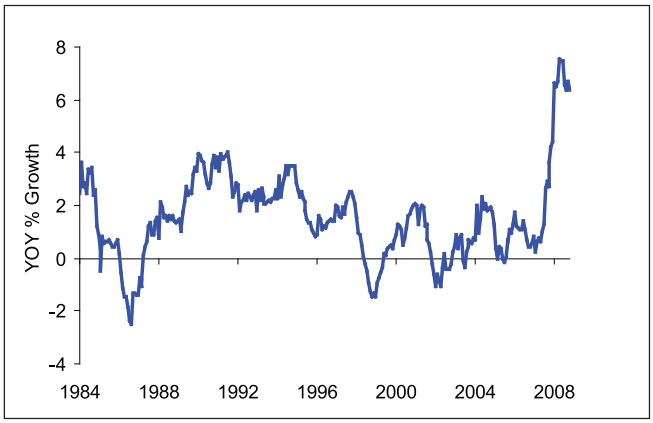
From 1980 to 1996, Singapore's nominal GDP grew from SGD25.1bn to SGD130.5bn; in real terms, GDP growth during this period averaged 8% per annum. The strong growth was punctuated by the devaluation of the Thai baht

1. The views in this paper are solely those of the authors and should not be attributed to the Monetary Authority of Singapore. The main authors of this chapter are Christian de Guzman, Liew Yin Sze, and Luk Man Chi. The authors wish to acknowledge the contributions of Cyrene Chew, Joey Chew, Ng Heng Tiong, Edward Robinson, Celine Sia, Saktiandi Supaat, and Tan Siang Meng.

in July 1997, which precipitated the Asian financial crisis. The Singapore economy slowed sharply from a growth of 8.3% in 1997 to a contraction of 1.4% in 1998. After the crisis, GDP growth picked up fairly quickly as exports rebounded strongly. From 1999 to 2007, annual real GDP growth averaged 6.1% despite downturns in the wake of the bursting of the tech bubble in 2001 as well as the outbreak of SARS in 2003.

A key feature of Singapore's economy has been a generally low level of inflation, which averaged 1.4% between 1984 and 2007 (Chart 1)[2]. This reflects the importance attached to price stability as the primary objective of Singapore's monetary policy. Since 1981, the conduct of monetary policy has been centred on the management of the exchange rate, given the highly open nature of the Singapore economy. At 430%, the ratio of trade to GDP in Singapore far exceeds that for most other countries. As such, the exchange rate has significant effects on both inflation and growth outcomes. The Singapore dollar exchange rate continues to be a nominal anchor for the economy and is the main instrument for the conduct of monetary policy (Chart 2). Insofar as the exchange rate influences relative prices, it serves as a useful tool to affect both the demand for imported consumer goods and the demand for Singapore's exports. Indeed, Singapore's track record of macroeconomic stability over the past three decades suggests that the exchange rate-centred monetary policy approach has worked fairly well.

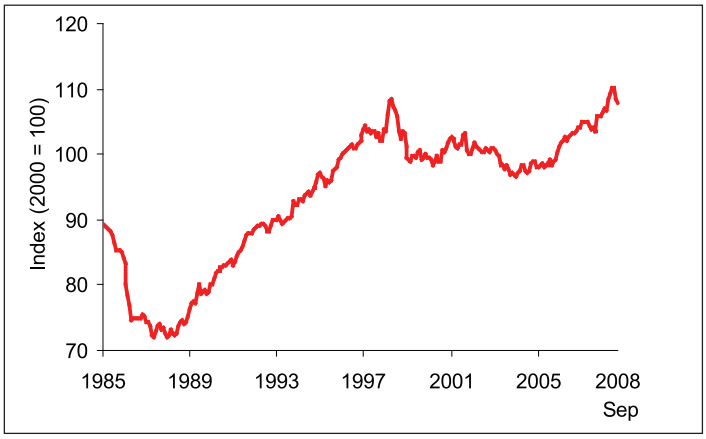
Chart 1: Consumer Price Inflation



Source: Singapore Department of Statistics

2. While CPI inflation shot up in 2008, it reflected a confluence of factors, including a spike in global oil and food prices, which have since receded. Singapore's inflation is widely expected to come off significantly in 2009.

Chart 2: SGD Nominal Effective Exchange Rate



Source: IMF

The reliance on trade renders the use of more conventional monetary policy targets, such as interest rates or money supply, less effective in influencing aggregate demand conditions (to fulfil the objective of price stability).[3] The choice of the exchange rate as the primary lever for monetary policy implies that the monetary authorities would have to give up control over domestic interest rates as well as the money supply within an environment of free capital flows (as postulated by the "open economy trilemma" or "impossible trinity"). As Singapore maintains an open capital account, domestic interest rates are largely determined by foreign interest rates and investor expectations of the future movements of the Singapore dollar.[4]

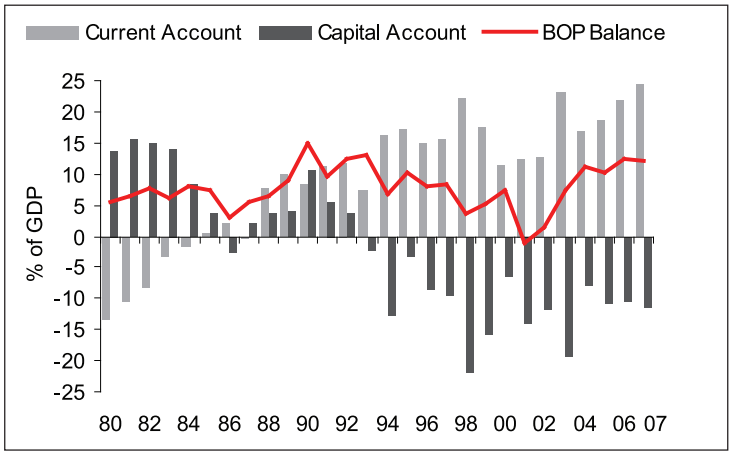
Besides low inflation, persistent balance of payments surpluses are another salient feature of Singapore's open economy (Chart 3). Prior to 1985, the surpluses arose from substantial inflows of foreign direct investment, which more than offset deficits in the current account. The current account had registered deficits up to the mid-1980s due in part to significant imports of machinery and building materials as the economy industrialised and expanded at a rapid pace. For instance, between 1981 and 1985, construction and works accounted for more than half of fixed capital formation during the peak of the investment cycle.

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3. Monetary Authority of Singapore, Staff Paper No. 37, *Managed Floating and Intermediate Exchange Rate Systems: The Singapore Experience*, December 2004.

4. Monetary Authority of Singapore, *Singapore's Exchange Rate Policy*, February 2001, p.2.

Chart 3: Balance of Payments



Source: Singapore Department of Statistics

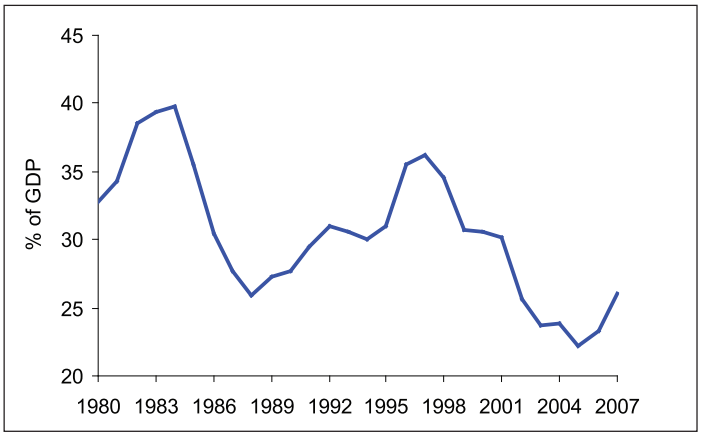
After the mid-1980s, the current account position turned into one of surpluses largely because of growing merchandise net exports. In the mid-1980s and early 1990s, the capital account also remained in surplus largely due to continued inflows of foreign direct investment. This contributed to strong balance of payments surpluses with attendant pressure on the Singapore dollar to appreciate. However, since 1993, the capital and financial account balance has been negative as a result of increased Singaporean investments abroad, although FDI continued to flow inwards. Recognising the inherent limitations to the growth of the (small) domestic economy, the government has actively sought to build an "external wing" by increasing investments in other economies. A number of significant corporate acquisitions, such as Singapore Telecommunications' takeover of Australia's Optus in 2001, contributed to the significant capital outflows during this period.

An important outcome of Singapore's persistent BOP surpluses was the accumulation of official foreign exchange reserves, which rose to USD168.8bn as of September 2008. These reserves are managed by both the Monetary Authority of Singapore (MAS) and the Government of Singapore Investment Corporation (GIC). GIC was set up in 1981 as a dedicated institution, separate from MAS, to invest in longer term assets in order to preserve and enhance Singapore's reserves. In the context of Singapore's exchange rate-centred monetary policy, the accumulation of official foreign reserves has been an important factor underpinning public confidence in the Singapore dollar.

2.2 Real Investment Expenditure

Investment expenditure, as defined by gross fixed capital formation (GFCF) in the national accounts, has historically played a key role in promoting economic growth in Singapore. As Singapore focused on building infrastructure in the wake of its independence, the proportion of GDP attributed to GFCF climbed from 18.9% in 1965 to 32.7% in 1980. In the pre-Asian crisis period from 1980 to 1997, this proportion averaged 32.4% of GDP; in the post-crisis period from 1998 to 2007, GFCF moderated somewhat to 27.1% of GDP. (Chart 4)

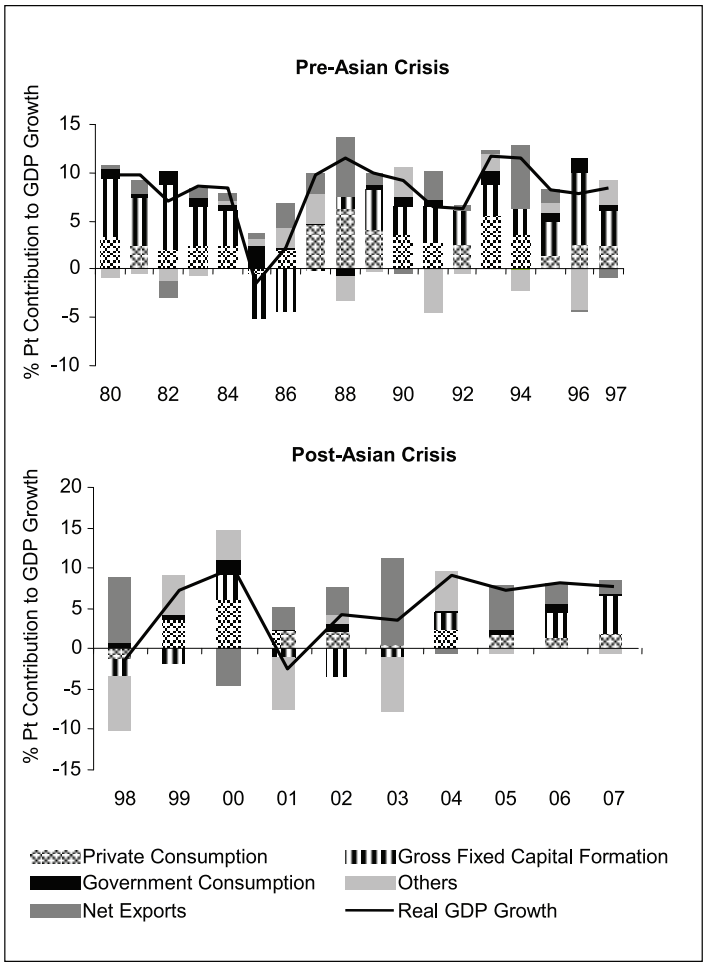
Chart 4: Gross Fixed Capital Formation



Source: Singapore Department of Statistics

GFCF posted strong positive contributions to GDP growth during the pre-crisis period with the exception of the post-recession period between 1985 and 1987. During the latter period, Singapore experienced a property glut resulting from the construction boom of the early 1980s and a sudden deceleration in demand. In contrast, the decade following the Asian financial crisis was characterized by smaller contributions from GFCF as a source of growth, although overall GDP still grew strongly, by an average of 6.1% (Chart 5). On the whole, both investment and GDP growth moderated after the Asian crisis compared to the earlier years of rapid economic development.

Chart 5: Contribution to GDP Growth



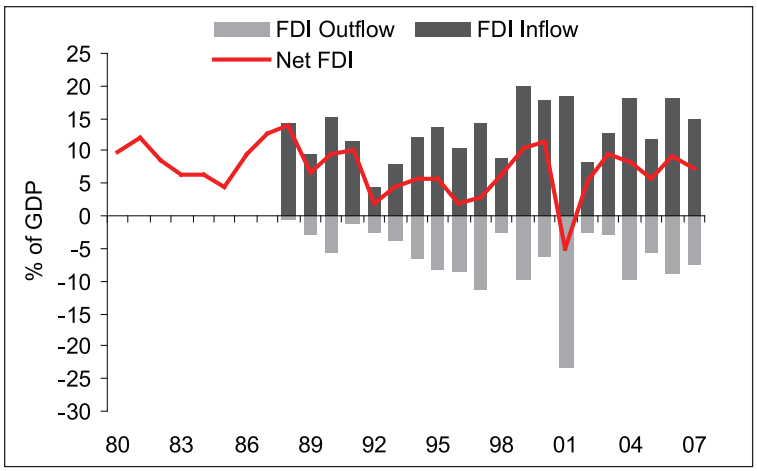
Source: Singapore Department of Statistics

Investment expenditure can be broadly divided into five categories: residential building construction, non-residential building construction, other construction & works, transport equipment, and machinery, equipment, & software. In comparing the pre- and post-crisis periods, construction & works accounted for a larger portion of GFCF before the crisis, averaging 54.4% of investment spending; after the crisis, this proportion fell to an average of 46.6%. This mirrored relatively increased spending on capital goods, as represented by machinery, equipment, & software, from an average of 31.6% of GFCF before

the crisis to 39.9% after the crisis. The pronounced increase in this category of spending reflected the emphasis on higher-value added activities, such as financial services, pharmaceutical manufacturing, and research & development.

Net foreign direct investment as measured in the balance of payments has consistently been positive from 1980 to 2007, except in 2001 (Chart 6). There has been no discernible difference between the pre- and post-crisis periods as net FDI has averaged 7.2% of GDP over the period observed. Reflecting the cumulative effect of these FDI inflows, the stock of foreign direct equity investment in Singapore has risen to SGD330bn in 2006, the latest year available. The increase in the stock of foreign direct equity investment from only SGD125bn in 1997 reflects in part the success of Singapore's investment promotion activities.

Chart 6: Foreign Direct Investment Flows

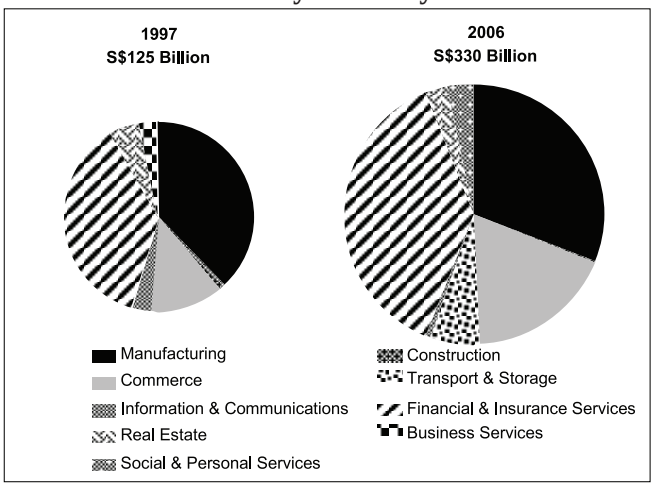


Source: Singapore Department of Statistics

2.3 Behind the FDI Numbers

A closer look at the figures underlying the stock of FDI provides some insight into the uses and sources of FDI. Manufacturing and financial services accounted for 70% of the total stock of FDI in 2006, roughly the same proportion as in 1997 (Chart 7). Within manufacturing, the stock of electronics FDI has fallen somewhat, both in terms of proportion and absolute size, declining from SGD34.1bn in 2000 to SGD32.3bn in 2006. However, the increase in the stock of pharmaceutical FDI from SGD13.8bn to SGD38.3bn over the same period has more than offset the losses from electronics manufacturing.

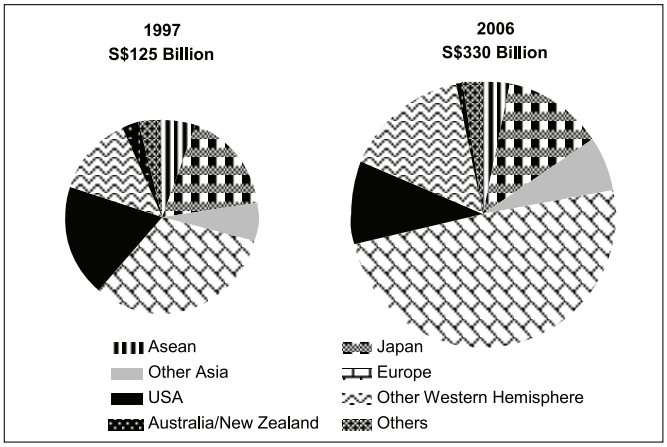
Chart 7: Stock of Foreign Direct Equity Investment by Industry Sector



Source: Singapore Department of Statistics

On the sources of FDI, the G3 economies continue to be the largest investors in Singapore (Chart 8). As of 2006, Europe accounted for the lion's share of 47% of the total stock of FDI in Singapore, up from 32% in 1997. Japan's share of total investments shrank from 17% to 12% over the same period, while the US' share fell from 19% to 10%. Some 10% of the total stock of FDI originates from other Asian countries ex-Japan.

Chart 8: Stock of Foreign Direct Equity Investment by Source Country

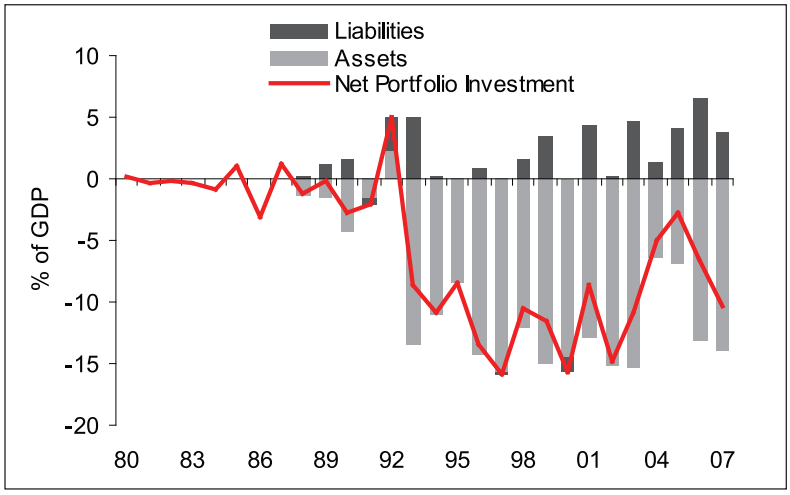


Source: Singapore Department of Statistics

2.4 Portfolio Investments

Reflecting efforts to develop a "second wing," net portfolio investment registered a net outflow of 3.4% of GDP prior to the Asian financial crisis, intensifying to an average of 9.7% of GDP after the Asian crisis (Chart 9). Although portfolio inflows continued to come into the country, net flows were negative due to a sharp increase in portfolio outflows over the past decade.

Chart 9: Portfolio Investment Flows



Source: Singapore Department of Statistics

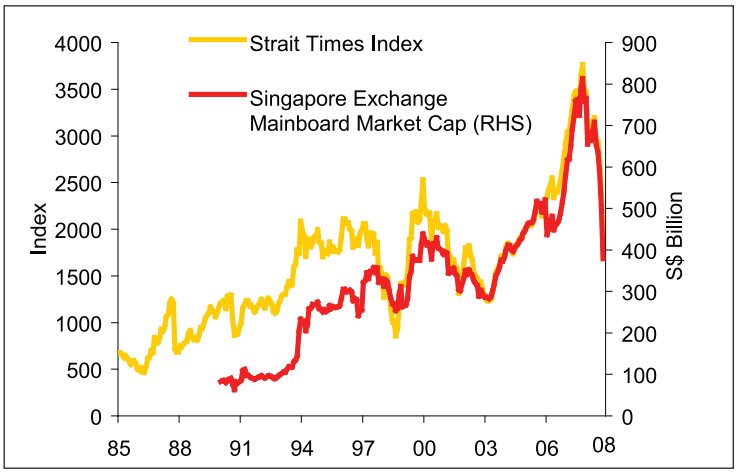
2.5 Growth of the Singapore Stock Market

From January 1985 to the onset of the Asian financial crisis in July 1997, Singapore's benchmark equity index, the Straits Times Index (STI), rose by nearly 190%, reflecting an average growth rate of about 15% per annum. (Chart 10) The market capitalisation of the Singapore Exchange (SGX) Mainboard increased seven-fold from SGD54.9bn at the end of 1987 to SGD357bn in July 1997.[5] As

5. The Singapore Exchange (SGX) divides its company listings into the SGX Mainboard and the SGX Catalist. Prior to December 2007, the Catalist was known as the SESDAQ. The Mainboard lists companies that meet certain requirements including market capitalisation, pre-tax profits, and operating track record. In contrast, the Catalist is for newer companies and there are no quantitative requirements for listing. As of August 2008, the Catalist's market capitalisation totaled SGD6.5 billion, or roughly 1% of the Mainboard.

Singapore strived to become an international financial hub, it promoted its equity markets as an excellent place to raise capital for both domestic firms and companies based abroad. The market capitalisation of foreign firms listed on the SGX Mainboard rose from SGD11.5bn in January 1990 (representing 14% of the Mainboard's total market capitalisation) to SGD149.3bn in July 1997 (42% of market capitalisation).

Chart 10: Equity Market Indicators



Source: Bloomberg and CEIC

Singapore's equity markets experienced a sharp correction during the Asian financial crisis. The STI fell by 56% from 1950 points in July 1997 to 856 points in August 1998. Over the same period, the market capitalisation of the SGX Mainboard fell by 29% from SGD357bn to SGD254bn.

Following the Asian financial crisis, the STI has recovered strongly despite economic downturns associated with the bursting of the tech-led bubble and the SARS episode of 2003. In the ten years since its August 1998 low, the STI has increased by 220% to 2740 in August 2008. (This represented a pull-back from an all-time high of 3876 reached in October 2007.) Similarly, the market capitalisation of the SGX Mainboard grew by 133% to SGD590bn over the same ten-year period. The growth in the size of Singapore's equity market post-Asian financial crisis can be attributed to strong overall economic growth, as well as the successful promotion of Singapore as a key international financial centre; this is evidenced by the increase in the number of foreign firms listed on the SGX Mainboard from 51 in August 1998 to 139 ten years later.

More recently, the stresses in global financial markets and sharp deterioration in the global economy have led to a significant sell-down of the Singapore stock market, as growth prospects waned. The STI fell to a low of 1600 on 24 October 2008 before recovering a little to 1733 as at end-Nov 2008. Reflecting the depressed sentiment, trading volumes have also declined sharply.

3. Major Policies Pertaining to Investment

3.1 Industrial Policy

The Singapore government played an important role in determining the structural features of the economy, as economic conditions evolve. In the wake of the separation from Malaysia in 1965, the government supplanted import-substitution policies in favour of export-led industrialization. MNC investment was sought for labour-intensive manufacturing in order to generate mass employment. Simultaneously, a significant share of development expenditure was allocated for investments in physical infrastructure, housing, and education. By the second half of the 1970s, the economy was growing strongly and the imperative of mass job creation gave way to the need to ease labour shortages and improve productivity. Wage and education policies were implemented to shift employment away from low-end manufacturing to higher value-added, technology-based sectors.

Amidst the recession of 1985, the government convened an Economic Committee to examine the latent erosion of Singapore's competitiveness and to identify new directions for its future growth. The focus of investment promotion shifted from a singular emphasis on manufacturing to encompass services as well. As such, financial and business services became significant contributors to growth since the late 1980s. The Economic Committee also plotted Singapore's move up the value chain in manufacturing away from labour-intensive industries, such as concrete products and cement and rubber processing. Within electronics, for example, Singapore began to focus on more capital-intensive niches such as disk drives in the late 1980s and early 1990s and semiconductors from the mid-1990s. To further bolster Singapore's competitive position, corporate taxes were cut sharply from 40% to 33% and wages were made more flexible via the introduction of variable components into remuneration packages and cutting back on seniority-based pay.

In the aftermath of the Asian crisis, various government committees and task forces were convened to examine ways for Singapore to develop new competitive advantages. These included the Economic Review Committee (ERC)

chaired by then-Deputy Prime Minister Lee Hsien Loong which recommended further initiatives to encourage technology entrepreneurship and develop the venture capital industry. More importantly, in 1999, the biomedical sciences cluster, including pharmaceutical manufacturing, was identified as a key pillar of growth. The government subsequently announced that it would set aside at least SGD2.3bn in investments, grants, and other incentives to develop Singapore into a hub for research in the biomedical sciences. During this period, the government also liberalized "software" policies, for example, those related to social, cultural, and human capital, to help make the city-state an attractive destination for foreign talents and investments.

3.2 Free Capital Mobility

As mentioned above, the exchange rate serves as the instrument of Singapore's monetary policy, with the primary objective of ensuring price stability over the medium-term. Given the inherent cross-border nature of all consumption and production transactions in the economy, it is important that the exchange rate be fully convertible so as not to obstruct the free flow of goods and services between Singapore and its trading partners. In fact, nearly all exchange controls were abolished by 1978. Foreign investors are free to repatriate their capital and profits without restrictions. Likewise, local investors can also freely invest in overseas assets or keep their savings in foreign currencies, if they so desire.

3.3 Expansion of External Links

Given Singapore's small economy and its lack of natural resources, policymakers have made the strengthening of external ties a key priority in diversifying the economy. In the wake of the Asian crisis, Singapore's economic planners sought to further enhance globalisation through the multilateral trading framework of the WTO, regional cooperation, as well as bilateral free trade agreements (FTAs) and investment agreements. The latter kind of agreement is aimed at promoting increased bilateral flows of investment by providing legal guarantees for the rights to repatriation and dispute settlement, as well as protection against expropriation or nationalization of investments. Comprehensive FTAs also incorporate elements of investment agreements in a wholesale manner. As of September 2008, Singapore has signed or completed negotiations on 15 bilateral or plurilateral FTAs.

4. Determinants of Real Investment Expenditure in Singapore

4.1 Data Sampling and Variables

In this section, we attempt to examine empirically some of the key determinants of private investment in Singapore over the past few decades. We use the following base equation for estimating private investment expenditure.

> ***Real Private Investment = f(real gross domestic product, real domestic credit to private sector, real interest rate, real effective exchange rate)***

In addition, we explored the use of possible country-specific variables that may influence private investment expenditure from both local and foreign sources. However, these additional variables must be considered in the context of comparing investment pre- and post-Asian crisis, defined as 1980 to 1997 for the former and 1998 to 2008 for the latter. Singapore-specific variables to be included in the refined model should thus illustrate differences between the two periods. As such, the use of variables representing some of Singapore's conventional strong points was removed from consideration due to their "unchanging" nature before and after the Asian crisis. These included variables related to institutional quality, educational attainment, and infrastructural development

Given the requirements listed above, the following Singapore-specific variables were examined and are described below.

- *Corporate Tax Rate*: In our estimation exercise, we used the top corporate tax rate given the Singapore government's emphasis on attracting multinational corporations. These businesses, by virtue of the size of their revenues, would be taxed at the highest corporate tax rate. In addition to reductions in the corporate tax rate, the government has also provided other incentives to attract investment, including subsidized facilities and infrastructure, 5 to 10-year tax holidays, and tax exemptions for other expenses such as expatriate compensation and capital equipment. However, these benefits were granted in a targeted fashion and were not widely available to all investors. In contrast, corporate tax rates are applied across the board and thus more applicable to our estimation of aggregate investment expenditure. Moreover, cuts in the corporate tax rate generally correspond to key thrusts in investment promotion efforts.

- *CPF Contribution Rate*: The Central Provident Fund (CPF) is a compulsory social security savings plan for working Singaporean residents. Locally-based Singaporean employees set aside 20% of their monthly paycheck for their individual accounts at the CPF, while employers presently contribute 14.5% of their pay to the fund. Over the years, the employers' contribution rate had been progressively lowered, particularly during periods of economic downturn.

- *Public Investment:* Insofar as industrial policy has targeted specific sectors, public investment has often been tailored for particular industries through infrastructure development. Previously, industrial parks were built to cater to light manufacturers and logistics firms. More recently, research and development complexes have been constructed to cater to "innovative" industries; for example, Biopolis, a "hub" of nine buildings especially designed and pre-wired for research activity in the biomedical sciences, was completed in 2006. The overall level of infrastructure development has also been a key competitive advantage: in the World Economic Forum's latest *Global Competitiveness Report*, Singapore ranks second only to Switzerland in the quality of overall infrastructure. Singapore scores top marks for the quality of its port and air transport infrastructure in particular.

- *Tobin's q*[6]*:* This variable was included as a measure of domestic sector profitability and was calculated from a simple average of a sample of the domestic construction, financial and business, and other services industries. Higher values for Tobin's q should encourage greater private investment expenditure. This relationship is most clearly demonstrated in the construction sector: slower construction activity has accounted for much of the weakness in private investment after the Asian financial crisis and is reflected in lower values for Tobin's q for that particular sector. As market values declined sharply, developers held back on new construction projects amid poor expected results.

- *ASEAN-4 real GDP:* In pursuing an export-oriented industrialization policy shortly after independence, Singapore's policymakers realised the limitations imposed by the country's small domestic market. A key pillar to this policy has been the emphasis on attracting foreign direct investment, favoring multinational corporations looking to establish a base to serve the regional

6. This is actually a proxy of Tobin's q which was constructed internally and differs from the standard definition. In this case, Tobin's q is the ratio of the market value to the replacement cost or market price of a unit of current existing stock of business fixed capital divided by the price of the domestically produced good.

market. We thus include a variable for ASEAN-4 (Indonesia, Malaysia, Philippines and Thailand) real GDP to measure the vibrancy of the region as a market for goods and services produced in Singapore.

- Finally, given the importance of FDI relative to Singapore's overall investment spending, we assume that external financing is more important than local sources of capital. Moreover, due to the focus of monetary policy on the management of the exchange rate, interest rate movements are largely determined by international money markets.[7] As such, we have included a series for the quarterly average of the 3-month US dollar LIBOR as a measure of the cost of capital. In our preliminary estimates, we have found the local real interest rate to be insignificant as expected and have thus eliminated the local real interest rate from our base equation.

4.2 Empirical Results

Real private investment expenditure has been found to respond positively to domestic real output growth, real effective exchange rate depreciation, and increases to Tobin's q.[8] The results are thus consistent with mainstream theories of investment behaviour, namely, the accelerator model and Tobin's q theory.

The accelerator principle postulates that the rate of investment is primarily determined by the rate of change of output.[9] Our estimation confirms the role of the traditional neoclassical variable of output in explaining investment behaviour. Prior to the Asian financial crisis, Singapore experienced stronger GDP growth and relatively higher levels of spending vis-à-vis the subsequent period. The lower level of investment spending from 1998 onwards corresponded with lower average GDP growth as Singapore was buffeted by the bursting of the tech bubble, September 11 and the SARS outbreak.

Private investment expenditure is also positively correlated with increases in Tobin's q. Private investment will increase when the value of an additional unit of capital exceeds the cost of acquiring that unit. In the aftermath of the

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7. In other words, the local interest rate is endogenous to the exchange rate given Singapore's open capital account.

8. Four variables were found to be significant at the 5% level, with varying lags (see Table 3 in the Appendix): the real effective exchange rate, ASEAN-4 GDP, Tobin's q, and the crisis dummy. Domestic GDP was also found to be significant at the 10% level, while the remainder of the variables examined were found to be relatively insignificant.

9. Increases in output beget further increases in output as a result of increased investment; inversely, there may be low levels of investment, or even negative net investment, when output is falling.

Asian financial crisis, the market value of firms fell heavily relative to the replacement cost of capital. As Tobin's q fell, the cost of capital rose and firms reined in their investment spending. As valuations recovered post-crisis, investment expenditures also increased in line with a rebound of Tobin's q, most markedly after 2003.

The exchange rate is found to have a negative effect on investment in the long run. An appreciation of the real exchange rate would cause Singapore's exports to cost more in foreign currency terms. The ensuing loss of export competitiveness would lead to lower profits and a scaling back of investment spending over the longer term. However, there is some empirical evidence that exchange rate appreciation may actually encourage investment expenditure in the short run, driven in particular by investments in the non-tradable sector, as assets priced in Singapore dollars gain in value in foreign currency terms. Asset prices have in fact been procyclical relative to exchange rate movements, corresponding to the construction boom following the SARS crisis of 2003. As Singapore has an open capital account, expectations of exchange rate appreciation may intensify capital inflows into Singapore dollar-denominated assets.

In the short-run, there is also some evidence that investment in Singapore responded more to the vibrancy of the regional market (ASEAN-4 GDP) than to domestic output growth. This lends support to Singapore's increasing importance as a regional hub over the course of the sample period. Also, as mentioned earlier, the small size of the domestic market may not adequately absorb the productive output resulting from the typically large investments sourced from multinational corporations.

It is interesting to note that the logged variables for the quantity (domestic credit to private sector) and price (LIBOR) of credit have proven to be insignificant. Given Singapore's growing importance as a global hub for financial intermediation, it may be unlikely that private investment expenditure has generally not required financing. This highlights the difficulties with finding suitable variables to model private investment expenditure in Singapore. Despite the high cost of labour and cost of living, Singapore continues to benefit from sustained private investment expenditure, even after the Asian financial crisis. As such, we argue that the qualities that make Singapore an attractive and profitable destination for both foreign and local investment have not significantly changed over our sample period and may not be easily quantified. These include the quality of infrastructure and institutions relative to other countries as measured by rankings such as the WEF's *Global Competitiveness Report*, for example.

5. Selected Issues and Challenges Pertaining to Investment in Singapore

5.1 Liberalisation of Services Sectors

Increasingly, efforts have been made to further liberalise the services industries. A sound and competitive service economy is a key contributing factor to Singapore's economic growth. The telecommunications services sector, for instance, plays a vital role in today's knowledge-based economy. All cross-border trade in services in fact depends on sound telecommunications infrastructure. This sector was liberalized in April 2000, which has since stimulated greater market efficiencies and increased consumer welfare. Consumers now have a greater range of service providers, a wider array of services to choose from, and significantly cheaper services. In fact, the cost of international calls in Singapore has fallen by up to 80% since liberalisation in 2000.

A sound services sector that is free from restrictions is also critical for attracting FDI. Foreign businesses would be encouraged to invest and re-invest in an environment where they are able to establish themselves as if they are a local firm in a free market. According to the final report of the ERC, regulations governing the services industry will be continually assessed in view of growing demand both domestically and regionally.[10] Liberalisation of these sectors may provide a key impetus to promote investment inflows, particularly from established players in other markets.

Of particular importance is the liberalisation of the financial sector as this was identified as a key pillar of the economy. In conjunction with the regulatory reforms in the US in the late 1990s that led to full-service financial conglomerates, financial institutions have been in search of greater scale and efficiency as they become more globalised. This has resulted in increased competition for "location-independent" financial activities. In response to this changing global landscape, the government has cultivated an environment for domestic banks to develop and strengthen their capabilities to better serve external markets. This was mapped out in a five-year liberalisation programme started in 1999 that has seen the domestic banking sector gradually opened up to foreign players. The liberalisation has complemented the development of three key niche segments of the financial sector - wealth management, business processing, and risk management - identified by the ERC's Sub-Committee on Financial Services

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10. Economic Review Committee, *New Challenges, Fresh Goals – Towards a Dynamic Global City*, February 2003, p. 155.

to be aligned with Singapore's distinctive and self-sustaining competitive advantages; these pull factors include economic and political stability, a highly skilled and largely bilingual workforce, a well-regulated financial sector and an advanced IT platform.

5.2 China, India, and Regional Integration

The emergence of new economic juggernauts like China and India present both challenges and opportunities for Singapore. The continued efforts to upgrade and restructure the Singapore economy become more important against the backdrop of fundamental changes brought about by the rapid expansion of these two Asian giants. China's continued catch-up in manufacturing expertise, combined with relatively low labour costs, underscores the need for Singapore to move up the technological ladder and promote higher value-added activities. Similarly, India could impel a similar move up the value chain for Singaporean services given India's competitive advantage in the provision of IT programming and administration, back-office processing, and other services currently provided under Singapore's "business hub" model.

In recent years, much rhetoric has been given to the "China effect," referring to the diversion of investments away from developing countries, such as those in ASEAN, towards China. Given Singapore's level of infrastructural and human development, as well as other structural features such as the relatively higher cost of labour, there may be opportunities to utilise Singapore's strengths to leverage on the growth of China and India; rather than seeing these large economies as a threat.

In the same vein, Singapore would be able to tap into existing intraregional linkages to promote inward investment flows. These linkages include its network of FTAs, as well as initiatives aimed at realising an integrated ASEAN Economic Community (AEC) by 2015. As part of the latter, the ten ASEAN countries have agreed on the ASEAN Comprehensive Investment Agreement (ACIA), which encompasses the liberalisation, facilitation, protection, and promotion of investments. Singapore's economic planners hope to position Singapore as an integrated manufacturing centre and services hub for the region.

5.3 Diversification and Increased R&D Investments

Important measures have been introduced in recent years to continue to diversify the economy and enhance its resilience to external shocks. For example, as a consequence of Singapore's drive to develop a biomedical sciences industry,

particularly the manufacturing of pharmaceutical drugs and medical equipment, pharmaceutical's share of manufacturing value-added in Singapore has increased from 7.7% in 2000 to 22% in 2007.

The challenge remains to seek out further new sources of investments which would contribute to both economic diversification as well as long term GDP growth. In recent years, there has been greater emphasis on services-based and R&D investments, as opposed to "hardware" manufacturing investments.

In the services sector, a number of recent initiatives include the promotion of leisure, medical and IT-related services. The government hopes to capitalize on Singapore's status as a transportation, business and financial hub to attract further high-margin tourist receipts. In 2005, the government announced its decision to build two integrated resorts (IRs) by 2010 to augment Singapore's leisure and entertainment options, including the country's first two casinos, and to provide thousands of additional job opportunities. In 2007, Singapore won the right to host a Formula One race from 2008 onwards; in addition, it also won the right to host the first Youth Olympic Games in 2010. These premier sporting events garner worldwide attention and may spur new investments, particularly in the construction and hospitality sectors. The government also sees medical tourism as a promising sector of growth; it hopes to attract over 1 million international foreign patients a year by 2012, about three times the current number. Measures have also been taken to promote the development of the creative digital media industry such as interactive games and digital animation.

Research and development (R&D) has been identified as being at the crux of Singapore's long-term economic competitiveness. The government has placed greater emphasis on this sector in recent years in line with the framework provided for by its Strategic Direction for Science and Technology Policy (2006-10), or S&T Plan 2010. Under this plan, R&D funds are directed towards the support of existing industries, such as pharmaceutical manufacturing, and more importantly, scientific breakthroughs with significant economic potential. New areas identified include environmental and water technologies, as well as medical technology. As a consequence of this focus on R&D, gross expenditure on R&D has risen from barely 0.5% of GDP in the early 1980s to 0.85% in 1990 to 2.61% in 2007; under the S&T Plan, such expenditure is expected to top 3% of GDP by 2010.

6. Conclusion and Some Policy Recommendations

As a consequence of a sustained period of careful economic planning and prudent management, Singapore features several characteristics desirable to both foreign and local investors. High levels of institutional quality, human capital, and infrastructure, as well as deep and robust capital markets and fully convertible current and capital accounts, have reinforced Singapore's competitiveness in the global market for investments. This is reflected in Singapore's place atop the World Bank's Ease of Doing Business rankings for 2008 and 2009. Singapore has thus been successful in attracting FDI, as well as promoting locally-sourced investments before and after the Asian financial crisis; insofar as these funds have been used to finance activities related to fixed capital formation, this success has resulted in consistently positive contributions to GDP over our sample period.

However, as described in the previous section, there are key challenges facing the prevailing economic model and we have come up with the following recommendations to help sustain the level of fixed capital formation in the Singapore economy. These recommendations stem from our analysis of the empirical estimation of the determinants of investment that was detailed in Section 4.

- *Pursue pro-growth policies*: Given the correlation between GDP growth and real private investment, it is important for the government to continue to pursue pro-growth policies. The continued emphasis of monetary policy on balancing growth and inflationary pressures should help ensure a stable macroeconomic environment, which would tend to be supportive of long term growth and investments.

- *Preserve the value of the Singapore dollar*: Maintaining, as well as increasing, the purchasing power of the local currency may provide an incentive for foreign investment because of valuation effects vis-à-vis the source country. Moreover, a strong or neutral dollar policy has historically corresponded to lower interest rates given the open capital account, thus providing a stimulus to locally-financed investments.

- *Enhance local capital markets*: As Singapore developed into a high-income country, its workforce has built up a large reservoir of savings and wealth that could be used for more productive purposes. In addition, the cultivation of Singapore as a hub for financial services means that an increasingly large volume of global funds are intermediated in the city-state. Locally

domiciled firms, as well as foreign firms, should continue to leverage the local capital markets to tap these funds and provide an impetus for related institutions, such as SGX, to strive for greater scale and efficiency.

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Appendix

Sources and Methodology

Data has been primarily obtained from the following sources: CEIC, Datastream, the IMF's World Economic Outlook database, and the Monetary Authority of Singapore's internal database. Quarterly data has been deseasonalized where applicable and covers the period from Q4 1983 to Q1 2008.

Appropriate deflators were applied to most real variables to change each of their respective base years to 1980. All variables were converted to log form except for Tobin's q. A dummy crisis variable was also included to take into account of the intercept difference during the financial crisis; the crisis variable was defined as 1 for 1998Q1 to 1999Q1 (5 quarters) and 0 for the rest of the sample.

Each of the variables was first checked for multicollinearity using simple correlation coefficients. Table 1 in the Appendix shows that the correlation coefficients between a number of these variables are high, possibly indicating multicollinearity which may then lead to larger variances and standard errors. However, we have retained some of these variables in order to conform to the study's base model; we kept the present set of country-specific variables in order to minimize omitted variable bias for the variances of the estimated coefficients in the equation.

Table 1. Correlation Matrix between Variables

	ASEAN-4 GDP	DCTPS	GDP	Private GFCF	Public GFCF	LIBOR	REER	Tobin's q
ASEAN-4 GDP	1.00	0.98	0.99	0.94	0.52	0.32	0.09	0.51
DCTPS	0.98	1.00	0.99	0.95	0.64	0.39	0.16	0.54
GDP	0.99	0.99	1.00	0.94	0.55	0.32	0.07	0.48
Private GFCF	0.94	0.95	0.94	1.00	0.56	0.38	0.35	0.67

They were then tested for unit roots using the augmented Dickey-Fuller test. For all variables, the null hypothesis that the specific variable contained a unit root could not be rejected at the 5% significance level.

Subsequently, the Johansen procedure was applied to determine the number of cointegrating vectors present with the crisis dummy as an exogenous variable. The sample was found to be cointegrated at the 5% level with one cointegrating vector.

Once cointegration had been established, a vector error correction model was applied to the data in order to encapsulate the inherent inertia in private investment expenditure. A lag of four terms was included and resulted in the following long run equation:

*log(private GFCF) = -2.9 - 0.66*log(REER) + 1.18* log(GDP) + 0.3* Tobin's q*

Table 2
Estimates of the Long-run Coefficients,
Q1 1985 – Q1 2008

Dependent Variable : $\log(\text{Private GFCF})_t$			
Variable	**Coeff**	**Std Err**	**t-stat**
$\log(\text{REER})_t$	-0.66	0.24	-2.80
$\log(\text{GDP})_t$	1.18	0.03	11.88
Tobin Q_t	0.30	0.24	4.88

To capture the short run dynamics of investment expenditure, the long run equation was subsequently embedded within an error correction model using the Ordinary Least Squares (OLS) estimation method.. Explanatory variables were lagged by at least a quarter to avoid the endogeneity problem. Singapore's GDP and ASEAN-4 GDP were also assigned different lags to minimize the consequences from potential multicollinearity issues.

Table 3
Results of the Error Correction Model,
Q1 1985 – Q1 2008

Dependent Variable : $\Delta\text{Private GFCF}_t$				
Variable	**Coeff**	**Std Err**	**t-stat**	p-**value**
Error correction term	-0.20	0.06	-3.37	0.00
$\Delta\log(\text{REER})_{t-4}$	0.61	0.24	2.51	0.01
$\Delta\log(\text{GDP})_{t-2}$	0.61	0.24	2.56	0.01
$\Delta\log(\text{ASEAN-4 GDP})_{t-4}$	1.25	0.31	3.98	0.00
Diagnostics/Fit of Model				
R-squared	0.37			
Adjusted R-squared	0.33			
Std Err	0.036			
Durbin-Watson stat	1.99			

Chapter 9

TRENDS AND DETERMINANTS OF PRIVATE INVESTMENT IN SRI LANKA

K.M.M.Siriwardana[1]

1. Introduction

Adequate levels of investment are imperative to achieve and sustain economic growth. Private investment, in particular, contributes directly to the country's economic growth and development while enabling it to adopt new technology, expand the economy's production capacity, create employment opportunities and improve the living conditions of its citizens. It also largely determines the rate at which physical capital is accumulated.

Sri Lanka has taken various measures over the years to enhance private investment as an influential tool to promote economic activities and thereby increase economic growth. Private investment, including foreign direct investment (FDI), has responded positively over the years in varying degrees. Meanwhile, public investment has also taken place particularly to improve the infrastructure of the country. Despite the substantial openness since the inception of open-economic policies pursued since 1977, the Sri Lankan economy was able to withstand the fallout of the East Asian financial crisis in late 1990s[2]. Investment did not show any marked deterioration owing to the relatively lower impact of the crisis on the economy. However, the factors that affect investments appear to have changed over the years with the gradual transformation of the economy from a predominantly agricultural economy towards a service-dominated one.

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1. Deputy Director, Economic Research Department, Central Bank of Sri Lanka. The views expressed in this paper are those of the author and are not those of the Central Bank of Sri Lanka. The author wishes to thank Dr. P.N. Weerasinghe, Chief Economist and Director of Economic Research, Central Bank of Sri Lanka, Mr. K.D.Ranasinghe and Mrs. S.Gunaratne, Additional Directors of the Economic Research Department of the Central Bank of Sri Lanka for their valuable comments and suggestions. The author also wishes to thank the research staff of The SEACEN Centre, namely, Dr. John Junggun Oh, Dr. Vincent Lim and Dr. Min B. Shrestha for their helpful comments at the research workshops.

2. The maintenance of some capital controls, the low exposure to foreign short-term debt, enhanced surveillance of financial market activity and a rise in the short-term interest rates towards the end of 1997 helped Sri Lanka to maintain a reasonable degree of stability in the midst of a volatile and uncertain external environment during the East Asian financial crisis.

Sri Lanka has been receiving a considerable amount of FDI complementing the investment drive of the country with domestic private investment also playing a catalytic role. In the effort of improving investment, it is important to have a broader understanding of the behaviour and underlying factors that affect private investment for the purpose of facilitating future policy formulation and decision making.

This paper aims to identify the trends of private investment in Sri Lanka since 1978, its determinants and challenges with the possible policy options towards further enhancing private investment. Following this introduction, in Section 2, the trends in the major macroeconomic variables and investment flows in Sri Lanka are presented. In Section 3, the major policies related to FDI and domestic investment are highlighted. Sections 4 and 5 discusses the determinants of private investment in Sri Lanka, and identifies the issues and challenges regarding private investment, respectively. Finally, Section 6 concludes the study with some policy recommendations to promote private investment.

2. Trends of Key Economic Variables and Investment

2.1 Key Macroeconomic Indicators

Sri Lanka maintained an average economic growth rate of 4.4% during the post independence period (since 1948). During 1985-1997, the annual growth rate averaged at 4.5% (Table 1) and since 1998, it averaged at 5%. In particular, the economy grew at a moderate rate of 4.7% in 1998 compared to 6.3% recorded in 1997, in comparison to many Asian countries which recorded slower or negative growth rates during the same period.

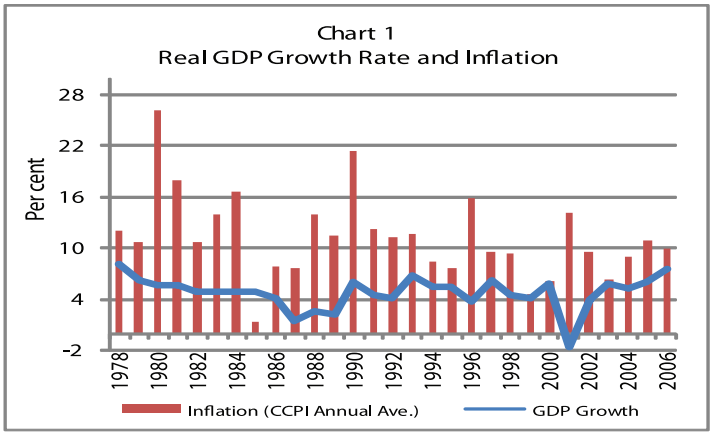


Table 1: Key Economic Indicators

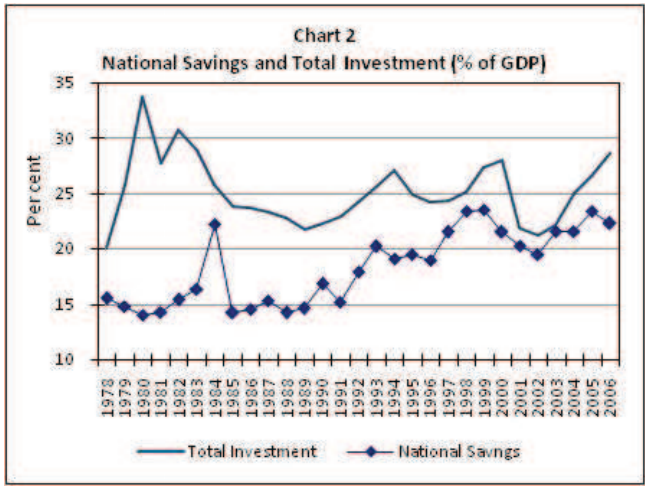
Item	Unit	1985-1997	1998-2007	1985-2007	1985	1997	1998	2000	2005	2006	2007
GDP Growth	%	4.5	5.0	4.7	5.0	6.3	4.7	6.0	6.2	7.7	6.8
Inflation (CCPI)	Annual Ave.	10.9	9.6	10.3	1.5	9.6	9.4	6.2	11.0	10.0	15.8
National Savings	% of GDP	17.1	22.0	19.2	14.2	21.5	23.4	21.5	23.4	22.3	23.3
Total Investment	% of GDP	24.0	25.4	24.6	23.8	24.4	25.1	28.1	26.8	28.0	27.9
Savings - Investment Gap	% of GDP	-6.9	-3.3	-5.4	-9.6	-2.9	-1.7	-6.6	-3.4	-5.7	-4.6
Overall Budget Balance	% of GDP	-10.6	-8.6	-9.8	-11.7	-7.9	-9.2	-9.9	-8.4	-8.0	-7.7
Current Account Balance	% of GDP	-5.5	-3.0	-4.4	-7.0	-2.6	-1.4	-6.4	-2.7	-5.3	-4.2
		1985	**1990**	**1995**	**1996**	**1997**	**1998**	**2000**	**2005**	**2006**	**2007**
Exchange Rate (Rs. Per US$)	Annual Ave.	27.16	40.06	51.25	55.27	58.99	64.59	75.78	100.50	103.96	110.62
Exchange Rate (Rs. Per US$)	End Year	27.41	40.24	54.05	56.71	61.29	67.78	80.06	102.12	107.71	108.72
Interest Rate (3M Tbill Rate)	End Year	11.50	17.41	19.26	17.45	9.97	12.01	17.77	10.10	12.76	21.30
CBSL Repo Rate	%	11.30	15.50	16.50	12.75	11.00	11.25	17.00	8.75	10.00	10.50
CBSL Reverse Repo Rate	%	11.50	20.50	16.78	15.93	11.67	15.00	20.00	10.25	11.50	12.00
All Share Price Index	Index	122.0	384.4	663.7	603.0	702.2	597.3	447.6	1,922.2	2,722.4	2,541.0
Milanka Price Index	Index	158.9	680.3	990.5	897.7	1,068.0	923.0	698.5	2,451.1	3,711.8	3,291.9

Source: Central Bank of Sri Lanka (CBSL).

However, in 2001, Sri Lanka recorded a negative growth of 1.5% due to exceptional conditions, including security concerns and the unsettled political environment in the domestic economy, particularly during the latter part of the year, coupled with adverse conditions in the external environment stemming from the September 11 incident in the United States and the subsequent slowdown of the global economy. Since then, the economic growth has recovered gradually and recorded growths of more than 6% during the last four consecutive years, a relatively higher growth compared to the historical average. This reflects the considerable resilience of the Sri Lankan economy in reaction to a series of domestic and external shocks, including the Tsunami disaster, and higher international oil and commodity prices. The economy diversified over the years and the contribution from agriculture has declined with the growing importance of the services sector[3]. The services sector is now the key driving factor of the economy largely as a result of the economic liberalisation measures and the emergence of new growth areas, such as port services, financial services, information technology and telecommunications. Meanwhile, Sri Lanka's inflation (annual average) was relatively high at an average rate of 10-11% during the period 1985-2007. Inflation exceeded this average rate in the recent years reflecting the impact of a number of factors including high international oil and commodity prices and domestic supply-side constraints.

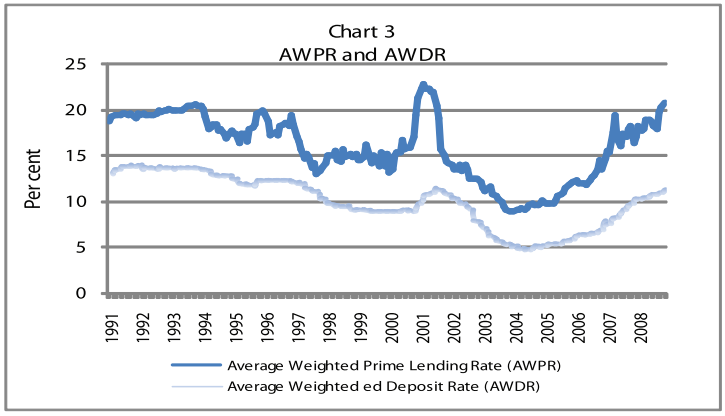
3. The services sector in the Sri Lankan economy contributes the largest share of the GDP of around 60%. The services sector has expanded over the years, fueled primarily by growth in telecommunications, transport, trading and financial services. The industry sector accounts for 28% of the GDP, with manufacturing as the largest industrial subsector (18% of GDP) and followed by the construction sector (6% of GDP). Meanwhile, the agriculture sector has gradually declined in relative importance in the Sri Lankan economy. Although it employs 31% of the working population, it accounts for only about 12% of the GDP.

Domestic savings was on average 14.1% of the GDP during the 1985-1997 period and increased gradually to 17.1% in the 1998-2007 period. National savings also averaged 17.1% of the GDP during the period 1985-97 and increased to an average of 22% during the subsequent period. Total investments averaged 24.6% of the GDP during 1985-2007. Consequently, the savings-investment gap, which on average was 6.9% of the GDP prior to 1997, lowered substantially to 3.3% during the subsequent decade. The lower level of savings was mainly due to the government dis-savings, as the government's revenue was not sufficient to meet the entire recurrent expenditure of the government.

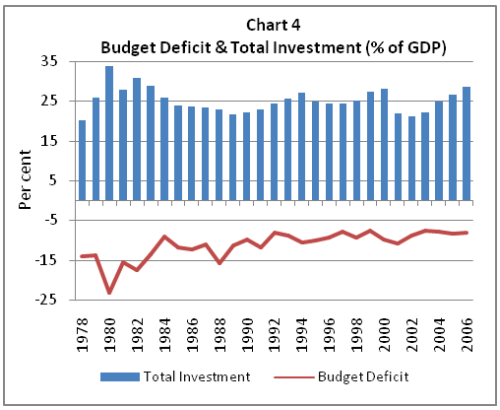


The Average Weighted Deposit Rate (AWDR), which is the weighted average of the interest rates on all outstanding interest deposits of commercial banks, declined gradually until end 1997 and remained relatively stable until 2000. A significant increase was seen in the average weighted prime lending rate (AWPR), particularly since the latter part of 2000, following the rising trend in the market interest rates. The increase in market interest rates during this period was mainly driven by higher public sector borrowings, decline in the rupee liquidity as a result of a significant deficit in the balance of payments and tightening of the monetary policy by the Central Bank of Sri Lanka (CBSL) with a view to containing the pressure on exchange rate. However, the AWPR declined from mid 2001 following the downward movement of market interest rates with the greater stability in the domestic foreign exchange and money markets, and reduced inflationary pressures. It started to increase again from early 2005, reflecting the general trend in the market interest rates, which experienced a rising trend as a result of the tight monetary policy measures implemented by

the CBSL in the wake of rising inflation and inflation expectations, and higher public sector credit demand. The Average Weighted Prime Lending Rate (AWPR), which is the average weighted lending rate charged by commercial banks on loans to their most creditworthy (prime) customers, also showed a similar trend.



The overall budget deficit increased significantly during the early 1980s, induced by the high public investment expenditure incurred by the government in infrastructure development projects. The gradual completion of those projects by late 1980s resulted in a decline in the budget deficit. The subsequent high budget deficit of about 9% of GDP during 1990s was mainly a result of the increased recurrent expenditure mainly as a result of high defense expenditure and expenditure on subsidies and transfers. The deficit during 2000s also averaged at 8.5%. However, it was mainly reflected in the increased capital expenditure, particularly during the more recent years. Accordingly, a considerable change in the structure of the expenditure budget was seen since 2005 where the total capital expenditure to GDP ratio was maintained at around 6% compared to the relatively lower level experienced in the 1990s.



Even though the external current account recorded an average deficit of 5.5% of the GDP during period 1985–1997, it has gradually declined since then and averaged to about 3%. On average, however, the current account deficit hovered around 4.4% of the GDP during this entire period. The relatively high current account deficit in the recent years (4.2% of the GDP in 2007) was mainly attributed to the high international oil and commodity prices. However, higher private remittances from Sri Lankans working abroad helped ease the country's Balance of Payments position, along with substantial Tsunami related fund inflows during the period 2005-2006.

The Sri Lankan rupee has been depreciating, on average, by around 5% against the US dollar. The rupee recorded a very high depreciation of 17.4% in 1989. After this peak, it depreciated by 14.1% in early 2001, the year in which Sri Lanka moved to a freely floating exchange rate regime from the managed float system hitherto followed. Since then, the exchange rate has been relatively less volatile. However, with the intensification of global financial crisis since September 2008, the exchange rate came under heavy pressure to depreciate, particularly during the latter part of 2008.

As for the performance of the Colombo Stock Exchange (CSE), the two price indices, which measure the market developments, the All Share Price Index and Sensitive Price Index/Milanka Price Index, indicate a strong performance particularly since 1990, except during 1995- 2000 period where the two indices declined gradually. The better performance was mainly due to the higher economic growth and the resultant higher corporate sector profitability, increased activities of domestic retail investors in the market and the strategic buying by the foreign investors in certain years.

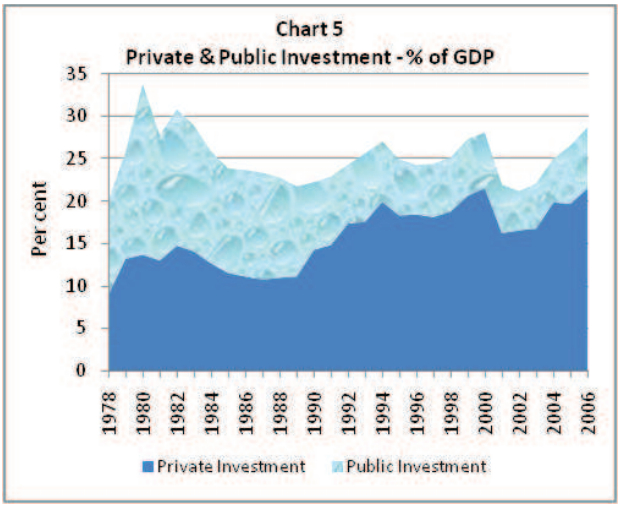
2.2 Trends in Total Investment

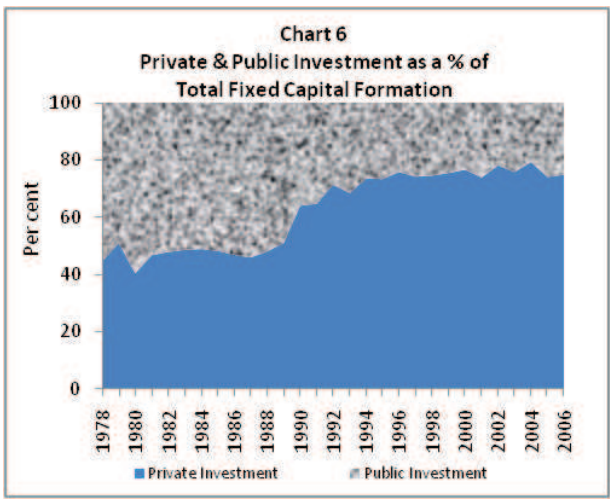
Over the last 30 years, the total investment (Gross Domestic Capital Formation) in Sri Lanka was characterised by considerable swings. A significant increase was seen in total investments in early 1980s supported by the increase in public investment, which included the implementation of a number of infrastructure development projects soon after the liberalisation of the economy in 1977[4]. During the first four years of liberalisation, the total investments averaged at 27% of the GDP with the highest investment ratio of 33.8% in 1980[5]. This

4. In this paper, public investment refers to investment by the government, government institutions and public corporations.

5. The high increase was due to the implementation of three lead projects, viz., the Accelerated Mahaweli Development Programme, Export Processing Zones and the Housing and Urban Development Programme introduced in 1978.

was supported by the higher FDI inflows during this period[6]. With the completion of the lead projects, the total investment declined since 1982. The decline was prominent since 1983 mainly as a result of the escalation of the internal conflict and the unsettled political situation during which the economic activities were severely affected. This resulted in the decline in total investment from 23.8% of the GDP in 1985 to 21.7% in 1989.

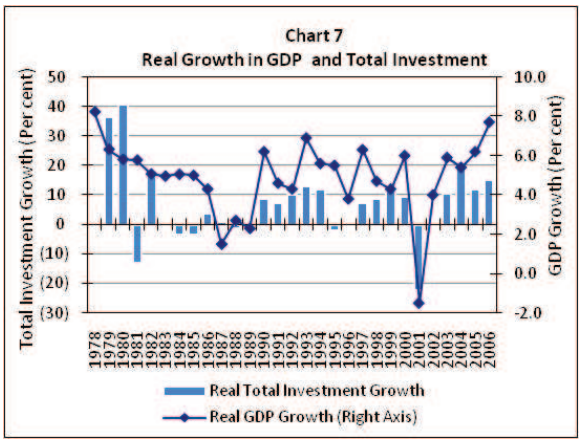




6. Given the relatively lower level of domestic savings, the savings-investment gap was largely financed through higher foreign financing mainly through foreign concessional loans and grants.

A gradual reversal was experienced in the declining trend of total investment since early 1990s with the improvements in the political situation supported by structural reforms, which helped rebuild the confidence of the private sector. The increase in total investment was mainly supported by private investment, which was increased gradually and accounted for 76% of the total investment in 2000 compared to 44% in 1978 and total investment reached 28% of the GDP in 2000. Meanwhile, no significant decline was experienced in investment during the Asian Financial crisis period.

However, adverse events took place in the domestic and international fronts in 2001, the year in which the economy recorded a negative growth, severely affecting the level of investment in Sri Lanka, particularly the private sector investment. This resulted in a significant decline in total investment to 21.9% of the GDP, a sudden drop of about 6% of GDP within just one year. However, with the improvements in the economic environment and the restoration of political stability, investment rebounded gradually and reached 28.7% of the GDP by 2006, supported by increases in both public and private investments.



2.3 Foreign Direct Investment

FDI inflows to Sri Lanka indicate a gradual increase as a result of investment favourable policies adopted by successive governments. The promotion of export-oriented FDI in manufacturing has been on the national economic policy agenda since the mid-1960s. The favorable investment climate created for private investment after the liberalisation policies adopted since 1977 and the increased openness of the economy provided a new boost to FDI inflows, particularly in the early 1980s. FDI played an important role in developing many industries particularly the garments industry. The FDI also brought in a number of positive

benefits including technology, new management practices, etc. into the country, which subsequently spilled over to the domestic industries as well. The annual FDI was relatively low before 1990s. Nevertheless, the privatisation programme, implemented in 1990s under the IMF-supported structural adjustment programmes, had a positive impact in enhancing FDI inflows. The annual value of FDI to Sri Lanka increased since the beginning of 1990s when compared to 1980s.

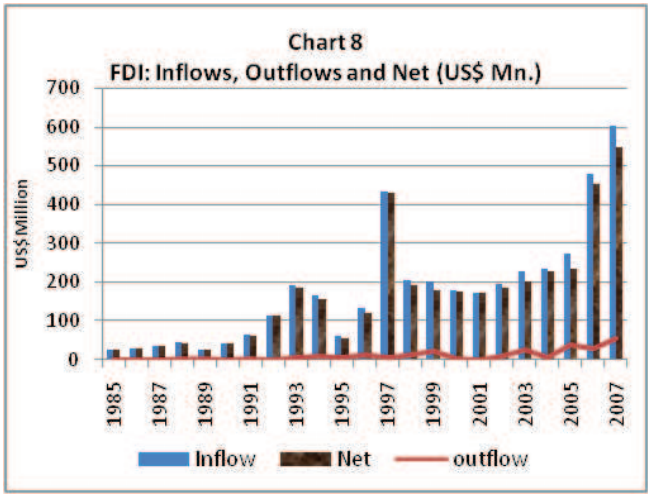
Table 2: Foreign Direct Investment: 1985-2007 (US$ Million)

Item	1985-1997[a/]	1998-2007[a/]	1985-2007[a/]	2005	2006	2007[(b)]
Inflows	105.4	277.3	180.1	272.0	480.0	603.4
Outfolws	4.2	20.5	11.3	38.0	29.0	55.0
Net	**101.2**	**256.8**	**168.9**	**234.0**	**451.0**	**548.4**

[a/] Period average.

[b/] Excluding foreign loans of BOI companies.

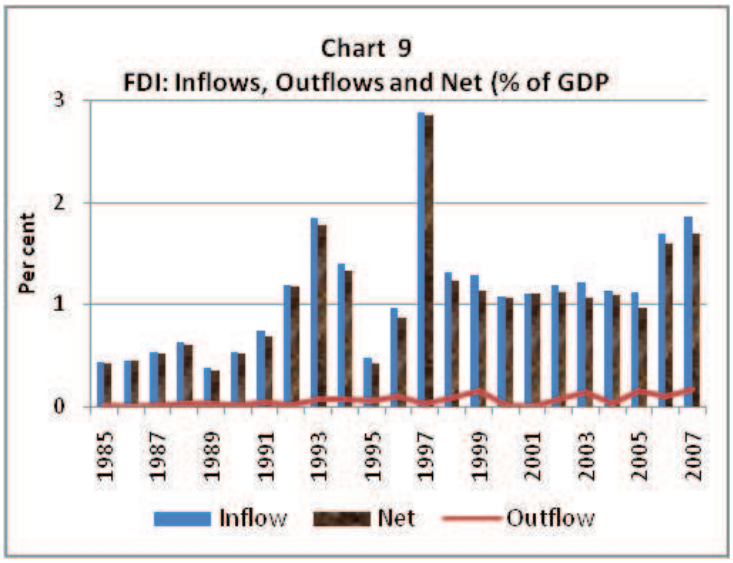
Sources: Board of Investment (BOI)
Central Bank of Sri Lanka



The FDI increased considerably in 1997 owing to higher receipt of foreign privatisation proceeds[7]. Sri Lanka was able to attract relatively higher amount of FDI (US$193 million) in 1998 as well despite the Asian financial crisis. Since then, this trend continued until 2001 where there was a slowdown in FDI inflows due to the set-back in economic activities. However, with the increased stability in both political and economic fronts, FDI rebounded and continued thereafter. In the more recent years, FDI to Sri Lanka has increased considerably reaching a record level of US$603 million in 2007 (excluding loans obtained by BOI

7. The sale of 35% of Sri Lanka Telecom Limited to Nippon Telegraph and Telephone Corporation of Japan for US$225 million was among the major privatisation deals took place in 1997.

companies). Meanwhile, the annual outflow of FDI during the period 1985-2007 averaged at US$ 11.3 million. The restrictions on capital transactions could be cited as a major reason for lower FDI outflows of the country. However, in the recent years, investment by local companies in overseas is encouraged by the government on a case-by -case basis.



2.4 Trends in Private Investment

Private investment accounts for about 80% of the total investment in Sri Lanka. Private investment was predominantly in the construction sector, which accounted for 37% of the total fixed capital formation in 1985 and subsequently increased to 52% by 2006. Domestic private investment in plant and machinery has remained almost at around 19% of the total. Meanwhile, the real private investment increased in many years, with the exception of the year 2001 which recorded a notable decline[8].

8. Real private investment has been arrived at deflating the nominal private investment by GDP deflator (1978=100). Real public investment has also been obtained by using the same deflator.

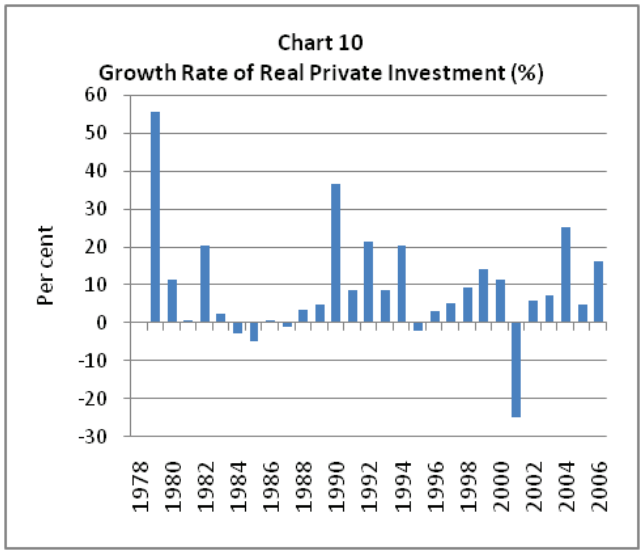


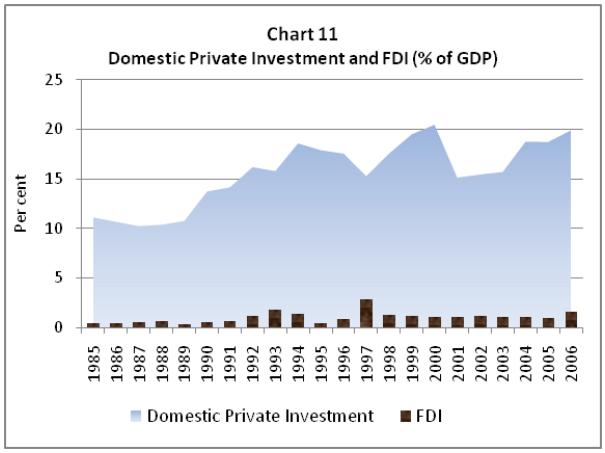
Table 3: Gross Domestic Capital Formation (% of GDP)[1/]

Item	1970	1980	1985	1990	1997	1998	1999	2000	2001	2005	2006
A. Gross Domestic Fixed Capital Formation	**17.3**	**31.3**	**23.7**	**22.3**	**24.4**	**25.1**	**27.3**	**28.0**	**22.0**	**26.5**	**28.7**
1. Private Sector and Public Corporations	13.1	24.3	18.9	18.1	21.0	21.8	24.1	24.8	19.0	22.3	24.8
1.1 Planting,replanting and land development	0.7	0.4	0.4	0.4	0.1	…	…	…	…	…	…
1.2 Building and other construction	7.3	9.4	8.8	9.3	11.2	11.4	11.5	11.2	11.5	13.2	14.9
1.3 Plant and machinery	2.4	5.8	5.0	4.0	6.1	6.0	5.4	6.2	5.1	4.9	5.3
1.5 Transport equipment	1.8	6.8	2.3	1.7	2.9	3.4	6.3	6.5	1.7	2.8	2.8
1.5 Other capital goods	1.0	1.8	2.3	2.7	0.8	0.9	0.8	0.9	0.7	1.4	1.8
2. Government and Public Enterprises	4.2	7.1	4.8	4.2	3.4	3.3	3.2	3.3	3.0	4.2	3.8
B. Changes in Stocks	**1.7**	**2.4**	**0.1**	**0.3**	…	…	…	…	…	…	…
1. Private Sector and public corporation	0.3	1.5	0.0	…	…	…	…	…	…	…	…
2. Government and public enterprises	1.4	1.0	0.1	0.3	…	…	…	…	…	…	…
C. Gross Domestic Capital Formation (A+B)	**18.9**	**33.8**	**23.8**	**22.6**	**24.4**	**25.1**	**27.3**	**28.0**	**22.0**	**26.5**	**28.7**
1. Private	10.7	13.7	11.5	14.4	18.1	18.8	20.6	21.5	16.3	19.7	21.5
2. Government, Public Enterprises and Public Corporations	8.2	20.1	12.3	8.2	6.3	6.4	6.7	6.5	5.7	6.9	7.2

Note: '…' denotes very small number. Source: Central Bank of Sri Lanka.

[1/] Based on the GDP estimates compiled by the Central Bank of Sri Lanka. With effect from 2007, GDP estimates are complied by the Department of Census and Statistics. Hence, the data may differ from the data in Table 1.

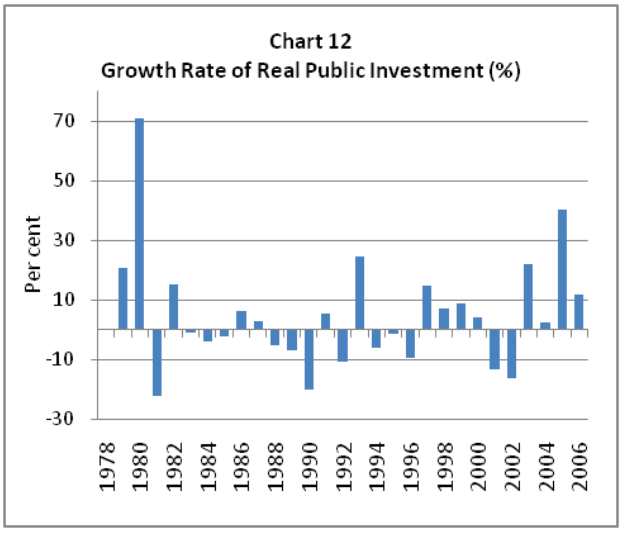
Although FDI was given prominence in the overall economic policy strategy, about 96% of the private investment came from the other sources, mainly by the domestic private sector, in the mid-1980s. However, with the increase in FDI, this share declined gradually to around 93% by mid-2000.



With the liberalisation policies introduced in 1977, private sector investment responded positively and increased gradually by increasing investments to about 12% of the GDP. The investment performance in the 1980s was adversely affected by the unfavourable business environment created by the internal conflict in 1983 and the prevailing political issues in the country, particularly during the late 1980s. Domestic private investment commenced to increase since 1990 and continued to trend upward thereafter. However, a marked deterioration was observed in 2001 mainly due to the slowdown in economic activities, weak business confidence, high interest rates, and the prevailing political uncertainty in the country. Since then, a gradual recovery was experienced and private investment reached 21.5% of the GDP in 2006 with the strengthened business confidence supported by political stability. The improved external and domestic demand, which resulted in the high capacity utilization, also helped this increase.

2.5 Trends in Public Investment

Meanwhile, the public investment, which was relatively high until the end of 1980s mainly due to the implementation of key infrastructure development projects, recorded a gradual decline over the years since then. Public investment, in real terms, increased significantly by about 70% in 1980. Since then it increased at varying rates recording negative real growth in many years. However, since 1997, the real growth remained positive except during 2001 and 2002. A significant increase was recorded in the real public investment in the recent years with the enhanced investments by the public sector on infrastructure development, including post-Tsunami rehabilitation and reconstruction activities.



3. Major Policies related to FDI and Domestic Investment

3.1 General Economic Policy Developments

The economic policy reforms introduced in 1977, shifting to an outward-looking strategy, constitute a significant landmark in the country's efforts to enhance private investment. The main objective of this policy shift was to increase exports to enhance economic activities and generate income as an alternative to the inward- looking economic policies hitherto practiced through the establishment of outward-oriented industries, harnessing of private foreign capital to supplement domestic resource flows; and diversification of the sources of foreign exchange earnings. The private sector was expected to play an increasingly important role in relation to this policy strategy in contrast to the hitherto implemented government led protectionist policies. Actions were also taken after 1977 to promote both public and private investment with a view of stimulating private sector economic activities.

At the initial stage of the reform process during the period 1977-79, the emphasis was placed on the liberalisation of foreign trade by the gradual elimination of quantitative restrictions, including import licenses and quotas. In order to reduce the protection levels and encourage exports, the tariff structure was revised with reduced tariff levels on many items. As a result, the level of tariff protection given to local industries was reduced in order to make them competitive. Furthermore, the restrictions on the importation of raw materials and machinery and equipment were reduced gradually. The tariff structure was

modified from time to time in order to facilitate the promotion of foreign trade and with the objective of reducing import duties to improve economic activities to make industries more competitive. The reforms introduced in the trade policy were initially aimed at promoting exports in manufacturing, especially textiles and clothing.

Sri Lanka also introduced a managed floating exchange rate system in 1977 by unifying the dual exchange rate system hitherto followed, under the Foreign Exchange Entitlement Certificate Scheme (FEECS)[9]. Under this system, the exchange rate was largely determined on the basis of demand and supply conditions in the market. The restrictions on the current international transactions were also removed gradually. With the introduction of these policies, price controls and rationing as a key policy device in the pricing policy was abandoned in an environment where the competition in the importation and distribution was enhanced. Meanwhile, the flexible exchange rate regime, which is in place since 2001, was introduced mainly to maintain the international competitiveness of the country.

In addition, the privatisation of state-owned enterprises was also introduced during the mid-1980s with a view of improving the efficiency and management of the public enterprises, promoting competitiveness, attracting foreign investment and downsizing the public sector in the economy and engaging greater private sector participation. The privatisation programme was implemented at a rapid pace after 1989 with the second wave of liberalisation and structural adjustment policies[10]. Particular emphasis was also placed on the complementarity of trade and FDI policies in promoting private foreign investments, particularly in the export-oriented manufacturing sector by offering various incentives, minimising administrative problems and delays. Under these reforms, restrictions on foreign investment were reduced while a new incentive regime for export-oriented foreign investment was introduced.

The *Industrial Policy Statement*, which was presented by the government in 1987, included an overall industrial strategy which provided a framework within which the industrial development and expansion was based on. The new

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9. According to the dual exchange rate system operated under FEECS, an 'official' exchange rate was applied on essential imports and non-traditional exports while a 'higher' exchange rate was applied on other exports and imports. The objectives of this policy included the diversification of exports and compression of imports.

10. During the first stage of privatisation, poorly performing industrial enterprises were privatised and during second stage, profit making enterprises were transferred to the private sector. The third stage, commenced after 1994, involved in privatising large scale public enterprises.

framework incorporated measures in a number of areas, including the manufacturing sector and protection**,** providing for assistance to import-competing industries, assistance to export industries, special incentives, the role of public industrial enterprises, industrial finance, foreign investment, science and technology, research and development and labour practices and legislation, land and minerals and infrastructure. The subsequent developments in the industrial policy, which was conducive for private investment, were mainly based on this policy framework.

The decentralisation of industries was encouraged since 1990 with the provision of various specific incentives to locate industries in the remote areas[11]. In 1995, the government introduced a new industrialisation strategy for Sri Lanka. The objectives in this strategy included: (1) expansion, diversification and upgrading of the industrial base; (2) efficient management of physical and manpower resources; (3) employment and income generation in both rural and urban sectors; (4) export orientation; and (5) regional industrialisation. The government, in 1996, also announced an incentive package which included various tax incentives and other concessions. A 'Productivity Decade: 1997-2006' was also announced to improve the productivity in the industrial sector.

Meanwhile, the export duties, a major source of government revenue, were abolished in 1998 with a view of lowering the factor costs of production of export- oriented producers, thus raising competitiveness in the international market. Various programmes in assisting export-oriented Small and Medium Enterprises (SMEs) were also introduced by the government to expand their production and promote entrepreneurship. The government also provided various credit guarantees, particularly to assist SMEs, which do not have access to credit facilities from the normal channels. Various other measures, such as vocational training, were also provided with a view of strengthening their performance.

In order to complement the above measures, reforms introduced in the financial sector after 1977 were directed towards supporting economic activities by the private sector. In particular, the commercial banking system underwent significant changes. Accordingly, the establishment of branches of foreign commercial banks was encouraged and establishment of Foreign Currency Banking Units (FCBUs) by all banks was permitted. In addition, policies were also geared towards introducing other financial institutions, such as long-term

11. The Regional Industrial Park Programme was one such programme introduced with a view of regionalising industries.

lending institutions, insurance firms, deposit-taking institutions, contractual saving institutions and other financial service institutions, including merchant banks, leasing companies, venture capital companies and money brokers, of which many of them were established by the private sector. Meanwhile, the activities of the Colombo Stock Exchange (CSE), which is the only authorised market for securities transactions in Sri Lanka, was strengthened by liberalising stock market investments, provision of fiscal incentives, opening of the market for foreign investors and introduction of modern technology. This, in turn, boosted the domestic enterprises in raising funds for their investment purposes.

The monetary policy framework of the country was re-aligned to meet the challenges emanating from the new economic policies introduced after 1977. The gradual elimination of direct controls was introduced in fulfilling this need while relying more on market-based instruments in creating a conducive environment for efficient allocation of resources. In line with this, among other things, interest rates were allowed to move freely, depending on the demand and supply conditions in the market, so that the real interest rate will also be determined based on the market conditions. Some major changes were introduced to the Monetary Law Act (MLA) of the country to enable the CBSL to deal more effectively with the economic structure of the country and its needs. Accordingly, the core objective of the CBSL was designated as 'economic and price stability' as the price stability depends crucially on stable macroeconomic conditions.

Meanwhile, the need for improving the economic infrastructure facilities in the country has been a longstanding issue in which successive governments have taken various measures to address it. As a result, some areas, such as the telecommunication and ports infrastructure, have reflected a satisfactory improvement over the years. Nevertheless, other facilities, such as roads, highways and passenger transportation, still require further improvements. Hence, the government made a renewed effort in the recent past to address this issue and thereby create conducive environment to stimulate economic activities.

3.2 Current Account and Capital Account Liberalisation

Since independence until 1994, Sri Lanka imposed controls in some areas in current account transactions. However, when the Article VIII status with IMF was accepted in 1994, its current account was fully liberalised and all foreign exchange restrictions on current account transactions were removed. Since then, there were neither surrender requirement for export proceeds nor

restrictions on current payments and the rupee became fully convertible for all current transactions. Multiple currency practices were abandoned and restrictions on repatriation of earnings withdrawn. Sri Lanka has been pursuing a cautious approach moving towards capital account liberalisation and the capital account presently is only partially liberalised, though the regulations related to several transactions were liberalised recently.

3.3 Specific Policies Related to FDI

At the inception of the open-economic policies, a series of measures were introduced to promote foreign investment. Accordingly, EPZs were established in 1978. The Board of Investment (BOI) (which was set up to replace the Greater Colombo Economic Commission), an autonomous statutory body, acts as a facilitator for investment. The BOI is structured to provide most of the required services for foreign investors has been structured under one roof and is vested with a wide range of powers of tax relief and administrative discretion for larger or priority investors. There are no restrictions on the repatriation of capital, profits and dividends. All enterprises under Section 17 of the BOI Act are permitted to borrow from the Offshore Banking Units (OBUs) of commercial banks[12]. In many sectors of the economy, the foreign equity participation of up to 100% is allowed. Generally, the approval for most of the foreign investment projects is granted without any delay while the investment in certain restricted areas is subjected to screening.

Sri Lanka offers a series of incentives for foreign investors through the BOI Act. The main incentives include the importation of the capital equipment, raw materials or other intermediate products free of taxes and duties, subject to differing requirements with respect to minimum investment. The concessionary corporate income tax rates, exemption of tax on dividends to non-resident shareholders, exemption of income tax on salaries and other payments made to foreign employees are also included in the incentives given to foreign investors. A new series of incentives were introduced in the recent past to attract more investors to develop regions other than the Western Province, which to date has received the largest share of FDI.

3.4 Policies Implemented to Promote Domestic Investment

The general economic policy pursued since 1977 has provided a conducive environment for private investment. In addition, successive governments have granted many incentives to encourage and stimulate private sector investment

12. OBUs were formerly known as Foreign Currency Banking Units (FCBUs).

in the country. As far as incentives are concerned, any local or foreign investor who does not qualify for incentives granted under Section 17 of the BOI Act, is provided with various incentives under the normal law of the country. Section 16 of the BOI Act also specifies a series of incentives to such enterprises.

Under the above mentioned legal framework, Sri Lanka offers a plethora of tax incentives for investment through both the normal tax and customs legislation. In the context of domestic investment, tax incentives include tax holidays, concessionary corporate income tax rates, generous depreciation allowances, exemption of dividends from taxation and import and excise duty exemptions. The tax incentives provided under the Inland Revenue Act cover a number of areas: the manufacture and export of goods, particularly non-traditional exports; agriculture, fisheries and agro processing; industrial tools and machinery; small and large scale infrastructure projects; the rehabilitation of under-performing industries; and companies engaged in research and development. Depending on the sector, the incentives usually take the form of tax holidays of 2-12 years. On the expiry of the tax holidays, lower corporate tax rates are applied for specified periods.

4. Determinants of Private Investment in Sri Lanka

Considering the factors that affect private investment, the investment function in the following section is estimated using Engle Granger Two-Step Error Correction Mechanism (ECM) to analyse the behavior of private investment in Sri Lanka.

4.1 Empirical Study: Determinants of Private Investment in Sri Lanka

4.1.1 Model and Methodology

Among the factors that would affect the investment, the following are identified as the determinants that have an impact on private investment in Sri Lanka. Hence, the investment function for the empirical analysis is specified as follows:

$$RPI = f [RGDP, RDC, RIR, RER, RGI, OPEN, SEC] \ldots\ldots\ldots (1)$$

Where:

RPI = Real private investment
RGDP = Real Gross Domestic Product
RDC = Real domestic credit to the private sector

RIR = Real interest rate
RER = Real effective exchange rate
RGI = Real public investment
OPEN = Openness of the economy
SEC = Security situation

The equation (1) can also be written as;

$$RPI = \alpha + \beta_1 RGDP + \beta_2 RDC + \beta_3 RIR + \beta_4 RER + \beta_5 RGI + \beta_6 OPEN + \beta_7 SEC + u_t \quad (2)$$

After taking logarithm of all the variables, except real interest rates, equation (3) could be obtained.

$$\ln(rpi) = \alpha + \beta_1 \ln(rgdp) + \beta_2 \ln(rdc) + \beta_3 rir + \beta_4 \ln(rer) + \beta_5 \ln(rgi) + \beta_6 \ln(open) + \beta_7 \ln(sec) + u \quad (3)$$

4.1.2 The Determinants

This section discusses the factors that have been identified in equation (2) as determinants of private investment in Sri Lanka along with the expected signs of the coefficients in equation (3).

A. Real GDP: (β_1 RGDP>0)

The real GDP plays an important role in private investment. The growth and the level of the GDP provide an indication about the investment opportunities open to the private sector. The notion here is that when the real GDP is growing at a higher rate, the private sector will flourish due to the opportunities created in the economy. If the economy exhibits an increasing real growth, the potential increase in profits will drive investors to make more investments. The investors will be able to generate more funds through the higher consumption demand as well as higher savings, thereby making more investments. Accordingly, the (increasing) real GDP, and increasing per capita income for that matter, is expected to have a positive impact on real private investment with a positive coefficient.

B. Real Domestic Credit to Private Sector: (β_2 RDC >0)

In Sri Lanka, the private firms are largely dependent on bank credit as a source of financing. The gradual improvement experienced in the financial system in the country has created various avenues for meeting the financing needs of

the private sector. Therefore, the higher availability of credit to the private sector is expected to have a positive impact on investment.

C. Real Interest Rate: (β_3 RIR<0)

The interest rate is the user cost of capital. In general, the level of real interest rate can affect the private sector investment mainly in two ways. First, if the real interest rates are high, it raises the real user cost of capital and affects the investor's decisions, thereby having a dampening impact on private investment. Second, if the financial market is not developed adequately and the access to foreign financing is not sufficient to finance private investment projects, then private investment will be constrained largely by domestic savings. In such a situation, higher real interest rate will promote domestic savings and thereby enhancing the available funds for private investment. In the Sri Lankan context, a negative relationship is expected between real interest rates and real private investment assuming the former relationship would prevail.

D. Real Exchange Rate: (β_4 RER?)

As Sri Lanka pursues open-market policies and the economy is considerably open to the rest of the world, the real exchange rate plays an important role in determining private investment, particularly in the area of the tradable sector. This is more relevant to the industries, which are dependent on imported capital and intermediate imported inputs. Therefore, the direction of real exchange rate could have a considerable impact on the level of private investment. Accordingly, the depreciation of the exchange rate increases the return on investment production of tradable goods while the appreciation would reduce the return on investment thereby lowering the private investment in export-oriented and import-competing areas. Based on this preposition, the sign of the real effective exchange rate is not expected before hand and it is expected to be derived from the model.

E. Public Investment: (β_5 RGI >0)

Private investment would flourish in a supportive environment of cost reductions in power, transport and communications, which are often provided through public investment. Generally, these two are seen as having a complementary impact on one another. However, it is likely that public investment may crowd out private investment if the additional investment is financed by running a budget deficit and borrowings from the domestic sector, which reduces the available funds for private sector investment. It could also lead to an increase

in the domestic market interest rates. In addition, the burden of tax could also be increased if a significant part of the additional requirement is financed through taxation. However, the Sri Lankan experience reveals that a significant part of the public investment is financed through foreign financing, which are received at concessionary terms and conditions. Therefore, the relationship between total private investment and total public sector investment is expected to be positive.

F. Openness to Trade: (β_6 OPEN>0)

Trade openness generally has a positive influence on the export-oriented industries. Sri Lanka, being an open economy with greater emphasis on export promotion, trade openness could be an important determinant of private investment, including FDI. In general, trade openness increases competition while enabling investors to get access to the various overseas markets. As exports play a key role in the Sri Lankan economy, trade openness also plays a significant role in investor decisions. Therefore, trade openness is expected to have a positive impact on private investment.

G. Security Situation: (β_7 SEC<0)

Sri Lanka is having an internal conflict, which has escalated from time to time, particularly since 1983. It is widely accepted that the conflict has affected the economic activities of the country in many ways, including the investment decisions of the private sector. In particular, it is said that the security situation has a significant negative impact on foreign investment and tourism and the uncertainty regarding the security situation has discouraged private investment, both domestic and foreign. The conflict has incurred an enormous drain in terms of both human and material resources while suppressing the growth potential of the economy. Nevertheless, it is apparent that the investment activities have continued albeit at below the desired level. Hence, it could be argued that, in the absence of internal conflict in Sri Lanka, the private investment would have exceeded the levels experienced over the years. In order to test this phenomenon, this variable was included and the deterioration of the security situation is expected to have a negative impact on the private investment.

4.1.3 Sources of Data and Methods of Derivation

The equation (3) is estimated using the annual data for 1978-2006. All the real data are derived by using GDP Deflator calculated by the CBSL. The GDP figures, which are compiled by CBSL and published in its Annual Reports, are

used in this study[13]. In line with the above reasons, the data related to private and public investment are also obtained from the CBSL Annual Reports. Private investment is measured by the gross fixed private capital formation while the public investment is measured by the gross fixed government capital formation, including government institutions and public corporations. The source for domestic credit to the private sector is the Monetary Survey, which is published by the CBSL in its Annual Reports. The real interest rate is based on the weighted average yield rate of the Treasury bills and is obtained by subtracting annual inflation as measured by the Colombo Consumer's Price Index (CCPI)[14]. The real exchange rate (RER) refers to the real effective exchange rate index, which is prepared using the 24 currency basket index and published by the CBSL. The data for various base years is adjusted for the base year 2006 with a view of obtaining a consistent data series throughout the sample period. In order to calculate trade openness, the import and export data is obtained from the CBSL Annual Reports. The trade openness is proxied by the ratio of total merchandise trade (import + export) to GDP[15]. The security situation is proxied by the total defence expenditure, including the expenditure on public order and safety, as a percent of GDP during the sample period and is obtained from the Ministry of Finance and Planning.

4.1.4 Estimation Procedure

The time series properties of the variables are tested before the estimation of Equation (3). Then, the study applies cointegration and ECM techniques via the Engle-Granger Two-Step method to deal with the time series properties of the data[16]. The cointegration technique is used in order to obtain the possible long-run relationship between the private investment and the explanatory variables.

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13. It is noteworthy that the Department of Census and Statistics (DCS) is the official agency responsible for the compilation and dissemination of the National Income Accounts in Sri Lanka. Nevertheless, in the past, both the DCS and CBSL had been compiling and disseminating national income statistics. In order to avoid this duplication of effort, the CBSL decided to use the statistics compiled by the DCS commencing from 2007. However, as the historical data compiled on the basis of expenditure approach is not available, this study uses the data published by the CBSL up to 2006.
14. It is noteworthy that as the base year for this CCPI has been 1952, the DCS has replaced it with a new CCPI. The base year of the new CCPI is 2002. However, given the unavailability of the historical data for this new index before 2002, the data related to the previous index is used in this study.
15. The trade openness was calculated as: OPEN = [(Exports + Imports)/ GDP] x 100.
16. There is a dynamic error correction representation of the data if cointegrating relationships exist among a set of 1(1) variables. Under these circumstances, an ECM can be constructed to take the short-run dynamics of all variables in the cointegrating regression into account.

The short- run dynamics are explored through the ECM, as it allows the capturing of possible lagged response of private investment in Sri Lanka. The limitations that would be imposed in the econometric procedure arising from various problems including data limitations and constraints posed by the limited number of observations are recognised[17].

4.1.5 Empirical Results

A. Unit Root Test Results

The ADF results to check the null hypothesis of the presence of a unit root in the variables are given in Table 4. According to these results, all the variables are I(1) confirming the presence of a unit root. Therefore, these variables are non stationary, which would yield a spurious result unless these properties are taken into consideration in the estimation of equation (3). The presence of I(1) variables in the equation therefore facilitates the estimation of an ECM for the entire set of variables.

Table 4: ADF Unit Root Test Results

Variable	Level				1st Difference			
	Includes	t-Statistic	Critical Value at 1%	Order of Integration	Includes	t-Statistic	Critical Value at 1%	Order of Integration
lnrpi	C	-1.28	-3.69	I(1)	C	-5.71*	-3.70	I(0)
lnrgdp	C	-0.98	-3.69	I(1)	C	-4.13*	-3.70	I(0)
lnrdc	C	-1.39	-3.69	I(1)	C	-4.06*	-3.70	I(0)
rir	C & T	-3.55	-4.32	I(1)	C & T	-7.94*	-4.34	I(0)
lnrer	C	-2.03	-3.69	I(1)	C	-5.03*	-3.70	I(0)
lnrgi	C	-2.74	-3.69	I(1)	C	-5.68*	-3.70	I(0)
lnopen	C	-1.63	-3.69	I(1)	C	-5.29*	-3.70	I(0)
lnsec	C	-3.21	-3.69	I(1)	C	-5.77*	-3.70	I(0)

Notes: C = Constant, T = Trend

* denotes that estimates are significant at 1% level.

B. Long Run Cointegration Equation of Private Investment

Given the variables are non stationary, it is necessary to examine the cointegration of these variables in which the results are given in Table 5. As the next step, the stationarity of the error term in the cointegration equation also has to be checked. The results related to this in Table 6 indicate that the presence of a unit root in the error term can be rejected at 1% level. This implies that

17. The statistical package used in the study is Econometric views (E-views) version 5.0.

there exists a stable long run cointegrating relationship among the variables in equation (3).

The results in Table 5 also reveal that the enhancement of the long term private investment in Sri Lanka is mostly stimulated by business opportunities created by the increasing economic activities in the country and the openness of the economy. The real interest rate has a negative impact on investment and is significant. The appreciation of the REER has a significant negative relationship with private investment. The credit to the private sector has a positive relationship although it is not significant. Meanwhile, public investment is found to be negatively related with private investment, pointing to the fact that, in the long run, if the public sector increases its investment through domestic borrowings, it would crowd out the private investment. Meanwhile, the security situation has a negative and significant impact on the private investment, confirming the fact that the country's internal conflict has resulted in the loss of important investment opportunities. In summary, the study highlights that the improvement in the macroeconomic environment will be one of the key requirements towards fostering greater investor confidence and thereby promoting investment with complementary developments in the other key areas that affect private investment.

Table 5: Long Run Cointegration Equation of Private Investment

Dependent Variable: lnRPI

Variable	Coefficient	Std. Error	t-Statistic	Probability
Constant	-5.065	2.362	-2.144	0.047**
lnrgdp	1.308	0.411	3.179	0.006*
lnrdc(-1)	0.098	0.307	0.318	0.754
rir(-2)	-0.008	0.003	-2.785	0.013**
lnrer(-1)	-0.514	0.248	-2.071	0.054***
lnrgi(-2)	-0.445	0.148	-3.008	0.008*
lnopen	1.246	0.204	6.105	0.000*
lnsec(-4)	-0.106	0.058	-1.818	0.087***

Adjusted $R^2 = 0.98$

Note: *, ** and *** denotes that estimates are significant at 1%, 5% and 10% level, respectively.

Table 6: ADF Unit Root Test Results of the Error Term

Variable	t-Statistic	Critical Value at 1%	Order of Integration
Error Term	-4.03	-3.75*	I(0)

Note: * denotes that estimate is significant at 1% level.

C. Short Run Dynamics of Private Investment

In order to examine the short-run dynamics of the private investment, the ECM model given in equation (4) is estimated using general-to-specific modeling method with only the significant variables in the long run cointegration equation and the results are given in Table 7.

$$\Delta \ln(rpi_t) = \alpha + \beta_1 EC_{t-1} + \Sigma\beta_{2i} \Delta \ln(rgdp_{t-i}) + \Sigma\beta_{3i} \Delta\beta rir_{t-i} + \Sigma\beta_{4i} \Delta \ln(rer_{t-i}) + \Sigma\beta_{5i} \Delta \ln(rgi_{t-i}) + \Sigma\beta_{6i} \Delta \ln(open_{t-i}) + \Sigma\beta_{7ii} \Delta \ln(sec_{t-i}) + u_t \quad (4)$$

Table 7: Short Run Dynamics of Private Investment

Dependent Variable: ΔlnRPI

Variable	Coefficient	Std. Error	t-Statistic	Probability
Constant	-0.065	0.041	-1.563	0.138
EC(-1)	-0.690	0.233	-2.965	0.009*
Δ(lnrgdp)	2.812	0.811	3.469	0.003*
Δ(rir(-2))	-0.006	0.002	-2.640	0.018**
Δ(lnrer(-1))	-0.637	0.235	-2.713	0.015**
Δ(lnrgi(-2))	-0.408	0.113	-3.611	0.002*
Δ(lnopen)	0.977	0.218	4.477	0.001*
Δ(lnsec(-4))	-0.120	0.061	-1.945	0.070***

Adjusted $R^2 = 0.70$

Note: *, ** and *** denotes that estimates are significant at 1%, 5% and 10% level, respectively.

The results derived from the ECM estimates indicate that all the variables in equation (4) are significant. The error correction term, which represents the speed of adjustment to restore the equilibrium in the dynamic model following a disturbance, is negative and significant implying that 69% of the deviation from equilibrium is adjusted back within a period of one year. In other words, the deviation from the long run real private investment path is corrected by 69% over the following year after deviating from the long-run equilibrium in response to shocks[18]. The negative and significant error term also confirms the reliability of the long-run cointegration estimations in Table 5.

18. Accordingly, it takes only about one and half years to adjust the errors.

5. Issues and Challenges Regarding Private Investment

In the above context, a number of formidable issues and challenges remain to be addressed in further enhancing private investment in Sri Lanka. In particular, the real interest rate, which is an important determinant of private investment, tends to fluctuate widely mainly reflecting the relatively high and volatile inflation. The high inflation also tends to appreciate the REER in contrast to the need for maintaining it at an appropriate level to improve the competitiveness with complementary measures to improve the productivity. In this context, it is important to maintain the inflation at a desirable lower level as high inflation is the root cause for these developments, which will be a challenging task. The overall budget deficit, which has remained at a relatively high level, is one of the major factors for the high inflation in the country. Therefore, it is necessary to reduce the budget deficit gradually to a more sustainable level, through continued fiscal discipline and improved budget management, to contain the inflationary pressures. This is to be supported by a complementary monetary policy as well. Meanwhile, the maintenance of appropriate growth in the private sector credit to meet the private sector borrowing requirement is also an important area that needs attention. In addition, the credit is to be available at a reasonable cost so that private investment will be encouraged.

Over the years, Sri Lanka has introduced a number of measures in the process of liberalising the capital account and regulations on capital flows are now maintained only in a few major areas. The gradual liberalisation has provided investment and borrowing opportunities to both domestic and foreign institutions, including the government. The borrowings from foreign sources are expected to reduce the pressure on the domestically available resources. The resultant lessening of competition among the public and private sectors for the limited resources will facilitate the private sector to get more domestic resources, which would lead to a crowding-in of resources as against the crowding-out effect observed in the empirical evidence in this study[19]. At the same time, the borrowings from foreign sources, by both private and public sectors, have to be utilised for investment in projects with higher rate of return so the future repayment capacity of the economy would be improved and there would be no pressure on making the repayments. However, the full opening of the capital account may not be possible until the pre-requisites, such as the maintenance of macroeconomic stability and the introduction of measures to further strengthen the financial system stability in the country, are well in place.

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19. However, the importance of cautious and prudent approach in further liberalising the capital account in Sri Lanka cannot be over emphasised as the opening up of the capital account without pre-requisites, such as the macroeconomic stability and a competitive and efficient financial system, would be fraught with the danger of large capital outflows.

As discussed earlier, the empirical evidence in this study supports the notion that openness to trade has a positive and significant impact on the private investment in the country. The international trade-related activities of Sri Lanka accounts for about 60% of the GDP. In addition, the country depends considerably on imported raw materials for export-related industries while exports are a significant part of the trade activities, particularly items like garments, tea and other agricultural and industrial products. As far as openness is concerned, it is also observed that Sri Lanka's trade openness has gradually declined over the years suggesting that the country is now concentrating more on the domestic non-tradable sector. Nevertheless, the focus should be on the improvement of competitiveness as well as the diversification of trade towards obtaining more benefits from the open-economic policies adhered by the country. It is evident that Sri Lanka has recently taken measures to strengthen its trade relations particularly with rapid integration with countries in the Asian region[20]. Nevertheless, there are various issues that need to be addressed in the medium to long run if the trade is to be diversified and enhanced opportunities are to be created for private investors in the country. As identified in the government's *Ten-year Vision*, '*the country's regulatory system dealing with the external trade has not been upgraded commensurate both with progress made in this respect elsewhere and the country's own trade policy improvements*'[21]. Therefore, given the intensely competitive nature of the external trade and *ad hoc* changes in tariff and imposition of various cesses in the domestic front, maintenance of the certainty in the future direction of trade policy will be a challenging task.

Despite the decade long internal conflict, the country has been able to maintain an average economic growth rate of about 4.7% during the period since 1983, reflecting the resilience of the economy to the shocks of this nature. It shows the high potential growth trajectory of Sri Lanka should the conflict be brought to an end and lasting peace established in the country. The government has clearly enunciated its strategy that the defeating of terrorism is the priority. In pursuit of this end, the government continues to allocate high and increased resources in strengthening national security. This is expected to be complemented by a political solution, which is still at the discussion stage. Therefore, this will be a major challenge to the government in the next few years in its efforts to

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20. Significant moves in the regional trade include the Indo-Sri Lanka Free Trade Agreement (ISFTA), Pakistan-Sri Lanka Free Trade Agreement (PSLFTA) and South Asian Free Trade Agreement (SAFTA).

21. It also reveals that 'many gaps do exist in the laws, institutions and enforcement with regard to trade inspection, certification, standards, facilitation, etc., rendering the domestic manufacturer and the consumer at a disadvantageous position'.

create a more investor-friendly environment in the country with enhanced business opportunities.

In addition to the above factors, several other factors could also be cited as challenges in enhancing private investment in Sri Lanka, which are elaborated below. It appears that some of these are being addressed while others still remain problematical.

- *Incentive Regime:* As revealed in the study, Sri Lanka offers various incentives with a view of promoting and enhancing both FDI and domestic investment. Nevertheless, it is unclear to what extent these incentives have been a decisive factor in influencing investment. It is also argued that the incentive regime has cost the government substantially in the loss of tax revenues[22]. In addition, for many years, various claims have been made about the present system of investment incentives as having anomalies, the system is discriminatory and entail arbitrary surcharges, exemptions, and waivers. Hence, it is necessary to introduce appropriate changes and move towards a simpler and transparent system of incentives.

- *Financial Sector:* It is evident that, at present, Sri Lanka has a relatively developed banking system compared to the past. Nevertheless, the public sector banks are still dominant in the banking system. There are other areas to be improved in the financial sector, including the corporate bond market. In addition, although there is considerable progress achieved in capital-market development and financial deepening in Sri Lanka, the progress has been slow compared to other countries. Sri Lanka needs to deepen the financial sector by undertaking further financial sector reforms to increase competition and to further develop financial markets while strengthening the regulatory and supervisory activities to preserve the financial stability that would facilitate savings and investment.

- *Higher Domestic Resources:* Over the years, Sri Lanka has been dependent upon inflows of foreign savings to finance the country's savings investment gap. However, in the wake of declining access to concessional borrowings owing to the increase in per capita income of the country, Sri Lanka will need to resort to borrowings at commercial terms and conditions in the future. In the meantime, a higher level of domestic savings will also be necessary to meet the private sector investment requirement. This could be met through the reduction of government domestic borrowings by making

22. This issue needs to be explored in a separate study. Meanwhile, the provision of tax incentives to promote investment has become a debating issue in recent policy discussions.

savings in the current account of the budget, which will leave more funds for the private sector investment. Given the current conditions, the government will have to implement a strong fiscal consolidation programme to make this a reality.

- *Structural Reforms:* The reforms to be introduced in the economy are well known for many years. The identified reforms are in the areas of markets, infrastructure, public service and institutions. Among these areas, most reforms are aimed at promoting private sector involvement in economic activities. In this context, the government has announced its policy of not privatising state-owned enterprises. Furthermore, the government in its *Ten-year Vision* has declared its willingness to undertake certain reforms, such as public administration reforms, which are being implemented gradually. Nevertheless, the slow progress of the necessary reforms is questionable given the status of many public sector entities. This is a key area of concern that has to be addressed by the government in its efforts to enhance the private investment in the country, as both the strengthening of the already instituted reforms and the introduction of new reforms in response to the changing economic environment are a vital necessity.

- *Labour Market Rigidities and Labour Laws*: The free movement in the labour market in Sri Lanka is hindered by its rigid labour laws, which do not give a sufficient weight to the investor concerns. Hence, rigidity of the labor market will have to be relaxed gradually thereby allowing enterprises to determine appropriate staffing levels for effective management. At the same time, the linking of wage increases to productivity gains and the promotion of flexible wage systems linked to incentives are also cited as measures to maintain international competitiveness.

- *Environment for Doing Business:* The doing business rankings, published by the World Bank, points to several important areas that need attention in the context of the business environment in Sri Lanka. According to these rankings, out of 181 economies, Sri Lanka ranks at a relatively better position in starting a business, getting credit and protecting investors (Appendix Table 1)[23]. Nevertheless, there are several areas, particularly the paying of taxes, which remain in want of improvement. The Global Competitiveness Report

23. According to the World Bank, "The Doing Business methodology has limitations. Other areas important to business such as an economy's proximity to large markets, the quality of its infrastructure services (other than those related to trading across borders), the security of property from theft and looting, the transparency of government procurement, macroeconomic conditions or the underlying strength of institutions, are not studied directly by Doing Business".

also ranks the tax rates and tax regulations as among the most problematic areas in doing business in Sri Lanka (Appendix Chart 1). Among these factors, both inflation and corruption play a key role in influencing investor's decision to continue business. These findings, although need care in analysing, point to the need for regular assessment of the various policy areas from the investor point of view and introducing appropriate policies. It also suggests that the priority and importance of the various components are likely to vary substantially among investors themselves. Hence, the regular assessment of the various policy areas should involve balanced representations from the various investors and from consumer and other stakeholder groups.

- *Public Private Partnerships (PPPs):* Inadequate infrastructure facilities remain one of the biggest impediments to Sri Lanka's progress. Reliable infrastructure is paramount for further economic development, especially for export-oriented activities, such as manufacturing and tourism, while the need for reliable power supply, road network, transport systems, telecommunication capacity, urban infrastructure and port and aviation facilities is strong[24]. This situation has adversely affected the enhancement of private sector involvement in economic activities. It appears that, while identifying these deficiencies, the government has given the highest priority in resolving these issues by significantly increasing the public investment. However, as the higher public investment would increase the pressure on the tight budgetary conditions, private sector involvement in the infrastructure development projects is to be promoted through PPPs. Although the government enunciated its policy in promoting PPPs, the progress has been lagging. Accordingly, the importance, advantages and risks involved in PPPs should be clearly identified. At the same time, the relevant stakeholders and the general public have to be effectively convinced.

- *Promoting Investment in Newly Liberated Areas:* The liberation of the resource rich Northern and Eastern Provinces of Sri Lanka will provide new opportunities to private investors while taking the country into a new development path. The effective management of this newly emerged situation will be a challenging task given the devastation inflicted in those areas by the decade long internal conflict. Nevertheless, the government has already shown its commitment in developing these two Provinces, which will help create an enabling environment to commence new investments in the future.

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24. Sri Lanka New Development Strategy, 2004.

Given the above key factors, it is the private sector's responsibility also to actively participate in order to improve the level of investment. First, private sector entrepreneurs need to demonstrate their willingness to change the attitudes and embrace modern management and production efficiency as many of them still depend on government subsidies, concessions and protection in conducting their businesses. Second, it is the responsibility of the private sector investors to increase the transparency and accountability of their activities. Third, the private sector should gear up to face the challenges emanating from the new global economic and financial landscape which is being created as a result of the global financial crisis. In the process, the improvement of productivity and active engagement in research and development in improving the technological needs of industries, and attaining the standards related to the price and quality in international markets are equally important.

6. Conclusion and Policy Recommendations

This paper examined the determinants of real private investment in Sri Lanka, paying particular attention to testing the long-run cointegrating relationships between the variables that are under consideration complemented by the Engle-Granger Two-Step ECM. The main objective of the paper is to improve our understanding of the determinants of private investment and point to policy measures aimed at further strengthening the ongoing efforts to increase private investment in Sri Lanka. The results of this study provide strong support for the hypothesis that private investment in Sri Lanka is largely affected by the behaviour of the macroeconomic variables that are important in investment decisions while revealing important policy implications.

Over the years, Sri Lanka has managed to enhance private investment amidst many challenges. However, Sri Lanka cannot be complacent about its achievement in the investment front as she has not been able to increase the investment towards the required level to accelerate the growth process during the last few decades. Sri Lanka expects to maintain a GDP growth of around 7% in the medium term. In order to generate this level of growth it is necessary to expand the physical capital formation in the country as one of the fundamental requirements for economic growth. The total investment of the country needs to be increased to around 30% of the GDP from the average of 25% during the last three decades, given the current state of technology, infrastructure, human capital, and other structural factors that determine the efficiency of the economy. This higher investment ratio is expected to come mainly through higher private investments.

As an average investment level of around 25% of the GDP would not sufficient to provide the basis for accelerated growth in the medium to long term, the impediments to growth in private investment need to be addressed effectively. The areas identified as requiring urgent attention include the maintenance of a sound macroeconomic environment, resolution of infrastructure bottlenecks, seeking of an early solution to end the civil conflict and achievement of a lasting peace, and encouragement and facilitation of the private sector to undertake major projects under PPP to reduce the pressure on the government budget. In addition, the efforts to implement the identified reforms, while strengthening governance, have to be intensified to create a stronger and a more resilient economy which is conducive for higher level of private investment.

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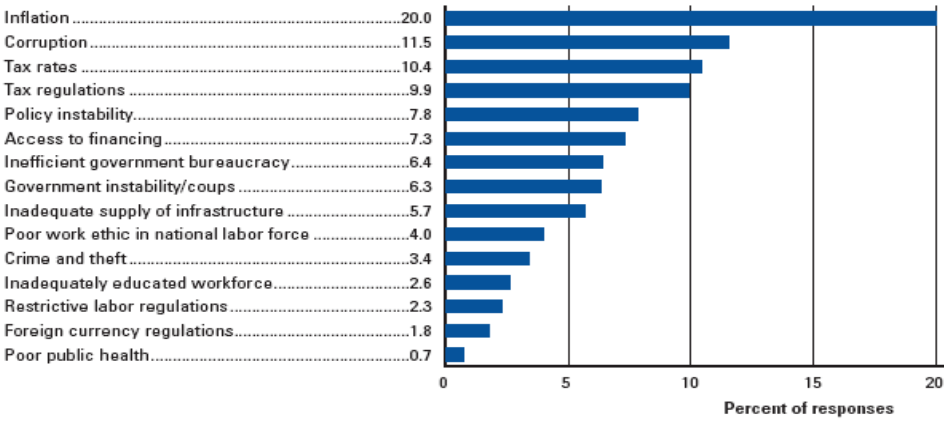
Appendix Table 1
Sri Lanka's Ranking in Doing Business - 2009

Rank	Doing Business 2009
Ease of Doing Business[1/]	**102**
Starting a Business	29
Dealing with Construction Permits	161
Employing Workers	110
Registering Property	141
Getting Credit	68
Protecting Investors	70
Paying Taxes	164
Trading Across Borders	66
Enforcing Contracts	135
Closing a Business	43

Source: Doing Business 2009, The World Bank (2008)

1/ Comparing regulation in 181 economies.

Appendix Chart 1
Most Problematic Factors in Doing Business in Sri Lanka



Source: The Global Competitiveness Report 2008-2009

Note: From a list of 15 factors, respondents were asked to select the five most problematic for doing business in their country and to rank them between 1 (most problematic) and 5. The bars in the figure show the responses weighted according to their rankings.

Chapter 10

INVESTMENT IN ROC (TAIWAN) IN THE POST-CRISIS ERA: ISSUES AND CHALLENGES

by
Chen Wan Ru[1]

1. Introduction

During the past several decades, Taiwan has achieved rapid economic growth and price stability. In 1990s, Taiwan embarked on the task of strengthening its infrastructure. Towards this end, it implemented a *Six-Year National Development Plan* in 1991. In January 1997, the plan was succeeded by the *Plan for National Development into the Next Century (1997-2000)*. Aimed at accelerating Taiwan's transformation into a modern, industrialised society, this Plan was centered on the achievement of three goals: strengthening national competitiveness, improving the quality of life, and promoting sustainable development. Taiwan's relatively robust economic structure and its substantial foreign exchange reserves provided a strong defense against the 1997 Asian financial crisis. In addition, the government launched a *Domestic Demand Stimulus Plan* in 1998 to remove Taiwan from the shadow of the crisis as quickly as possible. As a result, Taiwan's economy remained buoyant and registered an average growth rate of 6.4% in the 1990s. The real growth rate of gross fixed capital formation and private investment averaged about 9% and 10%, respectively, during this period.

Moving into the new millennium, the government implemented a new six-year national development plan, *Challenge 2008*. This is a strategic development plan that emphasises such goals as strengthening international competitiveness, upgrading the quality of life, and promoting sustainable development. Built around ten programs involving substantial investments in manpower, R&D and innovation, logistics networks, and the living environment, the plan also aims to achieve significant political, financial, and fiscal reforms. In 2004, the government launched the *New Ten Projects* to raise public investment in infrastructure and accelerate the implementation of *Challenge 20*08. All the public investments under the above-mentioned programmes were also intended to make up for the insufficient

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private demand. However, the average of real growth rate of gross fixed capital formation and private investment dropped dramatically to about 2% and 5%, respectively, during the period of 2000-07. The annual GDP growth averaged at 4.1%, a slow-down in comparison with the 7.3% during the period of 1980-99. This slow-down in growth reflected the increasing maturity of Taiwan's economy as well as the sluggish regional growth in Asia since the 1997 crisis and the more recent global downturn. The government predicts that the real gross fixed capital formation will witness a negative growth of 5.8% for 2008. Stimulating investment to sustain economic growth is a pressing issue and a challenge for Taiwan in the 21st century.

The remainder of this paper is organised as follows. We shall examine Taiwan's trend of investment, with emphasis on the domestic investment and foreign direct investment (FDI) in Section 2. We shall then investigate the major policies related to domestic investment and FDI in Section 3. We shall explore the determinants of investment in Section 4. Finally, we shall present the conclusions and policy recommendations in Section 5.

2. Trend of Investment in Taiwan Since 1980

Taiwan stands out among the developing or emerging economies for its internally-generated industrialisation without recourse to foreign borrowing. The high rate of domestic savings played an important role in the financing of domestic gross capital formation. The persistent current account surplus since the mid-1970s helped Taiwan accumulate excess savings (gross national savings minus gross capital formation).

In 1986, its excess savings rose to a peak of 21.5% of the GDP. However, a sharp increase in Taiwan's trade surplus, coupled with the explosive growth in liquidity, gave rise to an economic-bubble boom towards the end of the 1980s. Stock and real estate prices exploded, production costs soared, and the investment climate deteriorated rapidly. The government responded by stepping up the pace of economic liberalisation, increasing public investment, and encouraging industrial restructuring. These measures succeeded in reducing the trade imbalance and restoring economic stability. In the recent years, as a result of higher income and the opening of domestic markets, consumer tastes and preferences have become more sophisticated, and household savings relative to income have fallen. At the same time, the rising costs of land, labor, and environmental protection have shaved profits and reduced internal savings by business enterprises. For all of these reasons, the gross national savings fell to 30.6% of the GDP in 2007 from an all-time high of 38.9% in 1986. However, the gross domestic investment

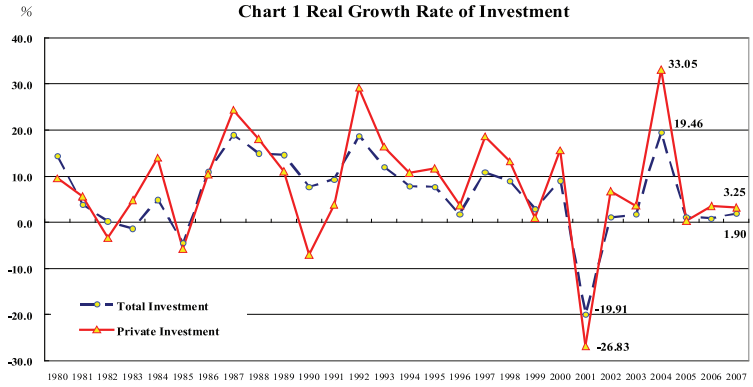
(capital formation) rose sharply from 17.5% of GDP in 1986 to 26.0% in 1993, and then slipped back to 18.0% in 2002, rebounded to 22.7% in 2004, and stood at 21.1% in 2007.

2.1 Domestic Investment

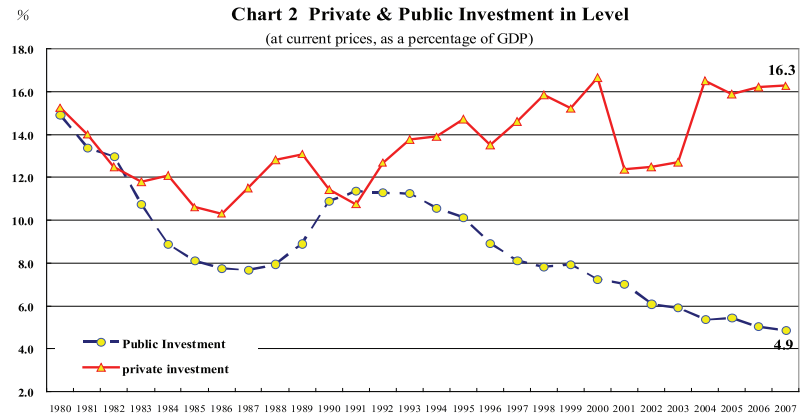
The real growth rate of gross fixed capital formation averaged higher than 7% in the 1980s and 1990s whereas it averaged only about 2% during the period of 2000-07. From 1980 to 1999, the real private investment growth averaged close to 10%, but the average rate has halved to about 5% during the period of 2000-07. Despite the shock from the bursting of the tech bubble, private investment as a share of the GDP has averaged 15% during the period of 2000-07, higher than any other decades' averages (12% and 14% in 1980s and 1990s).

With regard to public investment, the real growth rate averaged around 7% from 1980 to 1999 whereas the rate averaged negative 4% during the period of 2000-07. Due to: (1) the carrying out of major public construction projects via BOT (Build/Operate/Transfer) contracts; (2) the implementation of a package of fiscal reforms by the government to cut down public spending to sustain fiscal soundness; (3) slow progress of large-scale construction projects; and (4) the privatisation of some public enterprises, public investment experienced a negative growth trend from 1996 onwards. Public investment as a share of the GDP fluctuated roughly between 8% to 15% from 1980 to 1999. However, starting in this decade public investment has fallen below the range to about 5% of the GDP as of 2007 (see Chart 1&2).

Chart 1 Real Growth Rate of Investment



Source: Statistical Abstract of National Income, DGBAS, Executive Yuan.



Source: Statistical Abstract of National Income , DGBAS, Executive Yuan.

2.1.1 1995 to 1999: The Asian Financial Crisis

In 1995, the gross fixed capital formation and private investment in real terms grew by 7.7% and 11.7%, respectively. The increase reflected the ongoing transformation process of the economy in adapting to a more capital-intensive and high-technology production mode. As the process moved ahead with the government's encouragement, both medium and large investment projects in the manufacturing sector and foreign-joint ventures increased. With the influence of privatisation, investment in the public enterprises registered negative growth. On the other hand, government investment increased as public construction projects went ahead. Overall, public investment increased by 2.3% over the year.

In 1996, the gross fixed capital formation in real terms increased at an annual rate of 1.8%, a clear decline when compared with the 7.7 % recorded in 1995. Real private investment rose 3.7%. The fall in the growth rate reflected the weaker investment in both the export-oriented and domestic-demand industries. The reduced growth of investment in the export industries was in part the result of slower recovery in the global economy. The flat investment in domestic-demand industries was mainly attributable to the non-economic factors, such as China's military exercises and increasing concerns over public safety. Furthermore, due to the successive delays in implementing public construction projects, the growth rates of both government investment and public enterprise investment were negative. Public investment decreased by 1.0% over the year.

Taiwan's economy started to feel the pinch of the 1997 Asian financial crisis during the second half of the year. Throughout 1997, the Asian financial crisis mainly affected our financial market, while the real economic sector

remained largely intact. Gross fixed capital formation in real terms increased at an annual rate of 10.9%, a sharp increase when compared with the 1.8% recorded in 1996. With regard to private investment, due to the fair economic climate, business enterprises were keen on investing, and they easily raised funds from the bullish stock market. Large private investment projects were launched. Meanwhile, the government actively removed barriers to investment. The telecommunications market was open to private investment. The outcome was a remarkable 18.6% growth of private investment, the highest rate in the last five years. On the other hand, public investment continued to register a negative growth rate.

2.1.2 Post-1997 Asian Financial Crisis

During the first three quarters of 1998, due to the increase in international flight routes and progress made in relation to public works projects, private investment continued to grow by more than 10%. However, because of the slow recovery of the economy, business enterprises delayed their investment projects. In addition, because some listed companies encountered financial difficulties during the fourth quarter and the banks became more conservative in lending, the firms slowed down their pace of investment. As a result, private fixed investment grew by 13.2%, a decline when compared with the 18.6% recorded in 1997. The gross fixed capital formation in real terms increased at an annual rate of 8.9%.

In the year of 1999, the real fixed capital formation grew by only 2.9%, a sharp decline when compared with the 8.9% achieved in the previous year. Government investment increased by 4.1%, an above-average figure in recent years, due to the implementation of policies geared to expand domestic demand and heavy infrastructure projects launched after the September 21 earthquake. Furthermore, investment carried out by public enterprises grew by a robust 13.3% in response to the government's demand-stimulus packages. However, private investment for the whole year experienced a mere growth of 1.0% because the financial difficulties faced by some firms in late 1998 still exerted some adverse persistent influences. Investment in machinery grew by 13.0% as a result of the massive capacity-expanding projects launched by thin film transistor-liquid crystal display (TFT-LCD) and wafer foundry plants.

Moving into the 21st century, real fixed capital formation and private investment growth averaged close to 2% and 5%, respectively, between 2000 and 2007. Private investment growth dramatically rose to 15.6% in 2000. The major private investment activities included the increased equipment installations

in wafer foundry plants and TFT-LCD facilities, the new procurement of aircraft, as well as the establishment of fixed telecommunication network infrastructure. As a result, the real fixed capital formation increased by 9.0%. However, the shock from the bursting of the tech bubble deteriorated the business climate in 2001. The real fixed capital formation declined by 19.9% for the year. The difficulty in upgrading traditional industries and continuing outward relocation of local enterprises intensified the deceleration of private investment. Real private investment sharply receded by 26.8%. In 2002, private investment turned to grow by 6.7%, because large-scale construction projects, such as the high-speed railway, were carried out at a faster pace and the low interest rate environment was conducive to corporate investment spending.

In 2003, the adverse impact of the outbreak of Severe Acute Respiratory Syndrome (SARS) on trade and economic activities sapped consumer confidence and disturbed private investment plans in the second quarter. Thanks to the global economic recovery, the world's largest producers outsourced more information-technology products to Taiwan, which helped contribute to a double-digit growth in private investment in the fourth quarter. For the year as a whole, real fixed capital formation and private investment grew by 1.7% and 3.7%, respectively. Stepping into the year of 2004, the real fixed capital formation and private investment rose dramatically to 19.5% and 33.1%, respectively, due to the bright economic prospect and the low interest rate environment. In 2005, the real growth rate of fixed capital formation and private investment tumbled close to 1% mainly due to the high base. However, real investment by public enterprises had an above-average growth of 16.2%. The expansion primarily resulted from the large-scale investments by *Taiwan Power Company's Fourth Nuclear Power Project*, the *Sixth Transmission and Substation Project*, and the *Tatan Thermal Power Plant Project*. In 2006, business investment still exhibited a slackening growth.

At the beginning of the year 2007, private investment remained sluggish. Later, as some industries enlarged their capacity and improved their production equipment, private investment grew rapidly during the middle two quarters of the year. However, soaring international raw material and oil prices, coupled with the increasing downside risk to global economic growth sparked by the US subprime mortgage upheaval, caused business activities to slow down. For the year as a whole, the real fixed capital formation and private investment rose by 1.9% and 3.3%, respectively. For the first three quarters of 2008, private investment was held back due to the acute domestic economic sluggishness caused by the global financial meltdown. Looking ahead to the fourth quarter, private investment is expected to continue weakening. The government forecasts

that the real fixed capital formation and private investment will fall by 5.8% and 7.8%, respectively, for the whole year.

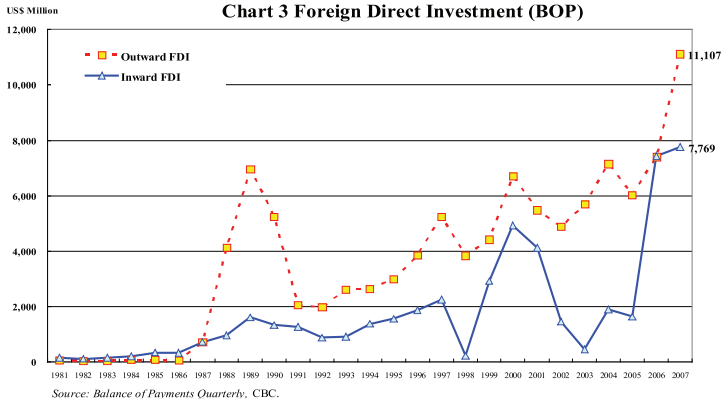
2.2 Foreign Direct Investment (FDI)

Taiwan began to attract FDI when the export processing zones were established in 1966. The primary objective of Taiwan's stance towards FDI was initially to attract export-oriented investment based upon the competitiveness of its highly educated and productive labor force. More recently, this objective has been modified to focus on attracting FDI in increasingly technology-intensive areas and to encourage domestic technological spillovers. Taiwan's outward FDI is marked by a distinct dichotomy between investment in relatively low quality labor-intensive activities offshore, particularly in China, and investment in major industrialised country markets in America and Europe.

In Taiwan's 1989 balance of payments, outward FDI reached US$7.0 billion and net capital outflow stood at US$5.3 billion. Thereafter, the FDI outflow from Taiwan largely followed a moderating trend before going back up to US$7.1 billion in 2004. In 2006, Taiwan's total outward FDI increased 22.7 % to US$7.40 billion while inward

FDI shot up dramatically by 356.9 % to US$7.42 billion, resulting in a net capital inflow of US$0.03 billion for the year. The sudden upsurge in FDI inflows reversed the long-time trend of net capital outflow prevailing since 1988. In 2007, Taiwan's total outward FDI reached US$11.1 billion, the highest in its history and US$3.7 billion more than in the previous year. Inward FDI registered US$7.8 billion. Accordingly, FDI registered a net outflow of US$3.3 billion. For the first three quarters of 2008, FDI exhibited a net outflow of US$5.2 billion (see Chart 3).

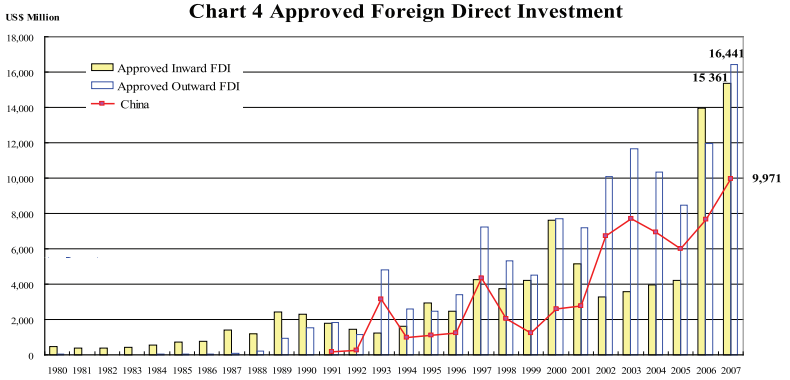
Chart 3 Foreign Direct Investment (BOP)



Source: Balance of Payments Quarterly, CBC.

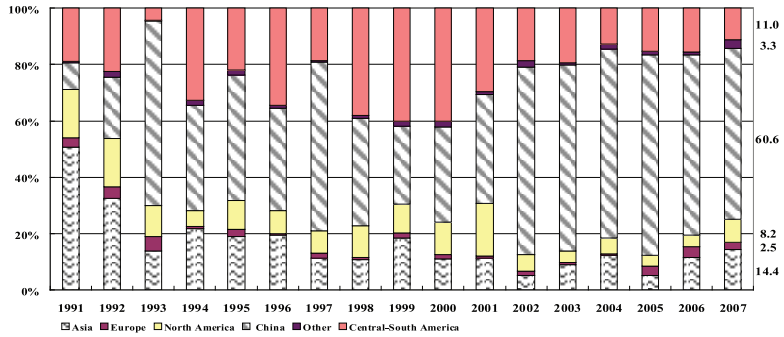
Approved inward investment peaked at US$7.6 billion in 2000, mainly owing to the opening of the fixed telecommunication network market. Meanwhile, as local companies adopted a globalisation strategy, overseas investors were actively investing in local companies. In 2006, the approved inward investment rose sharply to US$14.0 billion due to direct investment by non-residents in the electronic parts & components manufacturing industry and the financial & insurance industry. It further rose to US$15.4 billion in 2007. The approved outward investment increased from US$11.9 billion in 2006 to US$16.4 billion in 2007, of which 19.2 % went to the Americas, 60.6 % to China, 14.4 % to Asia excluding China, and 2.5 % to Europe (see Chart 4 & 5).

Chart 4 Approved Foreign Direct Investment



Source: Statistics on Overseas Chinese & Foreign Investment, Outward Investment and Mainland Investment, Investment Commission, MOEA.

Chart 5 Approved Outward FDI by Destination Country



Source: Statistics on Overseas Chinese & Foreign Investment, Outward Investment and Mainland Investment, Investment Commission, MOEA.

2.2.1 Approved Outward FDI

Taiwan appears to be the fast-growing overseas investor in the developing world. The latest investment surge started in 1987, when the NT dollar appreciated significantly over the previous year and foreign exchange regulations were liberalised. In the 1980s, the outward FDI mainly focused on the United States. As the international competitiveness of labor-intensive industries in Taiwan declined, they moved offshore to places with lower labor costs. China has been the most attractive due to its large pool of cheap labor and export-stimulus strategy.

A. Approved Outward FDI excluding China

The bulk of the outward FDI have followed a consistent pattern being targeted mainly at the American and Asian regions, with Europe and elsewhere relatively neglected. In 1987, the Americas and Asia received 98.8% of all the FDI outflows from Taiwan, while in 2007 their share was 85.5%. The outward FDI until the mid-1990s was mainly in the basic labor-intensive manufacturing industries. Subsequently, there was a marked shift into the financial & insurance industry and the electronic parts & components manufacturing industry. From 1952 to the end of 2007, the government approved 11,964 cases of outward investment, totaling more than US$55.3 billion. The foremost destination was the Caribbean Sea (36.7%), followed by United States (18.6%). The top three outward FDI industries were financial & insurance (46.0%), electronic parts & components (10.4%), and wholesale & retail trade industry (7.7%).

B. Approved Outward FDI in China

In October 1990, the government opened up indirect investment in China. From then on, Taiwan has been running a substantial balance of trade surplus with China, accompanied by significant net outflows of FDI. This rapid growth in FDI can be explained by a combination of two factors. As many relatively labor-intensive industries in Taiwan gradually lost their international competitiveness, they were compelled to move offshore to seek lower labor costs. China's *Open Door Policy* since 1978 has been targeted at attracting inflows of FDI based upon its plentiful supplies of low-cost labor. A further important factor is the cultural and ethnic links which have maintained in spite of the economic and political separation. In addition, the 1997 Asian financial crisis caused a change in the direction of FDI flows. This is particularly clear in the allocation of foreign direct investment funds between crisis-hit countries in the East Asia and China. By the end of 2007, the cumulative outward FDI in China reached US$64.9 billion, or 55.4% of the total outward FDI. China

became the destination with the most accumulated outward FDI. The industrial distribution of the cumulative outward FDI in China was dominated by electronic parts & components (16.0%), computers & electronic & optical products (15.5%), and electrical equipment manufacturing (9.3%).

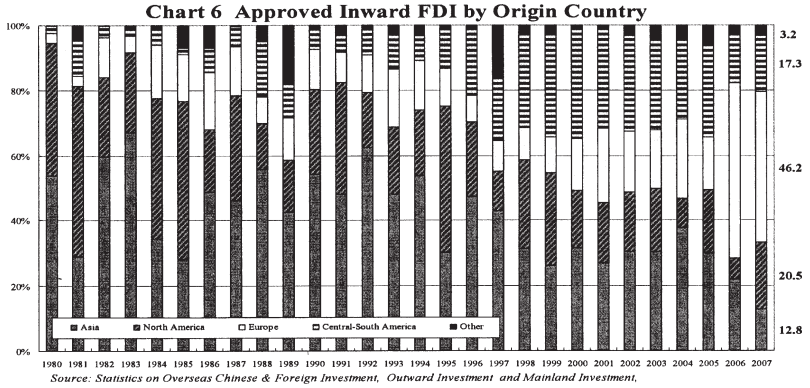
Overall, the outward FDI in the late 1980s and early 1990s involved mainly small and medium-sized, labour-intensive enterprises looking for overseas manufacturing bases, with most of them eyeing on China. After the mid-1990s, the outward FDI in China involved more and more large enterprises with large capital and high technology looking for both overseas manufacturing bases and access to China's market with huge potential.

2.2.2 Origin of Approved Inward FDI

Annual inward FDI varied between US$100 and US$300 million per annum between 1970 and 1980. However, Taiwan's foreign exchange deregulations in the mid-1980s also led to an immediate surge in the magnitude of FDI inflows. The total approved inflows doubled from US$0.8 billion in 1986 to US$1.4 billion in 1987. It further rose to US$15.4 billion in 2007.

The inward FDI had mainly come from three key industrialised regions, namely, the United States, Japan and Europe, although the magnitude and share of inflows from third countries had become increasingly important since the early 1990s. Nevertheless, the value of the FDI inflows from the major industrialised countries also continued to grow. From 1952 to the end of 2007, the government approved 22,310 cases of inward investment with a total of more than US$94.1 billion. The foremost origin of inward investment was the United States (19.3%), followed by Caribbean Sea (16.3%) in second place and Netherlands (16.2%) in third (see Chart 6).

Chart 6 Approved Inward FDI by Origin Country



Source: Statistics on Overseas Chinese & Foreign Investment, Outward Investment and Mainland Investment, Investment Commission, MOEA.

2.2.3 Sectoral Pattern of Approved Inward FDI

The inflows of FDI to Taiwan up until the mid-1970s were mainly in basic labor-intensive manufacturing industries, such as textile and clothing. Subsequently, there was a marked shift into the chemicals and electronic industries from the 1970s onwards and, more recently, FDI had flowed into the financial and insurance industry. From 1952 to 2007, the top three industries attracting inward FDI were: financial & insurance (23.2%), electronic parts & components (15.7%), and wholesale & retail trade industry (9.0%). It was also notable that the sectoral pattern of FDI by overseas Chinese differed from that of non-overseas Chinese. For both of them, the financial & insurance industry stood out as the major inward FDI industry. However, a significant proportion of the total FDI by overseas Chinese and non-overseas Chinese had been in the professional, scientific & technical services (14.9%) and in the electronics & electrical products industry (15.7%), respectively.

3. Major Policies Related to Foreign Direct Investment and Domestic Investment

3.1 Current Account and Capital Account Liberalisation

Taiwan's foreign exchange liberalisation process followed the order of the current account, the long-term capital account, and then the short-term capital account. The short-term capital was also liberalised in a progressive way, such as the gradual raising of remittance limits for juridical persons and individuals, replacing the value ceiling with shareholding ceiling for portfolio investments, gradually easing the shareholding limit, gradually raising the bank position limit and liability ceiling towards substantial easing or eventual abolishment. The capital account liberalisation was also an integral part of a larger reform effort, such as the concomitant deepening of stock and the banking markets, implementation of appropriate monetary policy, and maintenance of a stable exchange rate. This orderly opening of the capital account helped to stabilise and boost capital inflows. This was also a main reason why foreign capital inflows and their reversal in the financial turmoil did not result in large disturbances to the domestic economy in Taiwan.

3.1.1 Current Account Liberalisation

Before August 1986, a strict foreign exchange permit system was used to manage visible trade. Export and import remittances required licenses. In August 1986, the exchange permit system was substituted by a reporting system. In

March 1987, the limits on the amount of invisible trade remittances were lifted but it required reporting with the relevant documents. The trade account (the whole current account, to be exact) was liberalised.

3.1.2 Capital Account Liberalisation

A. Direct Investment

(1) Inflows

Before the July 1987 revision of the *Foreign Exchange Control Act*, the inward foreign direct investment needed the approval of the (MOF) and the Central Bank of the Republic of China (Taiwan) (hereinafter the CBC). However, obtaining the relevant approval was in general quite easy and the CBC generally did not reject an application based on foreign exchange management concerns. The policy direction was to open up capital inflows while remaining cautious about capital outflows. The 1987 revision resulted in a two-layer system: the direct investment with government approval had no remittance constraint for residents and non-residents. However, there was an extra aggregate inward remittance quota on residents. The direct investment capital inflows could be viewed as free as of July 1987, subject to the authority's approval.

(2) Outflows

With the implementation of the *Foreign Exchange Control Act* in December 1970, only financially sound companies with approval could invest outwardly. The CBC might reject applications based on foreign exchange management concerns. The 1987 revision of the *Foreign Exchange Control Act* resulted in a two-layer system for outward investment, similar to the inflows. Because the CBC would not restrict remittances for authority-approved cases, direct investment outflows could be viewed as free as of July 1987.

B. Repatriation

In March 1987, the CBC drew up regulations regarding inward remittances. It stipulated that the repatriation of government-approved overseas investment could be either deposited in a foreign exchange deposit account or else sold, so long as the amount did not exceed US$1 million. The July 1987 revision of the

Foreign Exchange Control Act applied two standards for the repatriation of the residents' foreign direct investment: those with government approval could sell the repatriated foreign exchange within the approved amount; the repatriated foreign exchange without approval could be sold based on an annual ceiling of US$5 million for a single individual and US$50 million for a juridical person. For non-residents, the staying time requirement for their FDI in Taiwan before repatriation was removed in October 1993. The staying time requirement of other non-residents' investments was removed in January 1996.

C. Portfolio Investments

The first incidence of foreign investment in Taiwan's securities occurred in May 1983, when the securities investment trust company was allowed to be set up to issue depository receipts overseas to absorb foreign money for domestic securities. The MOF and the CBC allowed Qualified Foreign Institutional Investors (QFIIs) to directly invest in Taiwan's equity market in 1991. They gradually removed the quota on QFIIs' total investment in the domestic equity market and the time limit on QFIIs' fund remittances for such purposes. With the exception of a few industries, restrictions on foreign ownership of a single listed company were also lifted. In 1996, the MOF and the CBC allowed foreign individual investors to invest in Taiwan's equity market. In October 2003, they abolished the QFIIs system and simplified the procedure for foreign investors to buy local shares. Foreign investors investing in domestic securities were reclassified into Foreign Institutional Investors (FINIs) and Foreign Individual Investors (FIDIs). Once registered with the Taiwan Stock Exchange Corporation, they may remit investment principal and proceeds through any bank at any time. Each foreign individual investor may invest up to US$5 million, while foreign institutional investors are not subject to any ceiling.

The MOF and the CBC have also gradually liberalised the scope of foreign portfolio investments in the domestic equity markets. Foreign investors may invest in a wide range of local instruments including stocks, corporate bonds, convertible bonds, Taiwan depository receipts (TDRs), warrants, government bonds, asset-backed securities, beneficiary certificates and financial debentures. Beginning in June 2003, foreign investors were allowed to participate in the domestic securities lending market. For the purpose of hedging, foreign investors were also allowed to trade futures, options, and interest-rate derivatives. In addition to domestic equities, 30% of the inward remittances may also be allocated in government bond repos, time deposits, money market instruments and money market mutual funds.

D. Foreign Exchange Control

In July 1987, for inward remittances, a single resident without approval could sell foreign currency up to US$50,000. This ceiling had been raised several times up to US$5 million in August 1993, when a juridical person without approval was for the first time allowed to invest up to US$5 million. From then on, the juridical person's inward remittance ceiling was raised several times up to US$ 50 million in June 1997. From July 1987 onwards, for outward remittances, there was an annual limit of US$5 million for a single individual or juridical person. Starting from December 1993, the ceiling for the juridical person was raised several times to reach US$50 million in June 1997. Starting from September 1994, non-residents were allowed to open NTD bank accounts in Taiwan. In 1996, domestic enterprises were allowed to exchange their borrowed foreign currencies from abroad for the NT dollar. The non-delivery forwards (NDFs) business was allowed in July 1995, but domestic juridical persons were prohibited from the NDFs in May 1998 to close a loophole for speculation.

With the progress of financial liberalisation and internationalisation, the CBC has largely deregulated capital movement. In general, capital can flow freely in and out of Taiwan. As of 2007, restrictions only remained on a few short-term financial transactions involving the conversion of the NT dollar. For example, each domestic company and resident could conduct inward and outward remittances up to US$50 million and US$5 million within one year, respectively. Non-residents could remit up to US$100 thousand per transaction. For remittances exceeding the respective ceilings, transactions could be made with the approval from the CBC.

3.2 Policies Implemented to Promote Domestic Investment

3.2.1 Central Bank Policy

In 1998, the global economy suffered a major setback as the contagion effects of the Asian financial crisis spread to Russia and South America. Taiwan, with its highly open economy, was also influenced to some degree by the international economic fluctuations. Under the preconditions of price stability and a stable foreign exchange market, the CBC, from the third quarter of 1998 onwards, adopted an easy monetary policy to boost the domestic economy. The CBC had cut the discount rate on 15 occasions by a total of 337.5 basis points between the end of 2000 and September 2004 to guide market interest rates

downwards and to stimulate the economy. As a result, market interest rates had remained low. Lower interest rates had reduced the cost of capital for domestic firms and improved the competitiveness of domestic banks.

Beginning in 2002, the CBC encouraged the adoption of Adjustable Rate Mortgages (ARMs) and the base rate system. By 2005, all the domestic banks and community financial institutions had adopted ARMs and the base rate system. The CBC required the financial institutions to link prime rates to base rates from January 2006 onwards and, at the same time, conducted target examinations on banks' new pricing practice. These structural changes were expected to make banks' lending rates more flexible and to be in line with the market trend. The cost of funds for the general public declined accordingly.

In addition, the CBC also released the postal savings re-deposits to fund private investments, public infrastructure projects, and housing demand. To provide sufficient funds to small- and medium-sized enterprises (SMEs), the CBC in November 1998 set aside NT$30 billion from the postal savings re-deposits for domestic banks to extend loans to SMEs. In May 2000, NT$3 billion was appropriated from the above package to be extended as special loans for production purposes. After the reallocation, the credit line for special loans extended to SMEs became NT$27 billion, while that extended to manufacturing enterprises was NT$33 billion. To stimulate domestic investment, the CBC joined other government agencies in promoting the *Preferential Mortgage Loan Programme*, and *Preferential Loans and Credit Guarantees for Traditional Industries Programme* through the domestic commercial banks to provide more thrust for the economy in 2000. Due to strong demand, the cap on these loans were raised several times and were thus expanded to NT$1.8 trillion and NT$1.85 trillion, respectively.

3.2.2 Other Policies

Taiwan seeks to promote investment on the island by revising the existing laws and regulations, removing current investment obstacles, improving public infrastructure, and further developing industrial zones and infrastructures for industrial development. The 1960 *Statute for Encouragement of Investment* was designed to promote industrial development and exportation by offering tax incentives for capital investment and R&D as well as eligibility for deductions based upon local content and exports. By the late 1980s, this *Statute* applied to almost the entire manufacturing sector. At the end of 1990, the *Statute for*

Encouragement of Investment was repealed and the *Statute for Upgrading Industries* was introduced to further promote the general upgrading of industries by creating a favorable tax environment.

The 1966 *Statute for Export Processing Zones (EPZs)* permitted the establishment of industrial zones in which export-oriented foreign firms, primarily in labor-intensive industries, such as electronics, could operate free from domestic regulations and red-tape. Amid strong recovery of the world economy, Taiwan's exports rose rapidly, driving the economic growth. The following is a summary of the major incentives to promote domestic investment.

A. Government Participation in Investment

The *National Development Fund of the Executive Yuan* was established in 1973 in accordance with the *Statute for Encouragement of Investment* to promote Taiwan's economic and industrial development and to enhance its national competitiveness by providing equity or loan financing. This *Fund* invested primarily in information technology, communications, avionics, biotechnology, cultural/creative and digital content industries. In 2007, the *Fund* set aside NT$10 billion in support of investment relating to domestic SMEs or the investment projects in Central/South American allied countries by domestic SMEs. The total amount of equity held by the government may not exceed 49% of total equity.

The *Small- and Medium-Sized Enterprise Credit Guarantee Fund of Taiwan (Taiwan SMEG)* was established in 1974 to provide credit guarantees for SMEs in securing project development loans from financial institutions. *Taiwan SMEG* provides credit guarantees for 80% of loans based on policy concerns, and 95% for loans with counter-guarantees. Businesses with development potential can apply for direct guarantee assistance. Total financing amount for a single company is capped at NT$100 million.

B. Private Participation in Major Infrastructure Projects

Private institutions participating in major infrastructure projects are eligible for a five-year tax holiday on profit-seeking enterprise income tax, investment credit, import duty credits on construction machinery and equipment. Profit-seeking enterprises which have held the registered stock issued by a private institution investing in a major infrastructure project are also eligible for tax credits against their payable profit-seeking enterprise tax.

C. Investment Incentives

To encourage the incorporation or expansion of the emerging and strategic industries, one of two tax credits—an investment tax credit for shareholders or a five-year tax holiday on profit-seeking enterprise income taxes—may be applied. For investments in automation equipment and technology, resource recycling, and pollution control equipment and technology, 5% to 20% of the investment may be credited against the payable profit-seeking enterprise income tax. With regard to the investment in resource-poor or less-developed areas, investors may credit 10% or 15% of the total investment against the payable profit-seeking enterprise tax. For a science-based industry company, if the machinery and equipment were imported for its own use, they may be exempt from import duty and value-added taxes for projects approved by the MOEA.

D. Land Acquisition

In order to help investors in acquiring land for factories, the MOEA implemented the *006688 Program*. Under this programme, tenants receive land rent-free for the first two years, with a 40% rent discount during the third and fourth years and a 20% discount during the fifth and sixth years. If a tenant wishes to purchase the land during the lease period, the rent paid during the lease period can be deductible up to 70% from the purchase price. Manufacturers and property developers can also submit plans to the MOEA for the land owned by the Taiwan Sugar Corporation. The government may assist with negotiations for leasing or securing land use rights for industrial use for up to 50 years. In addition, the MOEA initiated the *"Four Years Free, Six Years Half" Programme* to free up idle or low-use land to a wider range of industries, but requires the approval of the local government and the Council for Economic Planning and Development. Under this programme, such land may be rent-free for the first four years; thereafter, it can be rented at a discount of 50% for the subsequent six years.

3.3 Policies Related to Foreign Direct Investment

As the competitive advantage of Taiwan's traditional industries began to wear away in the 1980s, the government responded by establishing the science park to attract sizable investments from foreign high-tech firms. The policy focused on technological upgrading and deepening, including revisions to the *Statute for Encouragement of Investment* to prioritise the growth of capital- and technology-intensive industries and the formal approval of a *Science & Technology Programme* in May 1979. Currently, Taiwan is the leading world-market supplier

of 10 products, and plays a crucial role in the global IT production chain. The Hsinchu Science Park is the island's first science park and home of Taiwan Semiconductor, the world's largest made-to-order IC manufacturer.

Taiwan places great importance on foreign and overseas Chinese investment. Laws and regulations governing such investment are amended as necessary in accordance with domestic development conditions and the international economic and trade situation, and every effort is made to remove investment obstacles and improve investment conditions. The government also provides other assistance to foreign nationals and overseas Chinese investing in Taiwan. The following is a summary of the key regulations related to FDI.

3.3.1 Prohibited and Restricted Investment

Prohibited areas include industries that may negatively affect national security, public order, good customs and practices, or national health, and those that are prohibited by law. Investors who apply to invest in an industry in which investment is restricted by law, or by an order given under the applicable law, need to obtain approval or consent from the competent authority in charge of the industry in question. Restricted and prohibited investment areas are stipulated in the *Negative List for Investment by Overseas Chinese and Foreign Nationals*, which was drafted by the Executive Yuan based on the principles in the above two categories.

3.3.2 Foreign Exchange Regulations

Investors may apply for exchange settlement for their interest earnings or on profit distributed to them from their investment. Application for exchange settlement against the payment of principal and interest on loan investments is governed by the agreed terms and conditions approved by the competent authority. In addition, investors with approval to transfer their shares or to withdraw or reduce their investment may apply for exchange settlement, in a lump sum, of the total amount of their approved investment. This is also applicable to the capital gains realised from the investment.

3.3.3 Investment Safeguards

In case the foreign investor's investment accounts for 45% or more of the total capital amount of that enterprise, the invested enterprise shall not be subject to requisition or expropriation as long as the said capital contribution rate of the investor remains unchanged for a period of twenty years after the commencement

of business of the invested enterprise. Enterprise in which less than 45% of the total capital amount is invested by foreigner may be requisitioned or expropriated by government for national defense reasons; the investors shall be entitled to a reasonable compensation.

3.3.4 Exemptions

Where an invested enterprise is organised as a company under the *Company Law*, the investor may be exempt from the restrictions on his/her domicile in Taiwan, nationality, and amount of investment. Provisions in the said law requiring the setting aside of a certain percentage of new shares to be purchased by the employees of the invested enterprise when the enterprise issues shares publicly or carries out a capital increase via cash injection shall not apply to investments in which the foreign investment accounts for 45% or more of the total capital of the enterprise.

3.3.5 Parity of Rights and Obligations

Foreign-invested enterprises enjoy the same rights and obligations as enterprises operated by Taiwan's nationals are eligible, except as otherwise provided for in other laws.

3.3.6 Investment-related Tax Incentives for Foreign Investors

Distributed dividends or earnings are subject to a 20% withholding rate and are not subject to regulations for tax reporting under the *Income Tax Act*. Income derived from sources outside of Taiwan and paid by corporations outside of Taiwan is exempt from individual income tax if the individual stays in Taiwan for a period or periods not exceeding the aggregate of 183 days in the calendar year. To avoid double taxation and promote mutual investment and trade, Taiwan is inviting other countries to sign "tax evasion prevention and double taxation avoidance agreements."

3.3.7 Investment Cap on Outward FDI in China

From August 1, 2008, subsidiaries of multinational corporations and companies, which have obtained a certification of "headquarters" issued by the MOEA, are exempt from a ceiling on China-bound investment. For other companies with paid-in capital above NT$80 million, the ceiling on investments in China are 60% of its net worth. Companies with paid-in capital below NT$80 million can

either abide by the cap of NT$80 million, or if higher, 60% of the company's net worth. For each individual, he/she can remit up to US$5 million per year.

3.3.8 Other Incentives

In order to encourage foreign enterprises to establish international logistics centres in Taiwan, the *Statute for Upgrading Industries* provides the following incentive: Any foreign company or its branch office in Taiwan which sets up a logistics centre to conduct cargo storage, processing or distribution of its goods to local or regional customers is exempted from the business income tax.

4. Determinants of Investment in Taiwan

Investment flows mainly depend upon factors related to the macro and micro economy, as well as institutional reforms that create favorable conditions for business operation in general. These may include low inflation rates, stable exchange rates, reasonably efficient legal and regulatory systems that protect property and reward savings and investment, and low level of corruption. Over the past decades, there has been an escalation in the packages of tax breaks, incentives, free land, below-market-priced office space, and other subsidies that both developed and developing countries have been offering to attract multinational investors and/or to keep home country investors in place. In addition, investment is sensitive to the cost of capital. Local interest rates, corporate tax burden, and global financial market conditions may all have influences on the capital stock. Studies of investment behavior showed that sensitivity to tax is particularly pronounced for production destined for the competition in international markets. Some econometric studies suggest that a focus on correcting non-tax deficiencies, such as infrastructural deficiencies and macroeconomic instability, may be an efficient way to attract investment.

In this section, we use cointegration and error correction model (ECM) to explore the factors affecting the gross fixed capital formation in private sector (hereinafter private investment) in Taiwan. Cointegration analysis is employed to attend to long-run equilibrium among the variables, while ECM aims at short-run dynamism.

4.1 Variables in the Model

Past studies of investment behavior have not reached a decisive conclusion on the factors affecting private investment. In this paper, we first establish a basic model of private investment. Later, more explanatory variables will be

included to reflect Taiwan's domestic situation. The basic equation is as follows:

$$pi = f\ (y,\ credit,\ rr,\ reer,\ \mathrm{v}) \tag{1}$$

where *pi* represents real gross fixed capital formation; *y* represents real output, *credit* represents credit extended to domestic companies by local banking system (deflated by CPI); *rr* represents real interest rate; *reer* represents real effective exchange rate; *v* represents volatility of real exchange rate.

As mentioned earlier, we also add to the basic equation (1) other explanatory variables. Following Lin (2003), the sum of government investment and public enterprise investment (represented by the symbol *gi*) is taken into account. The ratio of outward FDI to Taiwan's nominal GDP (*fdi_o*) is included in the equation to reflect the robust trend of overseas investment (most markedly in China market) in the past decade. This paper also applies Tobin's q theory, using changes of real stock prices (*stkp*) as a proxy of changes of q ratio. Considering the limited number of observations and the efficiency of estimation, other possible variables are not included in this study.

After other explanatory variables are added, equation (1) becomes the following:

$$pi = f(y, credit, rr, reer, v, stkp, fdi_o, gi) \tag{2}$$

See Appendix 9 for the definitions and sources of the variables. Logarithmic transformation is applied to all variables, except for *rr*, *v* and *fdi_o* .

As the data of REER in New Taiwan Dollar became available since the first quarter of 1982, the sample period for analysis in this paper extends from 1982Q1 to 2008Q3, the latest data available.

Before the analysis, this paper reviews the trend of changes in private investment in Taiwan over the past two decades. Chart 7(A) demonstrates the high volatility of the annual growth rate of private investment. The real annual growth rate during the sample period recorded the highest at 43% in the second quarter of 2004, while the lowest fell at 39% in the fourth quarter of 2001. In fact, the standard deviation of Taiwan's real private investment between the first quarter of 1983 and the third quarter of 2008 was a high 14.4%. Chart 7(B) shows significant influence of seasonal factors on the level value of private investment, which peaks in the fourth quarter each year and falls in the first

quarter of the next year. Moreover, private investment registered faster growth between 1990 and 2000 and dropped markedly during 2001 through 2004.

Chart 7(A)
Annual Growth Rate of Private Investment

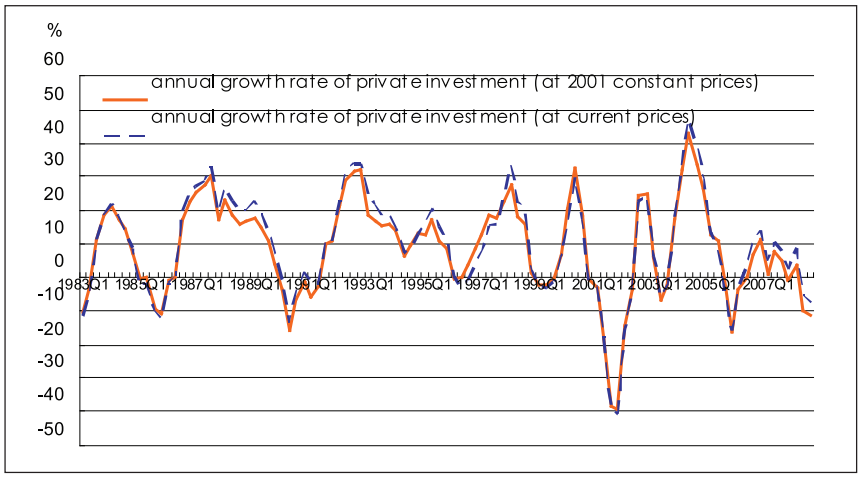
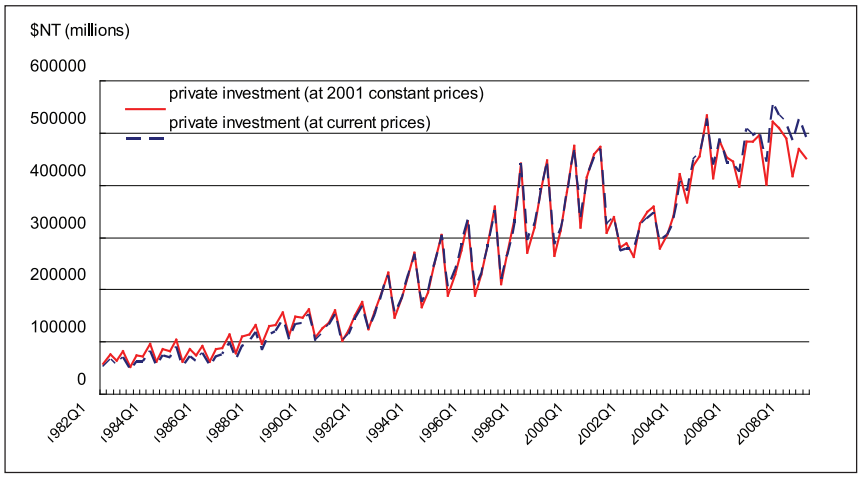


Chart 7(B)
Private Investment in Level



4.2 Cointegration Analysis

This research applies the maximum likelihood estimation (Johansen, 1988, 1990) for multivariate cointegration analysis. The long-run equilibrium between private investment and other variables is determined in the first place. Suppose $\mathbf{X_t}$ is a *P*x1 vector of the stochastic variables. $\mathbf{X_t}$ can be expressed as an autoregressive process of order k:

$$X_t = \Pi_1 X_{t-1} + \cdots + \Pi_k X_{t-k} + \mu + \phi D_t + \varepsilon_t, \qquad t = 1,..., T, \tag{3}$$

where ε_t is a residual that follows normal distribution, μ is a constant, and D_t is a deterministic term (such as time trend, dummy variables, and exogenous variables). Applying algebra, equation (3) can be written in a difference form (an error correction one) as the following:

$$\Delta X_t = \Pi X_{t-1} + \sum_{i=1}^{k-1} \Gamma_i \Delta X_{t-i} + \mu + \phi D_t + \varepsilon_t, \tag{4}$$

where the coefficient matrixes $\Pi = \sum_{i=1}^{k} \Pi_i - I$, $\Gamma_i = -\sum_{j=i+1}^{k} \Pi_j$ and $\mathbf{\Pi}$ can be denoted as $\alpha\beta$' .

From equation (2), the cointegrating vector $\mathbf{X_t}$ to be tested is a 9x1 vector (pi_t, y_t, $credit_t$, rr_t, $reer_t$, v_t, $stkp_t$, fdi_o_t, gi_t)'. The order of integration of each variable has to be determined before the cointegration analysis. This paper first conducts the ADF unit root test (augmented Dickey-Fuller unit root test) with the null hypothesis that the variable is I(1) (i.e., a unit root is present). The results of the unit root tests are shown in Appendix 11.

The ADF test results in Appendix 11 indicate that none of the levels of pi_t , rr_t , $reer_t$, $stkp_t$, fdi_o_t reject the unit-root null hypothesis, while their first differences all pose rejection, which means these variables are I(1) processes. As for other variables, the results show that the integrated order for $credit_t$ is greater than 1, and v_t is an I(0) process, while both y_t and gi_t remain unclear. We thus use Phillips-Perron (PP) unit-root test to help clarify. The results are shown in Appendix 11.

The PP unit-root test results indicate that y_t and $credit_t$ are I(1) processes, and gi_t is an I(0) process. As most variables are I(1) processes, it is hence appropriate to use cointegration for the analysis of Taiwan's private investment.

4.2.1 Diagnostic Checks

Before we begin the cointegration analysis, the VAR model is tested for proper settings. The determination of lag length k is the most important. Furthermore, the residuals estimated under the chosen lag structure need to be checked for serial correlation, presence of ARCH phenomenon, and the assumption of normal distribution.

A. Selecting the Lag Length

The lag length is chosen to make the residuals become white noise, especially no autocorrelation among them. Ljung-Box Q test shows that at the 5% significance level, most variables in the VAR system have no significant residual autocorrelation when lag length k=6 (see Table 1).

B. ARCH Test

Results of ARCH LM test on the residuals of all 9 equations in model (3) (the order is set to be 3) are also shown in Table 1, which indicates that at the 1% significance level, none of the variables reject the null hypothesis of no ARCH for the residuals.

C. Test for Normal Distribution

Johansen conducted cointegration analysis by maximum likelihood estimation under the hypothesis that the marginal distribution of residuals is normal. It is, therefore, necessary to test the distribution of residuals in each equation in the VAR model. The third moment (or skewness, which is zero under normal distribution) and the fourth moment (or kurtosis, which is 3 under normal distribution) are calculated to obtain the Jarque-Bera test statistics. The result shows that no variables reject the null hypothesis of normal distribution, with the exception of rr_t and fdi_o_t (Table 1). Johansen's analysis is based on the hypothesis of normal error terms, while the asymptotic property of his cointegration analysis is derived from the iid property of error terms. Hence, whether residuals exhibit normal distribution may have no significant effects on cointegration analysis[2].

2. Johansen pointed out that when residuals do not conform to normal distribution hypothesis, cointegration analysis is not affected to a significant degree. See Johansen (1995), p. 29.

Table 1

Diagnostic Checks

Dependent variable	Autocorrela -tion test (Q)	ARCH (3)	skewness	kurtosis	Normal distribution test (JB)
pi_t	6.08(6)	1.68	-0.45	3.26	3.68
	7.82(8)				
y_t	8.65*(6)	1.83	0.19	2.87	0.68
	13.72*(8)				
$credit_t$	10.42(6)	0.18	-0.27	3.15	1.33
	10.50(8)				
rr_t	6.63(6)	0.10	0.65	5.26	28.63***
	9.39(8)				
$reer_t$	5.69(6)	0.12	-0.15	2.61	0.98
	6.19(8)				
v_t	5.05(6)	0.41	0.24	3.36	1.47
	8.41(8)				
$stkp_t$	7.79(6)	0.83	-0.26	2.60	1.79
	7.83(8)				
fdi_o_t	2.79(6)	0.15	0.57	4.30	12.67***
	8.07(8)				
gi_t	8.36(6)	1.13	-0.07	3.14	0.18
	9.07(8)				

Notes: 1. Figures in the parenthesis following Q statistics refer to the number of lag periods.
2. ***, ** and * represent the null hypothesis is rejected under the significance levels of 1%, 5% and 10%, respectively.
3. Figures in the ARCH column are F statistics.

4.2.2 Testing and Estimating Cointegration Vectors

The diagnostic checks in Table 1 indicate that the model largely conforms to the hypothesis needed for cointegration analysis. We therefore proceed with the testing of the number of cointegration vectors. The endogenous variables in our investment model are (pi_t, y_t, $credit_t$, rr_t, $reer_t$, v_t, $stkp_t$, fdi_o_t, gi_t)', and the deterministic terms include a constant term. Before testing the number of cointegration vectors, a long-run exclusion test is performed first. The result shows that $stkp_t$, fdi_o_t, and gi_t do not reject the hypothesis that their long-run

coefficients are zero. Therefore, the long-run relation among variables reduces to a 6 x 1 vector (pi_t, y_t, $credit_t$, rr_t, $reer_t$, v_t)'. The test results of the number of cointegrating vector are listed in Table 2.

Table 2

Cointegration Test

Eigenvalues	Trace Statistics	λ_{max} Statistics	Trace Statistics	H_0	λ_{max} Statistics	H_0
0.2999	115.01	36.74	107.35	$r = 0$ *	43.42	$r = 0$
0.2299	78.28	26.92	79.34	$r \leq 1$	37.16	$r \leq 1$
0.2164	51.36	25.13	55.25	$r \leq 2$	30.82	$r \leq 2$
0.1481	26.23	16.52	35.01	$r \leq 3$	24.25	$r \leq 3$
0.0742	9.72	7.94	18.40	$r \leq 4$	17.15	$r \leq 4$
0.0170	1.77	1.77	3.84	$r \leq 5$ *	3.84	$r \leq 5$ *

Notes: 1. represents the number of different cointegration vectors.
2. * denotes rejection of the null hypothesis at the 5% level.

The trace test in Table 2 shows that there is only one cointegrating vector among variables at the 5% significance level, but the λ_{max} test shows no cointegration relationship exists. After normalisation, the cointegration relation corresponding to the maximum characteristic root between private investment and other variables is as follows:

$$pi_t = 2.35\ y_t + 0.70 credit_t - 0.07\ rr_t - 1.50\ reer_t + 0.21\ v_t \qquad (5)$$

Equation (5) shows that real GDP (y) is positively correlated to private investment in the long run, agreeing with theoretical expectations. The coefficient of real bank credit (*credit*) has a positive sign, hence positively correlated to private investment. The negative sign preceding real interest rates (*rr*) indicates that the central bank's monetary easing stimulates private investment. The real effective exchange rate of the NT dollar also follows a negative coefficient. This means that a rise in REER (NT dollar appreciation) negatively affects private investment and that a fall in REER (NT dollar depreciation) is conducive to private investment. Finally, with a positive sign, exchange rate volatility (v) is positively correlated to private investment. One possible explanation is that an

increase in exchange rate volatility might discourage some firms from investing abroad and these firms might increase their domestic investments instead.

4.3 Estimation of the Error Correction Model

According to Granger's representation theorem, if the variables of an I(1) series exhibit cointegration, then a corresponding dynamic error correction representation exists. This paper then sets up an ECM model to explore short-run dynamism of the private investment in Taiwan. It is worth noting that considering the significant influence of seasonal factors on the level value of private investment in Taiwan, the ECM model in this paper is a little different from the regular ones. Employing first order difference equations as in usual ECM modeling may cause biases. Therefore, this paper uses seasonal differences instead, treating the variables in $X_t - X_{t\text{-}4}$, X being the 9 variables in our VAR model. The error correction term is thus set as follows:

$$pi_{t\text{-}4} - 2.35\ y_{t\text{-}4} - 0.70 credit_{t\text{-}4} + 0.07\ rr_{t\text{-}4} + 1.50\ reer_{t\text{-}4} - 0.21\ v_{t\text{-}4}$$

A weak exogeneity test on vector error correction model (4) shows the coefficients of y_t, rr_t and $reer_t$ are insignificant. Hence, the contemporaneous terms of the above 3 weak exogeneous variables can be added to the error correction equation where $\Delta_4 pi_t$ is the explanatory variable:

$$\begin{aligned}\Delta_4 pi_t = {} & \alpha_0 + \sum_{i=1}^{5} \beta_{1i} \Delta_4 pi_{t-i} + \sum_{i=0}^{5} \beta_{2i} \Delta_4 y_{t-i} + \sum_{i=0}^{5} \beta_{3i} \Delta_4 credit_{t-i} + \sum_{i=0}^{5} \beta_{4i} \Delta_4 rr_{t-i} \\ & + \sum_{i=0}^{5} \beta_{5i} \Delta_4 reer_{t-i} + \sum_{i=0}^{5} \beta_{6i} v_{t-i} + \sum_{i=0}^{5} \beta_{7i} \Delta_4 stkp_{t-i} + \sum_{i=0}^{5} \beta_{8i} \Delta_4 fdi_o_{t-i} \\ & + \sum_{i=0}^{5} \beta_{9i} gi_{t-i} + \beta_{10} \Delta_4 y_t + \beta_{11} \Delta_4 rr_t + \beta_{12} \Delta_4 reer_t + \beta_{13} Err_{t-4} + \beta_{14} crisis_t \\ & + \sum_{j=0}^{3} \gamma_j S_{jt} + \varepsilon_t , \end{aligned} \qquad (6)$$

In equation (6), Δ_4 denotes a seasonal difference operator; captures the influence on Taiwan's private investment by the Asian financial crisis, the value equaling 0 for the period 1982 Q1 to 1997 Q4, and 1 for the period after 1998 Q1; S_j denotes a seasonal dummy variable, j = 1,2,3; ε_t denotes a stochastic disturbance term. $Err_{t\text{-}1}$ is an error correction term, or the (standardised) cointegration vector of the previous period, representing deviation of the previous period's private investment from long-run equilibrium. A positive $Err_{t\text{-}1}$ means that the previous period's private investment exceeds long-run equilibrium and

thus the current period's private investment should be decreased. On the contrary, a negative $Err_{t\text{-}1}$ suggests private investment in the current period to be increased. Therefore, in theory, coefficient δ should be negative in order for the dynamic system to be stable. The absolute value of δ reflects the speed of convergence towards long-run equilibrium. When the system is in long-run equilibrium, the error correction term equals 0.

We then estimate equation (6) by the method of ordinary least square for the sample period 1982Q1-2008Q3. According to the parsimony principle, variables with insignificant coefficients are excluded one by one. Finally, the following result is derived:

$$\Delta_4 pi_t = \underset{(-2.34)^{**}}{-0.55} + \underset{(12.03)^{***}}{0.62}\,\Delta_4 pi_{t-1} + \underset{(7.02)^{***}}{2.05}\,\Delta_4 y_t - \underset{(-1.92)^{*}}{0.01}\,\Delta_4 rr_{t-5} - \underset{(-2.07)^{**}}{0.28}\,\Delta_4 reer_{t-4} - \underset{(-2.85)^{***}}{0.02}\,\Delta_4 fdi_o_{t-4} - \underset{(-2.00)^{**}}{0.02}\,Err_{t-4}, \quad (7)$$

$$\overline{R}^2 = 0.80, \text{SSR} = 0.06, \text{DW} = 1.70, \text{ARCH}(1) = 0.08, \text{RESET}(1) = 0.0006$$

In the above equation, figures in parenthesis beneath coefficients are t values. ***, ** and * denotes rejection of the null hypothesis of zero coefficients at the 1%, 5% and 10% levels, respectively. In addition, the ARCH test and the RESET test (Regression Specification Error Test) were conducted to first order, and SSR denotes the standard deviation of residuals.

The result shows the coefficient of the error correction item $Err_{t\text{-}4}$ equals -0.02. This means that the system under model (7) will gradually approach long-run equilibrium. The small absolute value of 0.02 represents a small adjustment to reach long-run equilibrium within 4 seasons. In terms of model fitness, $\overline{R}^2$ is 0.80, which is not low when the explained variable is a difference term (ie. the variable being the rate of change, not a level value), meaning that the model is highly capable of explaining private investment in Taiwan. In addition, the RESET (Regression Specification Error Test) shows that model (7) does not have significant problems in covering important explanatory variables, formulating the function, and explaining the relevance between variables and error terms. And the ARCH test exhibits no presence of heteroscedasticity.

To further analyse the coefficient estimates, in terms of the effects of changes in real GDP () on Taiwan's private investment, the coefficient estimate is 2.05 for the current period. This shows that fixed investment behaviors exhibit

pro-cyclical characteristics. The coefficient of changes in real interest rates () is minus and significant. This indicates that the central bank's monetary easing stimulates private investment. Changes in the real effective NT dollar exchange rate () has a negative coefficient, meaning that a rise in the REER (NT dollar appreciation) has negative effects on Taiwan's private investment. Moreover, the coefficient of changes in outward FDI as a ratio of nominal GDP () is minus and significant. This shows that the offshoring of Taiwan's firms has had some substitution effects on private investment. However, the coefficients of real bank credit, stock price changes, exchange rate volatility, and government and public enterprise investment are insignificant. It is worth noting that the dummy variable for the Asian financial crisis () is also not significant in model (7). This may be because Taiwan was not as severely impacted by the 1997 crisis as other Asian countries and hence its private investment behaviors after 1997 had not undergone significant structural changes.

4.4 Empirical Conclusion

This study first assumes an investment function, and then applies cointegration analysis and the error correction model to Taiwan's data. The empirical result shows that the gross fixed capital formation of Taiwan's private sector largely conforms to the theoretical expectations. In particular, private investment enjoys a stable long-run correlation with the economic variables, such as real GDP, real credit, real interest rate, real exchange rate, and volatility of real exchange rate, while in short-run, 4 factors, namely, real GDP, real interest rate, real exchange rate, and the ratio of outward investment to GDP pose significant statistical effect on Taiwan's private investment.

In addition to quantifiable economic and financial factors, unquantifiable non-economic factors also play a role in the decisions of firms to invest in a certain country. These include investment environment, environmental protection policy, changes in international product markets, political stability, and other government Quantitative analysis is, in this sense, limited. policies. They may be even more important than the explanatory variables in the investment function and yet are not incorporated in systemic considerations.

5. Issues and Challenges Regarding FDI and Private Investment

Taiwan's economic strength is rooted in its industrial base, which started with a manufacturing boom in basic exported goods and then progressed to technology-intensive industries, such as electrical goods. However, Taiwan

currently is moving to a more high value-adding service-based economy, which is less capital intensive and reduces the need for large-scale investment. As in other maturing economies, Taiwan's manufacturing as a proportion of the GDP has shrunk, while the service sector has expanded to take up over 70% of the GDP in 2007. Stepping into 2008, the risk of a global downturn has risen drastically due to the escalation of the financial turmoil in the U.S. and Europe in the second half of the year. As globalisation links economies around the world closely together, Taiwan, a small and highly open economy, is susceptible to the global downturn. The government forecasts that private investment will contract by 7.8% for the whole year, as enterprises in both export-oriented and domestic-demand industries have become extremely conservative in capital outlays due to over-supply. As a result, the average of the real growth rate of gross fixed capital formation and private investment dropped in the 2000s. This slow-down in investment growth may also be attributed to the following factors.

5.1 China Factor

It is crucial for Taiwan to adjust to globalisation-related issues, the largest of which being the China factor. Given the growing magnetic attraction of the Chinese economy and China's development into the "factory of the world", Taiwan's firms increased their investment there. Their investment back home reduced as they moved operations to China to take advantage of the cheaper labor force. This has sped up the flow of capital and technology to China. Therefore, it is necessary to achieve a relative rise in domestic industrial upgrading and attract more foreign investment into Taiwan to counter this negative impact. Cross-strait economic policy should be focused on a "win-win" approach to maximise synergies with China, as well as on building aggressively the niche areas where Taiwan can add value for domestic and international investors in the region.

The restrictions based on a view of cross-strait economic relations as "a zero-sum game" – whatever is good for China economically must necessarily be bad for Taiwan – were removed recently. After an agreement on direct weekend charter- passenger flights was reached on June 13, 2008, the first flights took off on July 4. Five domestic carriers are operating these flights at present, along with six Chinese airlines. Chinese tourist visits to Taiwan got underway together with the weekend charter passenger flights. In addition, the agreement on establishing extensive direct cross-strait transportation links was signed on November 4, 2008. The weekend charter -passenger flights were expanded to a daily service, with the two sides operating a total of 108 round-trip flights per week. The number of Chinese airports covered by the agreement

was increased to 21. Besides, direct charter-cargo flights were launched, with the number of flights reaching 60 per month, to be undertaken by two to three airlines designated by each side respectively. Taiwan will also open 11 ports to direct shipping links, including Taipei and Kaohsiung, while China will open 63 ports. These measures will promote closer cooperation and exchange between businesses on the two sides of the Strait, strengthen overall economic competitiveness, and boost the investment confidence of both foreign and Taiwan domestic companies. In addition, the restrictions on the raising of funds for investment in China will be loosened, and Chinese investment in manufacturing operations in Taiwan will be allowed as well. On a foundation of steady deregulation and starting with the building of a bridge for interchange through cross-strait industrial seminars, possibilities for cross-strait industrial cooperation are being discussed with the aim of achieving substantive cooperation, the construction of a platform for industrial exchange, and linking with the global deployment of multinational enterprises.

5.2 Infrastructure

In the years prior to 1991, the government maintained a sound fiscal position. However, the government's fiscal condition started to deteriorate due to the mounting expenditure required to carry out a series of major infrastructure projects and the social welfare programmes. In response to this situation, the government in 1996 introduced a package of fiscal reforms designed to reduce the imbalance between revenues and outlays. As a result, the government investment had been constrained to a certain level. Meanwhile, the political rows between the ruling and opposition parties in recent years have also led to curtailed government investment, including construction of power plants, reservoirs, and flood control projects. Problems concerning adequate and high quality water and power supply have potential negative impact on all business sectors, and are worrisome because they threaten the prime engines of the economy. Taiwan needs to invest in roads, airports and other means of transportation, which have also been neglected after years of inter-party political contention.

To improve the infrastructure, the government is planning to implement *Love Taiwan 12 Infrastructure Projects* over the next eight years. The twelve planned projects include an island-wide mass rapid transit network, better port and aviation facilities, flood prevention and water management, sewer construction, as well as urban and industrial renewal. Priority in the projects will be given to the promotion of regional development, and seven key construction projects, such as Taoyuan Aviation City in the north, have been chosen for implementation. Combined, the projects come with a price tag of NT$4 trillion. Of this, about

NT$2.65 trillion is expected to come from government coffers, and the rest from the private sector. To speed up the implementation of the major infrastructure projects, the Legislative Yuan is requested to pass a special budget for the outlays totaling NT$500 billion quickly. The government also promotes foreign and Chinese investment in *Love Taiwan 12 Infrastructure Projects*.

5.3 Corporate Competitiveness

SMEs are the foundation upon which Taiwan's economy rests. As of 2007, while Taiwan's SMEs posted total sales of NT$10,172 billion, representing 28% of the sales of all enterprises, the number of SMEs was over 1.24 million, accounting for nearly 98% of enterprises in Taiwan. The large enterprises' share of all enterprises accounted for a mere 2%. The flexibility of SMEs, coupled with an abundant supply of cheap labor, made Taiwan's enterprises very competitive in international terms. However, in this new era of rapid growth in the knowledge economy, Taiwan's enterprises found themselves faced with increasing challenges of competition due to globalisation, the rise of emerging economies, the magnetic attraction of the Chinese market, and falling profit margins on OEM/ODM production. With their comparatively small size and the consequent difficulty to build economies of scale, Taiwan's enterprises might lose their edge and could not attract investment.

The key for Taiwan's enterprises to upgrade themselves and attract investment is to build up their own brands and invest more in R&D. The *Branding Taiwan* project is being implemented to integrate the resources of the MOEA's various departments and agencies to create an environment conducive to the establishment of different types of brands. The government thus provides the firms with funding assistance and guidance needed for successful brand building. The MOEA has also developed a wide range of programmes, such as the *Industrial Technology Development Program (ITDP)*, the *Small Business Innovation Research (SBIR)* programme, and the *Innovative Technology Applications and Service (ITAS)* programme, to encourage enterprises to upgrade their innovation and R&D capabilities. By providing funding support to cover part of the R&D cost, the government has encouraged enterprises to develop innovative and cutting-edge technologies, key technologies vital for industrial development, thereby significantly boosting industrial technology development in Taiwan. Moreover, to help enterprises weather the recent downturn, the government has increased the guarantee capacity by another NT$300 billion of the *Taiwan SMEG* to encourage banks to extend loans to SMEs. In addition, the government has initiated another NT$600 billion short-term relief fund and guarantee program with a maximum 70% guarantee coverage

for enterprises other than SMEs until the end of 2010. The government and the Bankers Association have also reached a consensus to extend payment of loan principals that are due by the end of March 2009 for another six months.

5.4 Taxation

Taxation is another area that must be dealt with cautiously. Individual and corporate income tax rates in Taiwan are higher than in several other major neighboring markets, affecting Taiwan's appeal for talent and investment. Taiwan's corporate income tax rate for the largest corporations are 25%, lower than those of Japan's highest tax rate of over 40% and Korea's 27.4%, same as China's 25% but higher than those of Hong Kong and Singapore, at 16.5% and 18%, respectively. While Hong Kong and Singapore do not impose non-resident dividend withholding tax, Taiwan's non-resident dividends are subject to a 20% withholding rate, even higher than China's 10% and Korea's 15%. Higher tax rate compared to its neighbors may have hampered investment in Taiwan.

With the aim of establishing a fair and reasonable taxation environment that can effectively promote economic development, the Tax Reform Committee of the Executive Yuan was formally established on June 30, 2008. The Tax Reform Committee is committed to proposing methods for the simplification of filing procedures for business tax, consolidated income tax, and corporate income tax within three months. Such readjustments of the tax system involve the overall reform of accompanying measures for the corporate income tax and consolidated income tax, and are expected to be completed in six months at the earliest. To induce the return of overseas Taiwanese funds to Taiwan, the Executive Yuan has already approved cutting the maximum rate on both inheritance and donation taxes to a uniform 10%, down from the existing 10-bracket progressive rates peaking at 50% in October 2008. The tax-exemption for inheritance would be raised to NT$12 million from NT$7.79 million and the corresponding figures for donation would be raised to NT$2.2 million from NT$1.11 million. To accelerate the pace of investment activities, the Executive Yuan approved the revisions to the Statute of Industrial Upgrading, offering tax incentives to startup or expansion projects of manufacturing and related technical service industries, removing the existing confinement to emerging high-tech enterprises. Enterprises are eligible for a five-year tax holiday only for startup or expansion projects of enterprises from July 2008 to the end of 2009, which are completed by 2010, with a one-year grace period.

5.5 Other Issues

5.5.1 Free Trade Agreement

Yet another crucial issue is whether Taiwan is able to sign Free Trade Agreements (FTAs) with its major trading partners (such as U.S., Japan and Singapore), though Taiwan already signed FTAs with her diplomatic allies in Central America. For decades, the U.S. and Taiwan have had a strong trade relationship; it is vital to constantly seek ways to enhance this relationship. As a well developed service-based economy, the U.S. has successful business models and practices that could be transferred to Taiwan through investments and strategic alliances. Building upon the long-term U.S.-Taiwan trade relationship would also be an excellent way for Taiwan to differentiate itself from China, where legal rights remain poorly protected and government regulation remains highly unpredictable. Besides, in 2007 Korea already succeeded in signing FTA with the U.S., arousing further concern about Taiwan's future comparative competitiveness.

5.5.2 Environmental Protection

A further concern is finding the optimum balance between the quality of life and economic development. With the passage of the *Kyoto Protocol* and a growing awareness of environmental conservation, all nations are emphasising recycling and renewing natural resources, and developing green environment industries. However, the lengthy environmental impact assessment (EIA) procedures may have postponed investment projects in Taiwan, such as *Kuokuang Petrochemical Project* and *Formosa Big Steel Plant Project*, depriving investors of precious business opportunities. Taiwan's government may propose new EIA procedures that would speed up the process for major investment projects of an urgent nature, but remain in keeping with Environmental Protection Administration standards. In addition, all EIA inspection criteria and standards should be determined and finalised in advance, with no changes made thereafter, so as to reduce uncertainty among investors and businesses regarding the EIA rules.

6. Conclusions and Policy Recommendations

The economic performance of Taiwan over the past decades has been strong and stable. Moving into the new millennium, however, the average of the real growth rate of gross fixed capital formation and private investment dropped

dramatically to about 2% and 5%, respectively, during the period of 2000-07. The annual GDP growth averaged 4.1%, a slowing-down in comparison with the 6.4% in 1990s. The moderation in growth reflected the increasing maturity of Taiwan's economy as well as the sluggish regional growth in Asia since the 1997 crisis and the more recent global downturn. The government predicts that real gross fixed capital formation will witness a negative growth of 5.8% for 2008. The slowdown in investment growth may also be attributed to the following factors.

First, in view of the growing magnetic attraction of the China economy and China's development into the "factory of the world", failure to engage fully with the Chinese economy is tantamount to self-marginalisation. In fact, Taiwan's firms have reduced investment back home moving their operations to China to take advantage of the cheaper labor force, prompting faster outflow of capital and technology to China. Second, the government investment has been constrained to a certain level since 1996 owing to the insistent efforts to reduce the imbalance between revenues and outlays to maintain a sound fiscal position. Meanwhile, infrastructure investment, including power plants and flood control projects, has been neglected after years of inter-party political contention. Third, Taiwan's enterprises might lose their edge and could not attract investment since they do not have economies of scale. Fourth, some of Taiwan's tax rates are higher than several other major neighboring markets, overshadowing Taiwan's attraction to talent and investment. Fifth, Taiwan has not signed FTAs with its major trading partners, such as U.S. and Japan, to advance economic and trade relations. Last but not least, the lengthy EIA procedures may have postponed the time for factory building, depriving investors of precious business opportunities.

Investment flows may depend upon macro, micro, and institutional reforms that create favorable conditions for business operation in general. The empirical result in this study shows that Taiwan's investment behaviors exhibit pro-cyclical characteristics, in line with prior expectations. The NT dollar appreciation has negative effects on Taiwan's private investment. The offshoring of Taiwan's firms has had some substitution effects on private investment. In addition, the central bank's monetary easing stimulates private investment. Finally, the dummy variable for the 1997 Asian financial crisis is not significant. This may be because Taiwan was not as severely impacted by the 1997 financial crisis as other Asian countries, and hence its private investment behaviors after 1997 had not undergone significant structural changes.

It is worth noting that, the NT dollar appreciation may have positive effects on Taiwan's private investment. For example, the NT dollar appreciation in 1980s

made the low-skilled, thin-margin manufacturing sector unprofitable and forced Taiwan's manufacturers to start producing higher skilled and value-adding electronic products. The light industry was no longer protected from the weak currency and thus moved toward the development of a high-tech industry. This industry restructuring had resulted in the increase in private investment in 1980s. However, the quantitative analysis may not reflect this structural change. It is also worth noting that, in addition to quantifiable economic and financial factors, unquantifiable non-economic factors also play a role in the decisions of firms to invest in a certain country. These include the investment environment, environmental protection policy, changes in international product markets, political stability, and other government policies. They may be even more important than the explanatory variables in the investment function and yet are not incorporated in systemic considerations. Quantitative analysis is, in this sense, limited.

Overall, the evidence from the empirical study and from Taiwan's own experience show that the CBC may consider implementing an easy monetary policy to help reduce the funding costs of enterprises, encourage banks to extend credit, which are thus expected to boost private investment. Challenged by the recent global downturn, the government also needs to adopt an expansionary fiscal policy and actively implement stimulus programmes. These coordinated policy efforts will take effects in due course and bring economic growth back on track. Moreover, the government should actively expand the scale of public investment, especially in infrastructure, to improve the general investment environment and to make up for insufficient private demand. To help well-managed enterprises tide over their financial difficulties, the government needs to bail them out with special loan- and credit-granting projects. In addition, Taiwan's enterprises need to build economies of scale and sharpen their competitive edge to conquer the challenges from the rise of emerging economies and China's magnetic attraction. The key to survival for Taiwan's enterprises is not to compete on cost, but rather to make an ongoing effort in innovation and R&D. Taiwan should also move away from its dependence on contract manufacturing and create its own brands; this is one of the key preconditions for the successful transformation and upgrading of industry, and for the achievement of sustainable development by individual enterprises. To remove investment barriers and promote private investment, the government should track and review the actual progress of the major private investment projects and the need for government assistance case by case. The government should also advance tax reforms, such as reducing the rates of corporate income taxes, to further attract investment. Moreover, the government may propose new EIA procedures that would speed up the process for major investment projects.

Looking forward, China, and the other emerging economies are already competing vigorously for investor attention. Taiwan's government should go all-out to review laws and regulations with the aim of avoiding the obstruction of market competition and economic growth by excessive controls and ill-designed rules. Priority has been given to fostering cross-strait cooperation on normalisation of economic and trade ties, financial supervision, etc. The restrictions on the raising of funds for investment in China will be loosened, and the coverage ratio incentives for urban renewal building construction will be expanded. Taiwan's government will also encourage Chinese investment in areas such as herbal medicines, aerospace, telecommunications and automobiles. All these measures and deregulations should revitalise Taiwan's economy and encourage greater investment activity.

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Appendix 1 Major Domestic Economic and Financial Indicators

Year	Economic Growth Rate (GDP) %	Real Growth Rate of Gross Fixed Capital Formation %				Gross National Savings / GDP %	Gross Capital Formation / GDP %	Excess Savings / GDP %
		Total	Private	Govern-ment	Public Enterprise			
1980	7.36	14.38	9.55	10.64	25.51	31.71	**33.24**	-1.53
1981	6.24	3.84	5.61	9.90	-2.14	30.62	29.34	1.28
1982	3.47	0.20	-3.39	6.81	2.65	29.57	24.84	4.73
1983	8.32	-1.35	4.79	-5.47	-8.95	31.73	23.19	8.54
1984	10.71	4.86	14.02	6.57	-13.50	33.67	21.92	11.75
1985	5.02	-4.57	-5.69	7.77	-11.25	33.65	18.90	14.75
1986	11.49	10.93	10.42	11.90	11.39	**38.93**	17.48	**21.45**
1987	**12.66**	18.95	24.42	11.82	11.27	38.86	20.51	18.34
1988	8.04	14.89	18.06	21.48	-0.63	34.98	23.55	11.43
1989	8.45	14.61	11.07	20.26	20.44	31.48	23.31	8.17
1990	5.70	7.68	-7.03	**24.84**	**35.26**	29.74	22.96	6.78
1991	7.58	9.32	3.88	23.12	6.72	29.82	23.17	6.65
1992	7.85	18.66	29.18	13.50	2.35	29.29	25.29	4.00
1993	6.90	11.91	16.36	17.98	-8.37	29.04	25.96	3.08
1994	7.39	7.87	10.66	13.48	-11.56	27.82	25.21	2.61
1995	6.49	7.68	11.70	3.41	-0.09	27.27	25.20	2.07
1996	6.30	1.80	3.72	-0.21	-2.82	26.87	23.09	3.78
1997	6.59	10.85	18.61	-0.29	-2.48	26.43	24.07	2.36
1998	4.55	8.94	13.24	-0.29	4.49	26.18	24.96	1.23
1999	5.75	2.94	1.01	4.10	13.33	26.32	23.64	2.68
2000	5.77	9.02	15.61	-4.05	-2.96	26.03	23.26	2.77
2001	-2.17	-19.91	-26.83	-6.42	1.43	24.62	18.36	6.26
2002	4.64	1.07	6.68	-12.71	-1.23	26.56	17.96	8.60
2003	3.50	1.72	3.65	-1.26	-3.94	27.97	18.40	9.57
2004	6.15	**19.46**	**33.05**	-5.78	-18.15	28.25	22.66	5.59
2005	4.16	1.19	0.31	-1.92	16.20	26.95	21.38	5.57
2006	4.80	0.87	3.57	-7.39	-7.86	28.68	21.24	7.18
2007	5.70	1.90	3.25	-5.28	1.42	30.64	21.11	9.13
2008 f	1.87	-5.81	-7.83	1.54	1.92			

Source: Statistical Abstract of National Income, DGBAS, Executive Yuan, November 2008.

Major Domestic Economic and Financial Indicators (Continued)

Year	Gross Fixed Capital Formation / GDP %				Real Growth Rate of Gross Fixed Capital Formation %			
	Private	Public	Govern-ment	Public Enterprise	Construc-tion	Transporta-tion Equipment	Machinery & Equipment	Intangible Fixed Assets
1980	15.2	14.9	4.5	10.4	8.07	8.32	28.28	-7.38
1981	14.0	13.4	4.4	9.0	1.08	-8.51	12.02	-12.21
1982	12.5	13.0	4.3	8.6	0.35	24.40	-6.31	18.00
1983	11.8	10.7	3.7	7.1	-3.14	11.89	-3.83	33.30
1984	12.1	8.9	3.5	5.4	8.61	-3.34	2.31	15.56
1985	10.6	8.1	3.6	4.5	3.54	-19.99	-12.16	20.74
1986	10.3	7.8	3.4	4.3	8.78	-9.98	20.66	38.20
1987	11.5	7.7	3.4	4.2	12.99	27.74	26.41	20.80
1988	12.8	7.9	4.0	3.9	12.38	21.77	15.96	34.23
1989	13.1	8.9	4.6	4.3	9.38	27.63	18.67	12.54
1990	11.4	10.9	5.4	5.4	7.22	-1.67	10.29	20.46
1991	10.7	11.3	6.1	5.3	13.65	14.69	2.49	9.51
1992	12.7	11.3	6.4	4.9	18.33	29.64	15.80	22.92
1993	13.8	11.2	7.1	4.2	20.88	-0.07	3.10	7.41
1994	13.9	10.5	7.1	3.4	7.99	-8.87	11.43	29.37
1995	14.7	10.1	6.9	3.2	4.22	2.21	13.81	19.55
1996	13.5	8.9	6.2	2.7	-3.01	-14.13	12.21	6.40
1997	14.6	8.1	5.7	2.4	2.28	31.46	17.68	20.41
1998	15.8	7.8	5.4	2.4	4.02	14.63	10.73	44.21
1999	15.2	7.9	5.4	2.6	-3.24	-28.14	13.00	30.08
2000	16.7	7.2	4.9	2.3	-3.38	7.54	19.11	20.51
2001	12.4	7.0	4.6	2.4	-12.11	-4.69	-29.62	0.11
2002	12.5	6.1	3.9	2.2	2.47	-19.74	1.24	12.07
2003	12.7	5.9	3.8	2.1	-3.11	-8.09	5.55	12.04
2004	16.5	5.4	3.7	1.6	7.67	23.72	29.63	16.15
2005	15.9	5.4	3.6	1.8	-1.42	39.16	-1.25	3.56
2006	16.2	5.0	3.4	1.6	2.90	-34.59	4.61	0.40
2007	16.3	4.9	3.3	1.6	-0.74	-0.26	3.79	2.68
2008 f	15.6	5.4	3.7	1.7				

Source: Statistical Abstract of National Income, DGBAS, Executive Yuan, November 2008.

Major Domestic Economic and Financial Indicators (Continued)

Year	Consumer Price Index (Annual Rate of Change, %) (2001=100)	Interest Rate %				Stock Market		
		Discount Rate (end of period)	Five Major Banks [1] (average)			Stock Price Index Average (1966=100)	Total Trading Value (NT$ billion)	Daily Trading Value (NT$ billion)
			Prime Rate	Time Deposit				
				1 Month	1 Year			
1980	19.02	11.000	14.50	9.75	12.50	547		
1981	16.32	11.750	13.50	10.25	13.00	549		
1982	2.96	7.750	9.50	7.00	9.00	477		
1983	1.37	7.250	9.00	6.50	8.50	654		
1984	-0.03	6.750	8.50	6.00	8.00	873		
1985	-0.16	5.250	7.50	4.75	6.25	746	195	
1986	0.70	4.500	6.75	3.50	5.00	945	676	
1987	0.52	4.500	6.75	3.50	5.00	2,135	2,669	
1988	1.29	4.500	7.00	4.25	5.25	5,202	7,868	
1989	4.41	7.750	10.38	7.25	9.50	8,616	25,408	
1990	4.13	7.750	10.00	6.50	9.50	6,775	19,031	
1991	3.62	6.250	8.65	5.58	8.26	4,929	9,683	
1992	4.47	5.625	8.30	5.45	7.79	4,272	5,917	21
1993	2.94	5.500	8.03	5.43	7.59	4,215	9,057	31
1994	4.10	5.500	7.94	5.33	7.29	6,253	18,812	66
1995	3.67	5.500	7.67	5.14	6.73	5,544	10,151	35
1996	3.07	5.000	7.38	5.02	6.02	6,004	12,908	45
1997	0.90	5.250	7.50	5.21	6.03	8,411	37,241	130
1998	1.68	4.750	7.70	4.66	5.44	7,738	29,619	109
1999	0.18	4.500	7.67	4.42	5.03	7,427	29,292	110
2000	1.25	4.625	7.71	4.34	5.00	7,847	30,527	113
2001	-0.01	2.125	7.38	2.13	2.41	4,907	18,355	75
2002	-0.20	1.625	7.10	1.48	1.86	5,226	21,874	88
2003	-0.28	1.375	3.43	1.05	1.40	5,162	20,333	82
2004	1.61	1.750	3.52	1.15	1.52	6,034	23,875	96
2005	2.31	2.250	3.85	1.50	1.99	6,092	18,819	76
2006	0.60	2.750	4.12	1.71	2.20	6,842	23,900	96
2007	1.80	3.375	4.31	2.09	2.62	8,510	33,044	134

Note: (1) The five major banks are the Bank of Taiwan, Taiwan Cooperative Bank, Chang Hwa Commercial Bank, First Commercial Bank and Hua Nan Commercial Bank.

Source: *Financial Statistics Monthly*, CBC.

Major Domestic Economic and Financial Indicators (Continued)

Year	Balance of Payments (US$ million)				Foreign Exchange Reserves (end of period)(US$ billion)	Interbank Closing Rates of the NT Dollar against the US Dollar (end of period)
	Current Account	Capital Account	Financial Account	Change[(2)] in Net Foreign Assets of the Central Bank		
1980					2.21	36.0100
1981	522	-3	4,556	-4,748	7.24	37.8400
1982	2,251	-3	-640	-1,106	8.53	39.9100
1983	4,416	-4	-720	-3,341	11.86	40.2700
1984	6,980	-4	-2,605	-3,976	15.66	39.4700
1985	9,206	-4	-3,171	-6,525	22.56	39.8500
1986	16,287	-3	6,942	-23,322	46.31	35.5000
1987	18,003	-2	10,395	-28,093	76.75	28.5500
1988	10,200	-19	-11,373	1,392	73.90	28.1700
1989	11,416	-31	-12,131	780	73.22	26.1600
1990	10,923	-156	-15,150	3,918	72.44	27.1075
1991	12,468	-443	-2,228	-9,659	82.41	25.7475
1992	8,550	-393	-6,910	-1,367	82.31	25.4025
1993	7,042	-328	-4,629	-1,541	83.57	26.6260
1994	6,498	-344	-1,397	-4,622	92.46	26.2400
1995	5,474	-650	-8,190	3,931	90.31	27.2650
1996	10,923	-653	-8,633	-1,102	88.04	27.4910
1997	7,050	-314	-7,291	728	83.50	32.6380
1998	3,436	-181	2,495	-4,827	90.34	32.216
1999	7,993	-173	9,220	-18,593	106.20	31.395
2000	8,899	-287	-8,019	-2,477	106.74	32.992
2001	18,936	-163	-384	-17,353	122.21	34.999
2002	26,357	-139	8,749	-33,664	161.66	34.753
2003	30,504	-87	7,628	-37,092	206.63	33.978
2004	19,728	-77	7,169	-26,595	241.74	31.917
2005	17,578	-117	2,302	-20,056	253.29	32.850
2006	26,300	-118	-19,595	-6,086	266.15	32.596
2007	32,979	-96	-38,656	4,020	270.31	32.443

Note: (2) minus sign represents an increase.

Source: Financial Statistics Monthly, CBC.

Appendix 2 Foreign Direct Investment (FDI)

Year	Balance of Payments (US$ million)			MOEA Approved (US$ million)			
	Outward FDI (1)	Inward FDI (2)	Net FDI (1)-(2)	Outward FDI, excluding China (3)	Outward FDI in China (4)	Total Outward FDI (3)+(4)	Inward FDI
1980				42		42	466
1981	60	151	91	11		11	396
1982	32	104	72	12		12	380
1983	19	149	130	11		11	404
1984	72	199	127	39		39	559
1985	79	342	263	41		41	702
1986	65	326	261	57		57	770
1987	705	715	10	103		103	1,419
1988	4,121	961	-3,160	219		219	1,183
1989	6,951	1,604	-5,347	931		931	2,418
1990	5,243	1,330	-3,913	1,552		1,552	2,302
1991	2,055	1,271	-784	1,656	174	1,830	1,778
1992	1,967	879	-1,088	887	247	1,134	1,461
1993	2,611	917	-1,694	1,661	3,168	4,829	1,213
1994	2,640	1,375	-1,265	1,617	962	2,579	1,631
1995	2,983	1,559	-1,424	1,357	1,093	2,450	2,925
1996	3,843	1,864	-1,979	2,165	1,229	3,395	2,461
1997	5,243	2,248	-2,995	2,894	4,334	7,228	4,267
1998	3,836	222	-3,614	3,296	2,035	5,331	3,739
1999	4,420	2,926	-1,494	3,269	1,253	4,522	4,231
2000	6,701	4,928	-1,773	5,077	2,607	7,684	7,608
2001	5,480	4,109	-1,371	4,392	2,784	7,176	5,129
2002	4,886	1,445	-3,441	3,370	6,723	10,093	3,272
2003	5,682	453	-5,229	3,969	7,699	11,667	3,576
2004	7,145	1,898	-5,247	3,382	6,941	10,323	3,952
2005	6,028	1,625	-4,403	2,447	6,007	8,454	4,228
2006	7,399	7,424	25	4,315	7,642	11,958	13,969
2007	11,107	7,769	-3,338	6,470	9,971	16,441	15,361

Source: Balance of Payments Quarterly, CBC.

Statistics on Overseas Chinese & Foreign Investment, Outward Investment and Mainland Investment, Investment Commission, MOEA.

Appendix 3 Approved Outward FDI by Destination Country (%)

Year	Total	North America	(USA)	Central-South America	Europe	Asia (excluding China)	China	Others(1)
1991	100.0	17.0	16.3	19.0	3.3	50.8	9.5	0.4
1992	100.0	17.1	17.0	22.5	4.0	32.6	21.8	2.0
1993	100.0	11.0	11.0	4.4	5.3	13.7	65.6	0.0
1994	100.0	5.6	5.6	32.7	0.9	21.7	37.3	1.8
1995	100.0	10.1	10.1	22.0	2.4	19.1	44.6	1.8
1996	100.0	8.0	8.0	34.5	0.6	19.5	36.2	1.2
1997	100.0	7.8	7.6	18.7	1.8	11.3	60.0	0.4
1998	100.0	11.3	11.2	38.2	0.6	10.9	38.2	0.8
1999	100.0	10.0	9.8	40.1	1.8	18.5	27.7	1.9
2000	100.0	11.3	11.2	40.1	1.6	11.1	33.9	2.0
2001	100.0	18.7	15.2	29.5	0.7	11.4	38.8	0.9
2002	100.0	5.8	5.7	18.8	1.5	5.3	66.6	2.0
2003	100.0	4.0	4.0	19.4	0.7	9.1	66.0	0.8
2004	100.0	5.4	5.4	12.8	0.6	12.4	67.2	1.6
2005	100.0	3.8	3.7	15.4	3.5	5.1	71.1	1.1
2006	100.0	4.1	4.1	15.5	3.9	11.6	63.9	1.0
2007	100.0	8.2	8.2	11.0	2.5	14.4	60.6	3.3

Note: (1) include Oceania, Africa, etc.

Source: Statistics on Overseas Chinese & Foreign Investment, Outward Investment and Mainland Investment, Investment Commission, MOEA.

Appendix 4 Approved Outward FDI by Destination Country

(excluding China) (%)

Year	Total	North America	(USA)	Central-South America	Europe	Asia	(Malay-sia)	(Singa-pore)	Others[(1)]
1980	100.0	83.4	83.4	0.0	2.4	7.5	0.0	6.6	6.7
1981	100.0	15.3	15.3	1.4	20.7	62.6	0.0	6.8	0.0
1982	100.0	21.5	21.5	0.0	0.0	78.5	0.0	0.8	0.0
1983	100.0	27.1	27.1	0.0	0.0	62.1	28.4	8.6	10.8
1984	100.0	77.8	77.8	4.2	0.0	16.7	3.1	0.5	1.3
1985	100.0	86.3	86.3	0.3	2.2	10.2	0.0	0.6	1.0
1986	100.0	80.8	80.8	1.4	0.3	14.8	0.0	0.8	2.7
1987	100.0	68.2	68.2	9.9	0.2	20.7	5.7	1.3	1.0
1988	100.0	56.4	56.4	3.2	5.5	31.7	1.2	2.9	3.2
1989	100.0	57.2	54.6	9.9	0.3	31.8	17.0	0.6	0.8
1990	100.0	28.9	27.6	25.1	6.2	38.8	11.9	3.1	1.0
1991	100.0	18.8	18.0	20.9	3.7	56.1	26.7	0.8	0.5
1992	100.0	21.8	21.8	28.8	5.2	41.7	17.6	1.0	2.5
1993	100.0	31.9	31.9	12.7	15.4	40.0	3.9	4.2	0.0
1994	100.0	9.0	8.9	52.2	1.4	34.6	6.3	6.2	2.8
1995	100.0	18.3	18.3	39.7	4.4	34.5	5.0	2.3	3.1
1996	100.0	12.6	12.5	54.1	1.0	30.6	4.3	7.6	1.7
1997	100.0	19.5	18.9	46.7	4.5	28.3	2.9	8.0	1.0
1998	100.0	18.3	18.2	61.7	1.0	17.6	0.6	4.8	1.4
1999	100.0	13.9	13.6	55.5	2.5	25.6	0.4	9.9	2.5
2000	100.0	17.1	17.0	60.7	2.5	16.8	0.4	4.3	2.9
2001	100.0	30.6	24.9	48.3	1.1	18.6	1.0	8.6	1.4
2002	100.0	17.3	17.1	56.2	4.6	15.7	0.9	0.8	6.2
2003	100.0	11.8	11.8	57.0	1.9	26.8	1.3	0.7	2.5
2004	100.0	16.6	16.5	39.1	1.8	37.7	1.0	24.3	4.8
2005	100.0	13.0	12.9	53.1	12.2	17.6	1.2	4.0	4.1
2006	100.0	11.3	11.2	42.8	10.7	32.2	0.7	18.7	3.0
2007	100.0	20.8	20.8	28.1	6.5	36.6	1.0	18.5	8.0

Note: (1) include Oceania, Africa, etc.

Source: Statistics on Overseas Chinese & Foreign Investment, Outward Investment and Mainland Investment, Investment Commission, MOEA.

Appendix 5 Approved Outward FDI by Industry(excluding China)

(%)

Year	Total (3)	Manu-factur-ing	(Electronic Parts & Components Manufactur-ing)	(Textile)	Wholesale & Retail Trade	Information & Communica-tion	Financial & Insurance	Others(1)
1980	100.0	92.7	0.0	61.4	0.0	0.0	0.0	7.3
1981	100.0	81.8	0.0	20.1	0.0	0.0	0.0	18.2
1982	100.0	23.0	0.0	5.6	0.0	0.0	0.0	77.0
1983	100.0	83.3	0.0	43.0	0.0	0.0	0.0	16.7
1984	100.0	83.2	0.0	0.0	0.0	0.0	0.0	16.8
1985	100.0	86.9	0.0	14.0	0.0	0.0	0.0	13.1
1986	100.0	88.3	0.0	1.7	0.0	0.0	0.0	11.7
1987	100.0	90.2	0.0	12.8	0.0	0.0	0.0	9.8
1988	100.0	95.8	0.0	14.8	0.0	0.0	0.0	4.2
1989	100.0	95.3	0.0	46.9	0.0	0.0	0.0	4.7
1990	100.0	84.0	0.0	15.0	0.0	0.0	0.0	16.0
1991	100.0	91.3	0.0	29.6	0.0	0.0	0.0	8.7
1992	100.0	88.0	0.0	12.2	0.0	0.0	0.0	12.0
1993	100.0	53.1	1.0	5.2	11.8	2.9	23.8	8.4
1994	100.0	34.5	12.2	2.7	23.1	0.3	25.7	16.4
1995	100.0	42.6	5.4	8.8	12.8	1.5	37.7	5.4
1996	100.0	30.0	3.4	2.7	10.1	1.2	47.1	11.6
1997	100.0	33.4	6.1	2.4	17.4	0.8	35.9	12.5
1998	100.0	31.4	5.9	2.1	8.8	1.4	54.7	3.7
1999	100.0	29.9	14.0	1.6	11.6	2.1	47.6	8.8
2000	100.0	19.1	7.4	0.3	4.9	8.6	59.1	8.3
2001	100.0	40.3	28.4	0.9	4.8	10.2	38.4	6.3
2002	100.0	25.7	7.2	0.6	8.7	4.2	55.1	6.3
2003	100.0	18.7	3.4	2.3	6.9	2.9	65.2	6.3
2004	100.0	45.2	30.0	1.3	7.4	3.2	40.1	4.1
2005	100.0	27.1	8.5	1.0	7.3	2.3	58.5	4.8
2006	100.0	34.9	21.5	0.8	11.0	1.6	49.8	2.7
2007	100.0	23.5	6.5	1.0	2.6	0.6	71.9	1.4

Note: (1) include agriculture, forestry, fishing, mining, electricity, gas, water, construction, etc.

*Source: Statistics on Overseas Chinese & Foreign Investment, Outward Investment and Mainland Investmen*t, Investment Commission, MOEA.

Appendix 6 Approved Inward FDI by Origin Country (%)

Year	Total	North America	(USA)	Central-South America	Europe	(Nether-lands)	Asia	(Japan)	Others[1]
1980	100.0	40.8	40.7	2.2	3.1	1.0	53.7	19.1	0.2
1981	100.0	52.2	52.1	10.8	3.2	1.1	29.1	16.7	4.7
1982	100.0	24.2	24.2	3.6	12.3	3.8	59.7	40.1	0.2
1983	100.0	24.8	24.5	2.6	5.1	1.6	66.9	48.8	0.6
1984	100.0	43.3	43.2	5.4	16.3	3.4	34.3	20.7	0.7
1985	100.0	48.6	48.5	2.0	14.2	0.4	28.2	20.8	7.0
1986	100.0	19.4	19.1	7.5	17.5	7.8	48.7	33.2	6.9
1987	100.0	32.4	31.5	6.0	15.1	2.0	46.0	30.5	0.5
1988	100.0	14.2	13.6	16.9	8.2	3.1	55.6	37.6	5.1
1989	100.0	15.9	15.8	11.0	13.0	6.6	42.6	27.6	17.5
1990	100.0	26.0	25.3	6.4	12.3	2.2	54.2	36.4	1.1
1991	100.0	34.5	34.4	5.1	9.3	3.1	47.9	30.1	3.2
1992	100.0	17.1	15.1	7.9	11.3	4.7	62.3	28.8	1.4
1993	100.0	20.7	19.4	10.9	17.7	7.1	47.9	22.9	2.8
1994	100.0	20.4	20.0	7.6	15.0	4.9	53.7	24.3	3.3
1995	100.0	44.9	44.6	11.9	11.5	2.6	30.2	19.6	1.5
1996	100.0	22.9	19.9	20.3	8.2	1.2	47.4	22.2	1.2
1997	100.0	12.0	11.5	18.9	9.5	2.4	43.0	20.0	16.6
1998	100.0	27.5	25.5	28.6	9.9	3.4	31.2	14.4	2.8
1999	100.0	28.4	27.1	31.3	10.9	4.6	26.3	12.2	3.1
2000	100.0	17.6	17.5	33.9	15.9	4.1	31.6	9.6	1.0
2001	100.0	18.4	18.3	30.2	23.1	10.2	26.9	13.4	1.4
2002	100.0	18.4	18.3	29.2	18.7	9.4	30.4	18.6	3.3
2003	100.0	19.3	19.2	27.9	18.0	7.7	30.5	20.3	4.3
2004	100.0	9.2	9.1	24.0	24.4	8.3	37.6	20.9	4.8
2005	100.0	19.4	19.0	28.4	16.2	9.6	30.0	17.1	6.0
2006	100.0	6.4	6.3	15.7	53.8	38.8	22.0	11.4	2.1
2007	100.0	20.5	20.5	17.3	46.2	41.1	12.8	6.5	3.2

Note: (1) include Oceania, Africa, etc.

Source: Statistics on Overseas Chinese & Foreign Investment, Outward Investment and Mainland Investment, Investment Commission, MOEA.

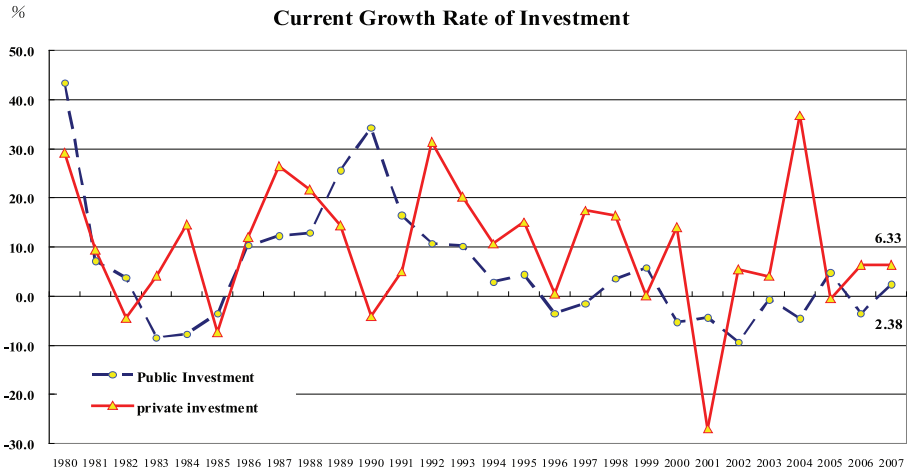
Appendix 7 Approved Inward FDI by Industry (%)

Year	Total	Manu-factur-ing	(Electronic Parts & Components Manufactur-ing)	Wholesale & Retail Trade	Information & Communica-tion	Financial & Insurance	Professional, Scientific & Technical Services	Others[1)]
1980	100.0	93.4	0.0	0.0	0.0	0.9	3.3	2.4
1981	100.0	66.4	0.0	0.0	0.0	1.9	27.4	4.3
1982	100.0	61.2	0.0	0.0	0.0	3.2	31.1	4.5
1983	100.0	84.3	0.0	0.0	0.0	1.6	10.4	3.7
1984	100.0	89.9	0.0	0.0	0.0	1.2	3.6	5.3
1985	100.0	77.0	0.0	0.0	0.0	13.9	7.0	2.1
1986	100.0	75.8	0.0	0.0	0.0	10.4	5.9	7.9
1987	100.0	69.4	0.0	0.0	0.0	1.1	21.9	7.6
1988	100.0	62.8	0.0	0.0	0.0	4.4	15.0	17.8
1989	100.0	67.3	0.0	0.0	0.0	6.2	12.9	13.6
1990	100.0	62.8	0.0	0.0	0.0	13.7	7.3	16.2
1991	100.0	69.8	0.0	0.0	0.0	6.9	7.7	15.6
1992	100.0	50.8	0.0	0.0	0.0	13.4	17.2	18.6
1993	100.0	55.5	8.0	20.2	3.5	8.5	1.5	10.8
1994	100.0	56.3	8.0	21.3	1.9	10.6	1.4	8.5
1995	100.0	67.5	29.4	9.2	2.5	9.0	1.4	10.4
1996	100.0	36.1	8.4	15.0	22.9	13.2	0.9	11.9
1997	100.0	54.1	11.9	12.1	5.8	12.7	3.4	11.9
1998	100.0	49.6	6.3	12.7	3.1	27.7	1.6	5.3
1999	100.0	36.1	10.7	15.5	14.0	24.6	3.4	6.4
2000	100.0	22.9	6.1	13.0	26.9	27.5	1.4	8.3
2001	100.0	34.5	13.3	15.4	9.4	28.0	3.3	9.4
2002	100.0	39.0	12.9	11.9	8.7	25.4	3.2	11.8
2003	100.0	41.1	19.6	12.6	4.4	20.9	11.6	9.4
2004	100.0	50.3	27.3	15.2	4.4	18.7	2.7	8.7
2005	100.0	33.0	12.4	14.4	1.1	36.3	3.1	12.1
2006	100.0	51.7	37.8	6.1	1.1	34.3	4.1	2.7
2007	100.0	52.2	20.3	6.1	1.5	32.8	4.3	3.1

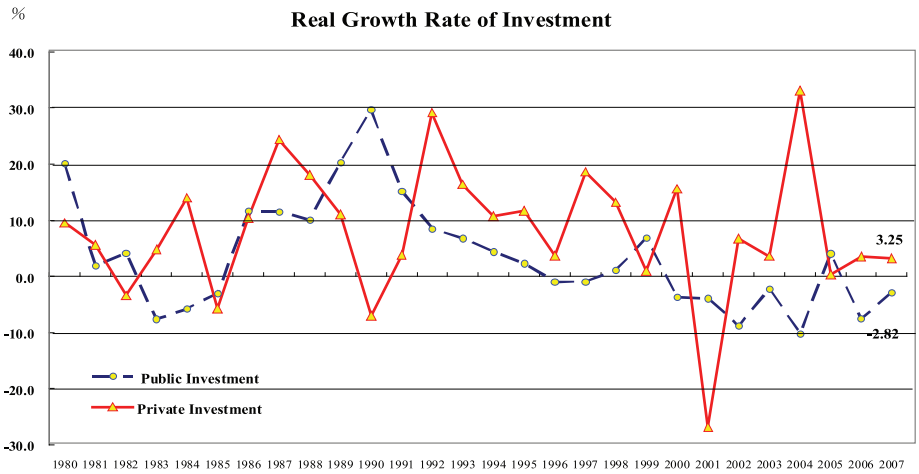
Note: (1) include agriculture, forestry, fishing, mining, electricity, gas, water, construction, etc.

Source: Statistics on Overseas Chinese & Foreign Investment, Outward Investment and Mainland Investment, Investment Commission, MOEA.

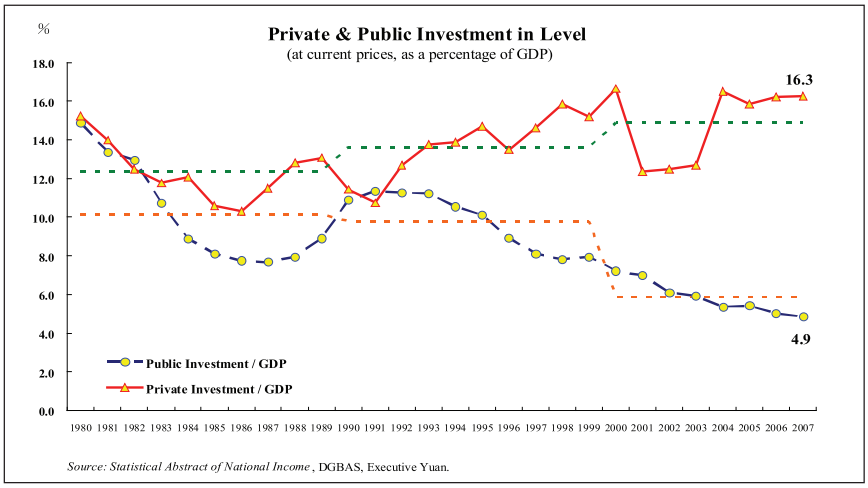
Appendix 8 Private & Public Investment

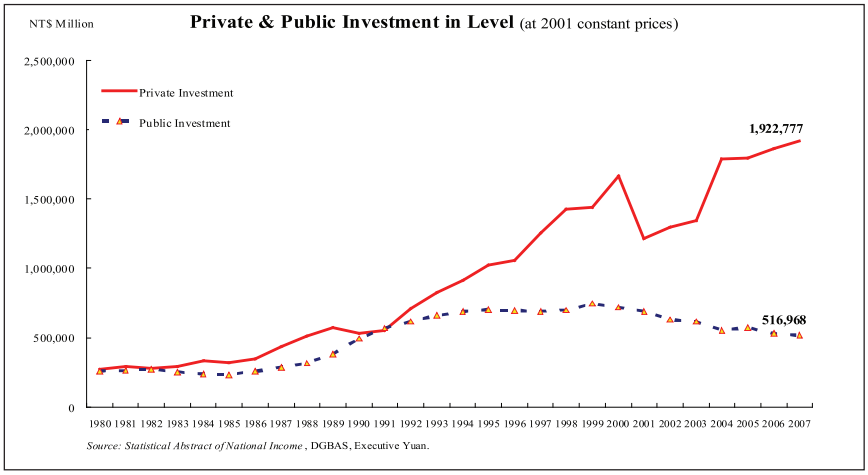


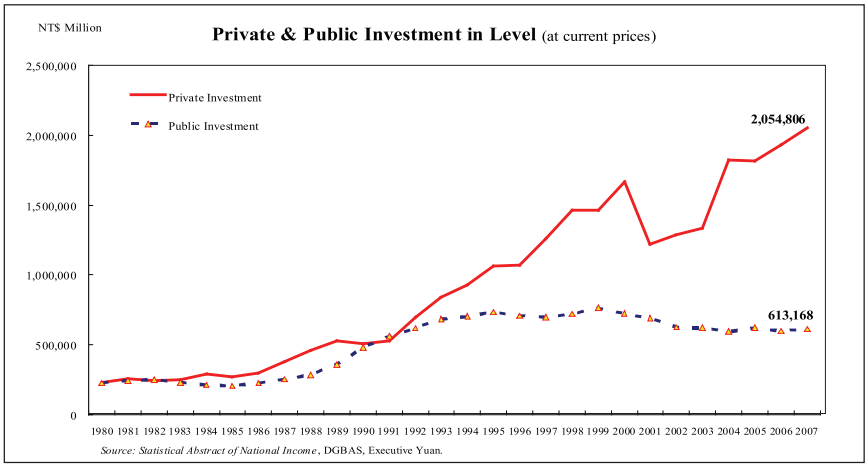
Source: Statistical Abstract of National Income , DGBAS, Executive Yuan.



Source: Statistical Abstract of National Income , DGBAS, Executive Yuan.


%
Private & Public Investment in Level
(at current prices, as a percentage of GDP)
18.0
16.0
14.0
12.0
10.0
8.0
6.0
4.0
2.0
0.0
16.3
4.9
Public Investment / GDP
Private Investment / GDP
1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007
Source: Statistical Abstract of National Income, DGBAS, Executive Yuan.


NT$ Million
Private & Public Investment in Level (at 2001 constant prices)
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
Private Investment
Public Investment
1,922,777
516,968
1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007
Source: Statistical Abstract of National Income, DGBAS, Executive Yuan.


NT$ Million
Private & Public Investment in Level (at current prices)
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
Private Investment
Public Investment
2,054,806
613,168
1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007
Source: Statistical Abstract of National Income, DGBAS, Executive Yuan.

Appendix 9 Definitions and Sources of the Variable

Variable	Definition	Derived from	Source
pi	Real gross fixed capital formation (in log)		National Income, DGBAS
y	Real output (in log)	Real GDP	National Income, DGBAS
credit	Real credit (in log)	Credit extended by domestic banks to private enterprises (deflated by CPI)[1, 2]	Financial Statistics Monthly, CBC
rr	Real interest rate	Bank lending rate minus CPI (yoy)[3]	Financial Statistics Monthly, CBC
reer	Real exchange rate	Real effective exchange rate of the NT dollar	Internal reference, CBC
v	Volatility of real exchange rate	Calculated by GARCH model (see Appendix 10)	The author
stkp	Real stock price index (in log)	TAIEX (deflated by CPI)	Financial Statistics Monthly, CBC
fdi_o	The ratio of outward direct investment to nominal GDP	The ratio of Taiwan's outward direct investment (in NTD terms) to nominal GDP	Financial Statistics Monthly; BOP, National Income, DGBAS
gi	The log of the sum of government investment and public enterprise investment		National Income, DGBAS

3. In this paper, credit extended by domestic banks, instead of all banks, to private enterprises is used, because data of the latter are available from January 1997 onwards. Direct finance is not considered in this paper because only data from January 1991 onwards are available.
4. The price index deflator used in this paper is derived from four-quarter moving averages of CPI.
5. As the major capital source of Taiwan's enterprises is bank lending, bank lending rate is used in this paper. Note that the bank lending rate refers to bank prime rate before November 1998, while it refers to the lending rate of newly extended credit by five major banks from November 1998 onwards. This is because bank prime rate has posed significantly downward rigidity since late 1998. Meanwhile, the lending rate of newly extended credit by five major banks is not solely used because of too short a sample period with the time series data collected no earlier than July 1994.

Appendix 10 Measuring Exchange Rate Volatility through GARCH Model

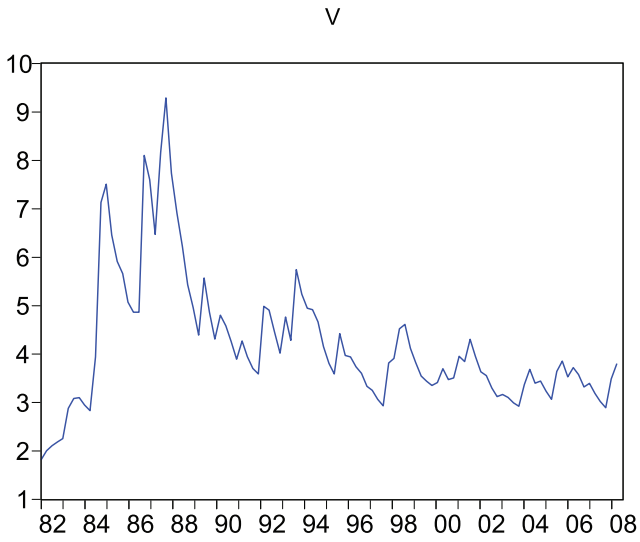
This study tries to measure exchange rate volatility (v_t) by a GARCH model of the NT dollar real effective exchange rate (REER) index. REER is an I(1) series and may be inappropriate to estimate the GARCH model in level. Therefore, this study employs the quarterly change rate of the REER index to gauge the magnitude of exchange rate volatility. The estimation results of the REER GARCH (1.1) model is as follows:

$$\Delta \ \text{In}(REER_t) = -0.23 + \varepsilon_t \qquad (1A)$$

$$\sigma_t^2 = 0.53 + 0.104\varepsilon_{t-1}^2 + 0.770\sigma_{t-1}^2 \qquad (1B)$$

In the above model, ε_t is assumed to be normally-distributed. The conditional variance $\hat{\sigma}_t^2$ in (1B) is the exchange rate volatility estimate v. Hence, $v = \hat{\sigma}_t^2$. Movements of v are shown below.

Exchange Rate Volatility



Appendix 11 Results of Unit-Root Tests

ADF Unit-Root Tests

In levels	τ_μ	τ_τ	In 1st difference	τ_μ	τ_τ
pi_t	-1.52	-1.71	Δpi_t	-5.25**	-5.37**
y_t	-3.60*	-1.48	Δy_t	-1.08	-3.99*
$credit_t$	-1.84	-1.38	$\Delta credit_t$	-2.07	-2.80
rr_t	-0.09	-2.19	Δrr_t	-3.44*	-3.61*
$reer_t$	-0.92	-1.37	$\Delta reer_t$	-5.17**	-5.43**
v_t	-6.01**	-6.34**	Δv_t	-6.80**	-6.77**
$stkp_t$	-2.85	-2.42	$\Delta stkp_t$	-4.59**	-4.83**
fdi_o_t	-2.56	-2.62	Δfdi_o_t	-3.56**	-3.56*
gi_t	-2.91*	-1.83	Δgi_t	-2.52	-4.81**

Notes: 1. τ_μ denotes the test statistic when the ADF test regression includes constants; τ_τ denotes the test statistic when the test regression includes both constants and time trends. Since the ADF test statistics are distributed differently in these two settings, the critical values also vary accordingly.

2. At the 5% significance level, the critical values of τ_μ and τ_τ are -2.88 and -3.43, respectively (see MacKinnon, 1991). At 1% significance level, the critical values of τ_μ and τ_τ are -3.46 and -4.01, respectively. ** and * indicate that the unit-root null hypothesis is rejected at 1% and 5% levels of significance, respectively.
3. The lag length for each ADF test equation is selected using Akaike Information Criterion (AIC).

PP Unit-Root Tests

in levels	τ_μ	τ_τ	In 1st difference	τ_μ	τ_τ
y_t	-5.08**	-1.47	Δy_t	-11.25**	-16.13**
$credit_t$	-1.79	-0.77	$\Delta credit_t$	-4.54**	-4.78**
gi_t	-4.08**	-6.23**	Δgi_t	-32.92**	-35.85**

Chapter 11

THAILAND'S INVESTMENT IN THE POST-CRISIS ERA: ISSUES AND CHALLENGES

by
Krist Dacharux, Pornnapa Leelapornchai and Manop Udomkerdmongkol[1]

1. Introduction

The 1997 economic crisis was undeniably one of the severest trials experienced by the affected countries and it imparted painful lessons which are not easily forgotten. Before the financial turmoil, Thailand was a fast-rising economy enjoying rapid economic growth and development. Leading the way was the investment component, which was then a major growth contributor. However, the promising future of reaching developed-country status was abruptly derailed in the wake of the crisis. During the first two years of the post-crisis era, the economy contracted, registering negative growth. In the subsequent years, the restructuring and reform process were carried out in Thailand. Recovery took place and was reflected in most of the major GDP components.

Yet a full decade has passed and investment remained mostly subdued, still performing less strongly compared to the pre-crisis record. This was evident in a reduction of investment's contribution to GDP growth from the peak of 8.3% in 1990 to the range of 2.5% and below from 1999 onwards. Other affected countries (such as the Philippines, Malaysia and Indonesia) also encountered similar circumstances and, thus, have been in the focus of a number of studies (see IMF (2007), Bocchi (2008) and Jongvanich and Kohpaiboon (2008)). IMF (2007) examines the reasons that might account for the slow investment recovery. The explanations include a riskier investment environment, weaknesses in the financial and corporate sectors, and sluggish nontradable sectors. These illustrations are loosely consistent with the observed patterns of investment, though none of them are strong enough to fully explain the slow investment recovery on their own.

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As one of the countries that were hit the hardest by the crisis, Thailand offers a lead to the explanation and policy recommendations for the inert investment in other affected countries. This paper therefore intends to identify the trend of private investment since 1980 and the major policies in relation to it in Thailand. We also undertake a time-series data estimation to investigate the determinants of the investment. Our findings suggest that Thailand's investment is affected by economic growth, returns on investment, corporate leverage, exchange rate, and public investment. In addition, the investment negatively responds to the cost of capital, exchange rate volatility, the crisis, and political instability. Credit availability, however, fails to exhibit significant influence on the investment. From a policy perspective, these suggest that, apart from a sound macroeconomic environment, the government should provide good governance and institutions to secure greater amounts of private investment.

The rest of the paper is organised as follows. Section 2 illustrates the trend of both domestic and foreign investments in Thailand from 1980 onwards, highlighting the differences between before and after the crisis. Section 3 provides a brief examination of Thailand's major investment policies, which partly explained such investment development. Section 4 investigates the determinants of private investment, and Section 5 identifies the current issues and challenges facing investment in Thailand. The last section concludes and offers some policy recommendations.

2. Trend of Investment in Thailand

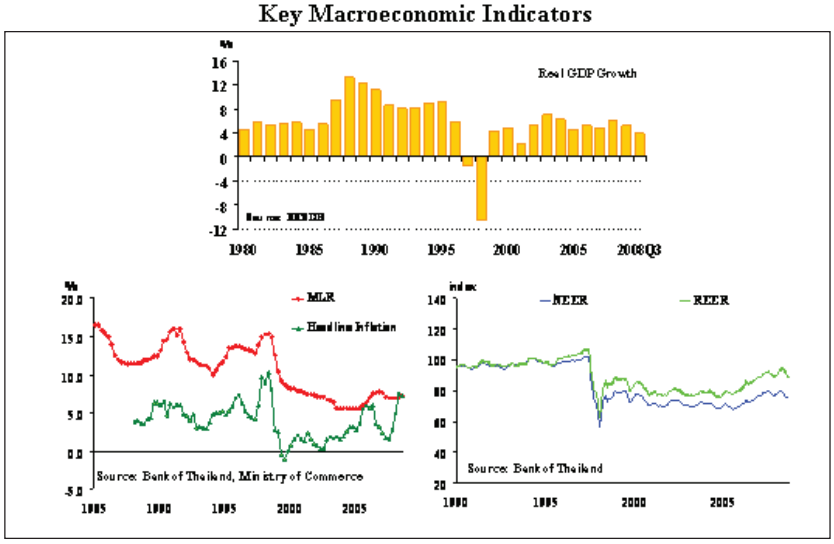
Thailand's investment has closely evolved with its economic development since 1980. With emphasis on the pre-crisis and post-crisis development, this section provides a brief summary of the key macroeconomic conditions, trend of domestic private investment, and patterns of foreign direct investment (FDI) in Thailand.

2.1 Macroeconomic Conditions

Thailand's economic conditions have undergone a structural change over the past few decades. From the late 1980s to the early 1990s, Thailand experienced a period of high economic growth as a result of the shift in aggregate output production from the agricultural sector to the manufacturing sector, the export promotion policy, and direct investment by multinational corporations (MNCs).

The average annual GDP growth rose sharply from 5.3% in 1980-86 to 9.5% in 1987-96, which was the period of the economic boom (Figure 1). Private consumption accounted for more than 50% of the GDP and made a relatively large contribution to growth expansion in the pre-crisis years. Under the export promotion policy, the export sector appeared to be a major driver of economic growth, and its role has strengthened since 1997. For domestic investment, although it was also a main contributor to the GDP growth before the crisis, its contribution turned to be negative during that time.

Figure 1
Key Macroeconomic Indicators



Turning to the other key macroeconomic factors (such as interest rate, inflation and exchange rate), the minimum loan rate (MLR) on average was 12.9% from 1985 to 1996. The sharp rises of MLR over some periods were a result of the abolition of the interest rate ceilings in 1989 and 1992. The average pre-crisis inflation rate was 5%, which was rather high partly due to the rapid economic expansion. Before the crisis, the pegged-exchange-rate regime made the nominal exchange rate relatively stable as real exchange rates were appreciated against the US dollar.

Following the crisis, the domestic interest rate skyrocketed as domestic commercial banks attempted to keep their deposit liabilities and liquidity in the country, but it was subsequently brought down to boost economic recovery. The inflation rate increased dramatically in line with the sudden devaluation of the Baht (currency of Thailand). Yet, after the adoption of the inflation-targeting

framework, the rate subsequently became rather low over the period of 2000 to 2004. In the middle of this year, the inflation rate significantly increased from the effect of high food and energy prices; nonetheless, the impact has disappeared in the last quarter of 2008.

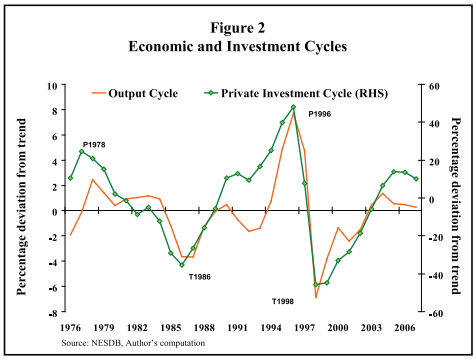
In conclusion, the strong economic growth before the crisis was mainly due to export expansion and sound macroeconomic condition. In addition, good governance and institutions provided a favorable economic environment for investment in Thailand (Kohpaiboon (2005)). Nevertheless, the lower growth path in the present is a result of shrinking domestic demand attributed mainly to the sluggish growth of private investment and political instability undercutting business and consumer confidence.

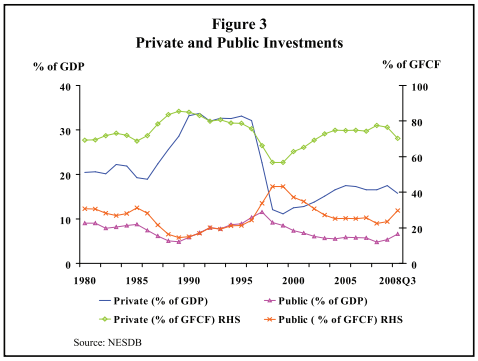
2.2 Domestic Investment

Despite its smaller proportion to GDP than consumption, investment is closely related to the economic boom-and-bust cycles over the past three decades. As shown in Figure 2, private investment cycles have shared the same major turning points with the economic cycles (output peaks (P) and troughs (T)). The higher pre-crisis growth of the private investment cycles over that of the output cycles pointed out that over-investment prevailed in Thailand before 1997. After the crisis, the output and investment cycles recovered with a positive growth in 2003 and 2004, respectively. However, the slow pace of recovery of private investment could be observed since 2006, while the output cycles continue to show an upward trend.

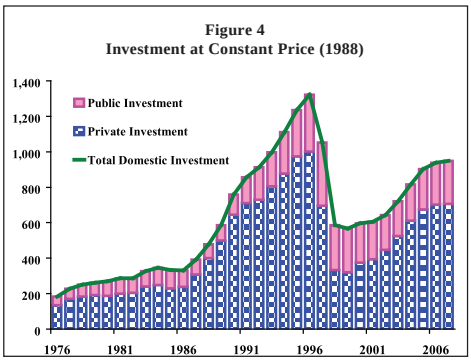
During the boom, domestic investment grew drastically, representing almost 40% of the GDP (Figure 3). The investment ratio, however, was reduced to 28% of the GDP, after a sudden investment slowdown caused by the crisis. Classified by sector, private investment has played a significant role in explaining the investment patterns in Thailand. Private investment represented approximately 30% of the GDP in the expansion period. Afterwards, although Thailand gradually tracked a recovery trend, private investment (as a proportion of the GDP) was still below the pre-crisis level, lingering around 17% from 2004 to 2007.[2]

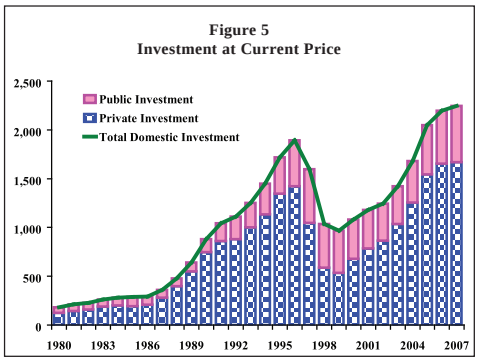
2. Compared to the gross fixed capital formation (GFCF), private investment took a major share of 80% on average in 1988-96 while its share after 1997 is below the pre-crisis level.





In Thailand, public investment has accounted for a much smaller share than private investment. Since 1980, the investment mostly remained well below 10% of the GDP. It concentrated mostly on infrastructure, and has been used as an instrument to counter business cycles (Jongvanich and Kohpaiboon (2008)).

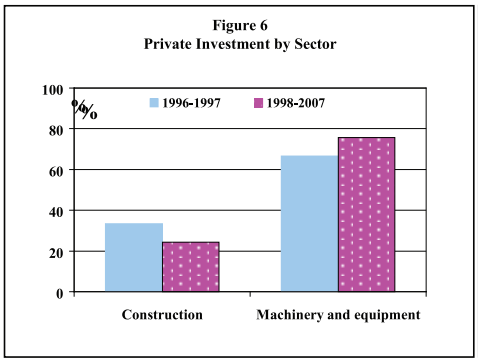


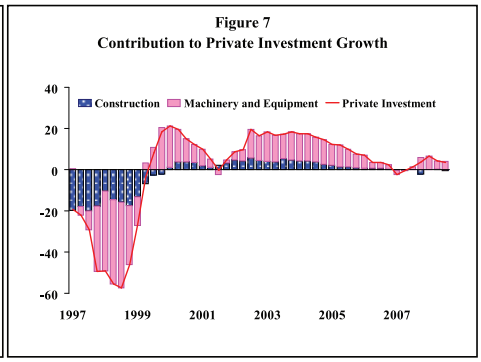


As presented in Figure 4, the real private investment started to grow rapidly since 1986, and reached a peak of Baht 1,000 billion (or approximately US$30 billion) in 1996. During the years, investment grew at around 15%, mostly in the form of greenfield investment (FDI) originated by multinational enterprises (MNEs). The crisis, however, brought down the investment by -30% and -52% in 1997 and 1998, respectively. On the other hand, public investment was rather low relative to private investment. Also similar patterns were observed in nominal private investment (Figure 5). The sharp decrease of the investment was a result of the collapse of the Thai economy, particularly in the real estate and banking sectors.

Moreover, there was a structural change in sector-level private investment following the crisis. With the NESDB (National Economics and Social Development Board, Thailand) data, private investment could be classified into two broad categories, namely, construction and machinery and equipment sectors (Figure 6). Prior to the crisis, the construction sector represented approximately

40% of the total private investment as private investment in machinery and equipment made up the remainder 60%.



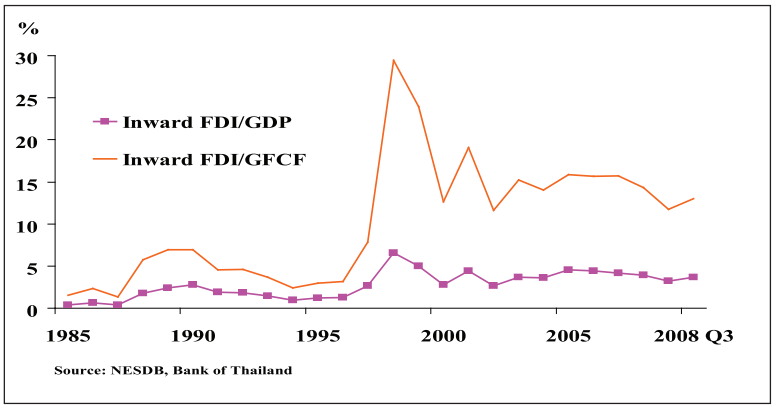


After the crisis, the structure of investment was changed partly because of the real-estate collapse and the over-investment phenomenon. The share of the construction sector fell drastically to 30% approximately in 1997-98; it has remained below 25% until now. By contrast, the machinery and equipment sector became more important in (total) private investment after the crisis (Figure 7). Its share stood at 70% of the investment in 1997-98, and has remained above 75% since. As a consequence, this investment is a main driver of private investment in the post-crisis era. Yet, the fall in both investments from 2005 onwards led to a slowdown in private investment.

2.3 Foreign Direct Investment (FDI)

As a source for technology transfer, employment and growth, FDI is the most important capital flow in Thailand. However, compared to the GDP, inward FDI has been rather low, hovering below 7%, since 1985. Before the crisis, inward FDI averaged at US1.9 billion per annum or approximately 1.8% of the GDP. As compared to the total investment (GFCF), inward FDI to the GFCF ratio rose sharply from 5% before 1997 to 27% thereafter due to the surge in FDI inflows in 1998-99. Since 2003 it has remained well in the range of 10-17% (Figure 8).

Figure 8
Inward FDI



Before 1997, a significant increase in FDI was caused by the East Asian MNEs mostly in the labour-intensive industry. The consequence of the Plaza Accord Agreement in 1985 led to an appreciation in the various currencies in East Asia, including the Japanese Yen, Taiwanese Dollar, and Korean Won, resulting in a reduction in their national competitiveness. The MNEs, especially from Japan, then moved forward undertaking direct investment abroad, investing, for example in the countries of South-east Asia, including Thailand.

During the crisis, inward FDI remained at a higher level partly owing to the Baht devaluation, averaging at US$4.9 billion per annum or 4.3% of the GDP. More inflows went into the banking sector as foreign ownership limitation was expanded to more than 49%. This opened the way for foreign investors to undertake FDI, merger and acquisitions (M&A) in particular, in the Thai banks. Direct loans also played a more important role at that time as a source of funding for Thai subsidiaries suffering from the devaluation and liquidity crunch.

In 2002, inward FDI, however, fell sharply partly because of a decline in M&A activity and excess capacity in some industries, for example, in electrical appliances and machinery and transportation equipment. Subsequently, inward FDI resumed an expansionary path and continued to record positive growth since then.

Table 1

Net Inflows of FDI to Thailand Classified by Country

(average % share to total)

Country	1980-86	1987-1996	1997-1998	1999-2007
Japan	29.3	29.7	33.0	38.1
United States of America	29.0	14.6	23.2	10.3
EU 15	16.1	9.6	13.8	13.5
ASEAN	2.9	9.6	9.7	23.7
of which: Malaysia	1.0	0.2	0.3	1.3
Singapore	1.6	8.9	9.0	21.8
Hong Kong	12.9	15.0	9.9	4.9
Taiwan	1.0	7.0	2.9	2.2
Korea, South	0.1	0.7	1.1	0.8
Others	8.8	13.8	6.3	6.3
Total	**100.0**	**100.0**	**100.0**	**100.0**

Note: Disaggregated FDI data cover investment in non - bank sector only.

Scrutinising the inflows of FDI, Japan is a major source of FDI inflows to Thailand, particularly in the automobile and parts industry (Table 1). FDI from the United States (US) and the European Union (EU) is mostly concentrated in the trading industry (i.e., wholesaling and retailing businesses). Asian FDI has acquired a relatively larger share in recent years, compared to those from the developed countries. Since 1999, FDI inflows from ASEAN constituted around 24%, which were mainly dominated by investment from Singapore in the trading and telecommunication industry.

Based on classification by sector, around 53% of the FDI is in electrical appliances, chemical, and machinery and transportation equipment industries (Table 2). On the other hand, the FDI in the real estate industry fell sharply after 1997. This partly shifted to automobile and parts and metal and non-metallic industries as well as investment and holding companies.

Table 2

Net Flows of Inward FDI to Thailand Classified by Sector
(average % share to total)

Sector	1980-1986	1987-1996	1997-1998	1999-2007
Industry	31.4	39.4	46.5	53.0
of which: Electrical appliances	9.7	13.4	10.9	13.5
Machinery and Transport equipment	2.4	3.3	11.9	16.7
Chemicals	5.1	6.4	4.5	5.3
Financial institutions	-2.0	6.3	9.7	7.1
Trade	19.1	17.1	24.5	12.3
Construction	18.8	8.7	4.1	0.0
Services	8.5	4.1	6.7	10.1
Real estate	4.3	21.5	1.8	2.8
Others	20.0	2.9	6.6	14.8
Total	**100.0**	**100.0**	**100.0**	**100.0**

Note: Disaggregated FDI data cover investment in non - bank sector only.

Turning to outward FDI, before the first half of the 1980s, outward investment by Thai MNEs was limited in the early stage mainly due to outward FDI restriction policy and limited number of Thai MNEs with the capability to internationalise (Figure 9)[3]. From 1986 and 1996, outward FDI increased rapidly as a result of the financial liberalisation policy in the early 1990s (e.g., relaxation of foreign exchange controls and establishment of the Bangkok International Banking Facilities (BIBF)). ASEAN region was a primary destination for Thai outward FDI.

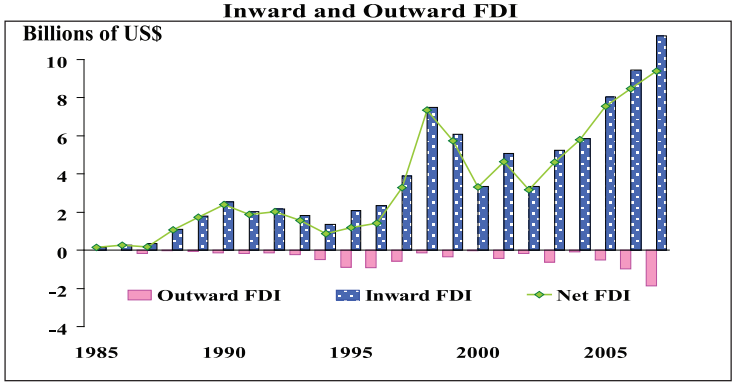
However, the crisis had a negative effect on the ability of Thai MNEs in undertaking or maintaining investment overseas. Over the period, extensive corporate liquidations of Thai assets abroad were essential for the parent enterprises to ensure survival in the domestic market (Thailand). Hence, outward FDI fell sharply.

Since 2005, the outward investment has recovered significantly. Recently, the Thai authorities (e.g., the Board of Investment (BOI), Thailand) launched the Thai direct investment (TDI) policy to promote cross-border operations and return-seeking opportunities. Examples of the policy include relaxation of capital-

3. Note that before 1993 Thai outward FDI covered only investment in equity.

outflow measures, capital-flow liberalisation road-map, and several tax incentives. With such efforts by the authorities, the outward FDI can be expected to rise in the near future.

Figure 9
Inward and Outward FDI



3. Major Policies Related to Foreign Direct Investment and Domestic Investment

After reviewing the investment trends in Thailand, this section further explores one of the key forces that helped shape such developments: major investment policies. The evolution of these policies as well as the incentives they created towards both domestic and foreign investment were aligned to complement the state of economic development and trade regime. After a gradual decline of state capitalism, the investment policies were directed towards import substitution and, then in later years, to export promotion. However, the contrast in policy orientation was most distinct before and after the crisis. For more than a half century, from 1940 to 1996, there was high level of government involvement in the conduct of investment and international trade and, later on, in the formulation of the relevant policies regarding investment promotions and restrictions. However, a higher degree of liberalisation was observed after the crisis, where both the current and capital accounts were more open as a result of the commitment of Thailand in honouring the IMF's requisites in bilateral and multilateral agreements entered by the country.

3.1 State Capitalism (1940 – 1958)

Prior to Thailand's modern economic development, the Thai economy was best characterised as a state capitalism. The majority of the population depended heavily on agriculture. Local private manufacturing investment and production

were limited as educated manpower and entrepreneurial talent were scarce. Therefore, a strong governmental institution was most needed. This called for state monopolisation of the investment activities in the various industries. Public investment during this period focused mainly on building infrastructure, as well as starting public manufacturing of basic industries, such as textiles, glass, and paper. On the international trade front, imports and exports were also carried out mainly by the state. In terms of openness, the tariff system was set up with a goal to boost central government revenue, rather than to make a protectionist effort (Kohpaiboon (2005)).

3.2 Import Substitution (1959 – 1971)

In the second phase of investment policy development, the earlier form of government domination began to subside. This was marked by the advent of the first National Economic and Social Development Plan in 1961, the milestone of Thailand's modern economic development. Laying down the broad guideline for economic development over the next five years, this first plan demonstrated an attempt towards a reduction of direct government involvement and a promotion of private sector's participation, particularly in import-substituting activities.

Following this guideline, the Investment Promotion Act, was passed in 1960. This law aimed to encourage local manufacturing investment and activities. Investment incentives, such as business tax holidays and tariff exemptions on required inputs, namely, machinery and equipment as well as intermediate goods were used. The Board of Investment (BOI), established in 1959, was a main channel through which these promotion privileges were granted to investment projects meeting the set criteria. The promotion scheme categorised businesses into three main groups, which were entitled to varied degree of incentives. The emphasis was mostly on the capital-intensive industries. Correspondingly, during this period, a rapid expansion was observed in many local manufacturing industries, e.g., textiles and clothing, transport equipment, basic metal, and chemical products (Kohpaiboon (2005)).

At the same time, to support the development of these new local industries, the economy remained protected on the international trade front. Heavy tariff barriers were put in place, especially around the capital-intensive and consumer-product industries (Nikomborirak (2004)). These barriers had an escalating characteristic in that the tariffs increased along the value chain, with final goods subject to highest import duty. This protection allowed the import-substitution industries, including both local and foreign investors, to flourish amidst international competition.

However, such tariff scheme was myopic to the underdevelopment of the supporting industries in Thailand. With inadequate supply of local raw materials and inputs to fill the assembly line, the manufacturers were required to seek solution in importation. It should also be noted that intermediate goods were exposed to lower tariffs as implied by the escalating structure. Not surprisingly, large volumes of intermediate goods imports were observed during the period. This, accompanied by the first oil price shock during 1970, led to the problem of hefty balance of payments deficits. Inquiries with regards to the appropriateness of import substitution policy over a long-time horizon were thus raised. And this shifted Thailand to the next phase of investment development: export orientation.

3.3 Export Promotion (1972 – 1996)

The export promotion policy governed the general investment development in Thailand from 1972 to 1996. Drawing lessons from the shortcomings of the import-substitution policy, the third National Economic and Social Development Plan (1972-1976) introduced a policy alternative with a highlight on the encouragement of export-oriented industries (Nikomborirak (2004)). The effects of this key policy change spanned more than the plan's five year period, stretching over two decades, until the onset of the 1997 crisis.

It was notable that the shift away from import substitution and towards export promotion was gradual. Therefore, the import substitution policy remained intact until as late as 1985. Under the Investment Promotion Act, amended in 1972 and 1977, the BOI received greater authority and discretion in determining investment promotion. Through the BOI, both fiscal and non-fiscal incentives were granted to the approved applicants, such as corporate income tax holidays for up to eight years and a reduction in import duties on machinery and raw materials. Promotion measures were intensified especially in the late 1970s, when the BOI exercised import surcharges in an effort to protect the promoted industries (Kohpaiboon (2005)).

With a shift in policy guideline, both domestic and foreign investments were gradually encouraged to channel towards production catering for external demand, as opposed to internal demand in the earlier period. In 1983, the BOI started granting tariff exemptions on raw material imports for businesses with export to total sale ratio of greater than 30%. During the implementation of the export promotion policy, the Baht (Thailand's currency), under the fixed-exchange-rate regime, was devalued several times. This allowed the local export-oriented

industries to maintain price competitiveness, even though the weakened currency also made imports of inputs more expensive.

The shift towards export promotion was timely and coincided with the ratification of the Plaza Accord in 1985. Currencies, especially Japanese yen, appreciated significantly against the US dollar, undermining the cost and price competitiveness in the world market of Japan as well as other East Asian countries, such as Taiwan, Hong Kong, and Korea. The multinational enterprises (MNEs) in these countries were forced to relocate their production bases. East Asian MNE capitals were thus driven towards other country destinations endowed with relatively lower cost. With cheaper wage, economic and political stability, fixed-exchange-rate regime as well as incentives from investment promotion policies towards exporting industries, Thailand stood out as an attractive choice and subsequently emerged as a recipient of these East Asian direct investments (Nikomborirak (2004)). These were particularly in the forms of greenfield investment in labour-intensive productions, including processed food products, garments, footwear, jewels and gems, machinery and transport equipments and electronics.

Another important aspect of investment promotion policy during this period was the industrial decentralisation. This can be observed in the promotion of investment projects according to their locations. The Industrial Estate Authority of Thailand Act, passed in 1979, encouraged decentralisation of industry away from the Bangkok area. The country was divided into three industrial zones; with investment projects in the furthest zone from Bangkok granted the largest set of incentives. The promoted investment projects in these industrial estates were provided with incentives additional to the BOI grants; for instance, the right to own land and work permit for foreign experts.

With fast local market development and strong economic fundamentals, Thailand attracted not only a high level of foreign direct investment but also a large influx of portfolio investment. Inflows of short-term capital and their subsequently rapid outflow was one of the key triggers of the Asian financial crisis in 1997. It bore an important implication as we embarked on the new era of investment development in Thailand.

3.4 Liberalisation (1997 – Present)

The economic turmoil during the 1997 financial crisis compelled Thailand to seek IMF aid and advice. As part of the IMF package requisites, the Thai economy was directed more towards the liberalisation of both trade and

investment regimes. Thailand adopted the managed-float exchange-rate system. Both its current and capital accounts were more open.

With respect to the current account, despite a short period of tariff increases during the crisis to meet the need for raising tax revenues and for slowing down imports, the tariff restructuring after 1999 resumed its focus on tariff reductions. Since then, and scheduled till 2008, a series of tariff cuts continued on both manufacturing and intermediate products (Kohpaiboon (2005)).

Regarding its capital account, Thailand has maintained a free exchange control practice since the early 1990s, in line with the IMF's Article VIII (Subhanij (2000)). However, as seen in Section 2, FDI as well as cross-border merger and acquisition activities increased substantially after the crisis. In addition to the currency devaluation which made investment less expensive in terms of foreign currencies, this was also attributed to the policy in attracting inward FDI. The Foreign Business Act (FBA), enacted in 1999, accorded foreign investors with the most favoured nation (MFN) treatment. The Act, a surrogate of the Alien Business Law (1972), allowed full foreign ownership in most businesses, except for three categories which the authorities viewed as not ready for external competition or closely related to national security. Compared to the Alien Business Law, the FBA is less restrictive in terms of the types of businesses which are open to foreign ownership. However, the capital requirements for foreign investors and punishments for violation of prohibited industries still remain in place (Nikomborirak (2004)).

Apart from inward FDI, Thai authorities also encouraged investment abroad by Thai residents. Since 2005, Thai outward FDI surged as a result of a relaxation of the restrictions, such as an increase in the amount of investment or lending allowed for a Thai company to its affiliate abroad per year. Moreover, the government through the institutions, such as the BOI and EXIM bank, also provided Thai investors with support and services, including guidance, business matchmaking, and financial facilities (Wee (2007)).

In addition to the aforementioned efforts and policies, Thailand also entered into a number of international agreements, from multilateral and regional to bilateral levels, all seeking to liberalise its trade and investment regimes as well. First, the GATT's trade-related investment measures (TRIMs) Agreement required that Thailand, as a member country, remove its biased restrictions on foreign investment which were intentionally designed to promote export-oriented industries, such as local content and export performance requirements (Ponjan (2001)). The removal of the export performance requirements was completed

in 2000, while the local content requirements were abolished in 2003. The restriction on foreign ownership was also lifted to 49%. This aimed to help attract more capital inflows in equity investment, especially FDI.

Second, Thailand's investment liberalisation is also obliged under regional agreements**.** A prominent example was the Association of Southeast Asian Nations (ASEAN) Investment Area. The framework, concluded in 1998, set out that, by 2010, which later expedited to 2003, member countries must provide ASEAN investors with national treatment. The other provisions also covered the Most Favored Nation (MFN) treatment, free transfer of funds and repatriation, as well as dispute settlement mechanism.

Third, another effort to pursue liberalisation is also reflected in its bilateral investment agreements. Since the mid-1950s, Thailand has signed 34 bilateral investment treaties (BITs). Moreover, the bilateral free trade agreements (FTAs) were also carried out between Thailand and, for instance, India and Japan. The coverage of the investment chapter included in these FTAs, was not only FDIs, but stretched to other forms of investments as well, such as portfolio investment (Nikomborirak (2004)).

The key policies adopted by the Thai authorities in guiding both domestic and foreign investment can be briefly summarised. Government involvement was strong before the crisis. This is first seen in the form of state capitalism, during the 1940s and 1950s, where the major investment and trade activities in the economy were organised by the state. With the progress of economic development, an import substitution policy was implemented, aiming to promote investment and production to accommodate the growing local demand. Restrictions, involving mainly tariff measures on imports of final goods as well as exemptions from import duty for intermediate goods were jointly used to protect and promote the local manufacturing businesses. However, the sustainability of this policy was questioned and led to the adoption of export promotion policy. This shift was directed towards encouraging export-oriented industries by extending tariff exemptions on imports of the necessary intermediate inputs for these industries. Nonetheless, the restrictions and biased promotion by governments began to drop after the crisis. This was primarily shaped by the liberalisation regime set out by the IMF package as well as by the international agreements signed by Thailand.

Table 3
Summary of Major Policies and Issues related to Investment in Thailand

Period	Policy	Development
1940 -1958	State capitalism	▪ Agriculture society ▪ State monopolisation in various industries
1958 - 1971	Import substitution	▪ First economic development plan (1961-1966) to reduce direct government involvement and encourage private investment in Thai economy ▪ Thailand's board of investment was established in 1959 ▪ High level of protection on capital intensive industry (e.g., automobiles) and consumer products ▪ Rapid local manufacturing expansion in textiles and clothing, transport equipment, basic metal and chemical products ▪ Balance of payments deficits due to import of parts and components and the world oil-price hike
1972 - 1996	Export promotion	▪ The Plaza Accord in 1985 ▪ Baht devaluations (1973, 1981 and 1984) ▪ Direct investment in labour intensive export products by East Asian MNEs, especially Japan ▪ FDI in processed food products, garments, footwear, jewels and gems, machinery and transport equipment, electronics, etc. ▪ Portfolio investment influx ▪ The 1997 economic crisis
1997 - present	Liberalisation	▪ Liberalisation extended as part of the IMF-led reform package ▪ Baht floatation and M&A ▪ Foreign Business Act of 1999 enacted ▪ ASEAN Investment Agreement adopted in 1998

Sources: Nikomborirak (2004) and Kohpaiboon (2005)

4. Determinants of Private Investment in Thailand

4.1 Empirical Method

In this study, we investigate the determinants of private investment in Thailand based on the Servén (2003) model, with some modifications taking into consideration the relevant structural features of Thailand. Servén (2003) suggests the model to be estimated is of the form:

Private investment = f (private investment determinants) + random disturbance **(ε)**

As argued in previous studies, the private investment determinants depend on the economic and institutional factors. In the context of the developing countries, these factors are as follows:

4.1.1 Market Size/Potential

According to Cardoso (1993), Oshikoya (1994) and Agosin and Machado (2005), market size (domestic demand) or market potential would be a key factor influencing private investment in the developing countries. Its effect on private investment is expected to be positive. When actual output increases, this would indicate growing demand and encourage firms to expand their capacity so as to capture the increased demand. The opposite happens in case of the decreased domestic demand. Cardoso (1993) documents that the growth of real output encourages private investment in Latin America over the period 1970-85, using a panel data analysis. In addition to Cardoso (1993), using OLS estimation, Oshikoya (1994) shows that private investment is stimulated by the growth of real output in Africa over the period 1970-88.

4.1.2 Exchange Rate

In the previous literature on private investment determination, many scholars (such as Agénor (2001), Bleaney and Greenaway (2001) and Jongwanich and Kohpaiboon (2008)) suggest that the (real) exchange rate influences the investment behavior of entrepreneurs. Its impact can either promote or retard private investment. Its devaluation could lower the real income and wealth of private sector, thereby lowering aggregate demand. A fall in domestic income and wealth could induce firms to revise their expectations of future demand and postpone their investment plan (Jongwanich and Kohpaiboon (2008)). Moreover, the depreciation could raise the real cost of imported capital goods, and then adversely affect private investment. However, the devaluation raises the price

of tradable goods relative to the price of non-tradable ones. Hence, this would help to stimulate investment in the tradable sector, and if the positive impact on this sector outweighs the negative impact that could emerge in the non-tradable sector, private investment could increase. (Agénor (2001)). Jongwanich and Kohpaiboon (2008) suggest that, in the long run, the real exchange rates are statistically significant. A 1% depreciation of the real exchange rate leads to an increase in private investment (in the long run) by 5%.

4.1.3 Rate of Return on Investment and Corporate Leverage

The rate of return on investment could have an effect on the desired investment. Theoretically, *ceteris paribus*, a higher rate of return – which is equivalent to higher *marginal* productivity of capital – means that it is more profitable to invest and thus firms should be more eager to acquire new capital at the margin (Mallikamas *et al* (2003)). According to the previous study, the marginal rate of return on investment is not directly observable. In all likelihood, however, it should be positively correlated with capacity utilisation for when capacity utilisation is low the payoff to adding new capacity also be low, and vice versa. Mallikamas *et al.* (2003) demonstrate that higher growth rate of capacity utilisation leads to higher growth of the private investment rate in the subsequent quarters in Thailand.

In addition to the rate of return on investment, investment decisions also depend on corporate leverage, given that firms' investment spending may have been limited by the availability of internal cash flow. To capture the degree to which the excessive leverage position constrains firms' new investment, Mallikamas *et al.* (2003) utilise the ratio of total liabilities to total equity (the leverage ratio of non-financial SET-listed firms)[4] as an indicator of corporate leverage, and discover that higher growth of the corporate leverage ratio deter the growth of private investment rate in Thailand.

4.1.4 Political Instability

In the context of the developing countries, it is significant to consider the impact of political instability on private investment. The previous literature (see Svensson (1998), Gyimah-Brempong and Traynor (1999), Rogoff and Reinhart (2003) and Bocchi (2008)) documents that political instability has a negative and (statistically) significant impact on private investment in the developing countries.

4. SET represents the Stock Exchange of Thailand.

Using a sample of 101 developing countries for the period 1960-85, Svensson (1998) suggests that governments in unstable and polarised political systems tend to invest little in infrastructure, resulting in a lower level of private investment. Gyimah-Brempong and Traynor (1999) also affirm the negative and significant impact of political instability on domestic demand. Their paper explores the relationship between political instability and economic growth in the Sub-Saharan African countries, utilising a simultaneous equations model and dynamic panel estimation approach. The findings show that, in addition to the direct impact that political instability has upon growth, political instability indirectly lowers the growth by reducing (long-run) capital accumulation.

By and large, the discussion so far implies that the empirical model of private investment is the following.

I = f (GDP, RER, GDE, CAPU, CRISIS, POL) + random disturbance (ε)

where ***I*** is real private investment, ***GDP*** is real Gross Domestic Product, ***RER*** is real exchange rate, ***GDE*** is growth of debt to equity ratio, ***CAPU*** is capacity utilisation rate, ***POL*** is a dummy variable capturing political instability in Thailand, which equals to one if the period is from Quarter 3:2005 to Quarter 2:2008, and zero otherwise[5], and ***CRISIS*** is a time dummy variable, which is one if the period is from Quarter 2: 1997 to Quarter 1: 1999, and zero otherwise[6] to account for a structural break in private investment owing to the crisis (Mallikamas *et al* (2003)).

4.2 Data

To examine the determinants of private investment in Thailand, we collect quarterly data representing those variables during Quarter 1: 1996 to Quarter 2: 2008[7] from the National Economics and Social Development Board (Thailand), Bank of Thailand and Stock Exchange of Thailand. In the selection and transformation of the data, we follow established practice in the field of research. The variables are measured as:

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5. The current political instability appears to be an obstacle to economic growth and private investment in Thailand since Quarter 3:2005.
6. The crisis caused a recession in Thailand from Quarter 2:1997 to Quarter 1: 1999.
7. Quarterly private investment data from the NESDB are available from 1996 to present.

- Private investment (constant 1988, in millions of Baht) is from the National Economics and Social Development Board, Thailand (see Mallikamas *et al.* (2003) and Jongwanich and Kohpaiboon (2008))
- Gross domestic product (constant 1988, in millions of Baht) is from the National Economics and Social Development Board, Thailand, as a proxy of domestic demand (see Agosin and Machado (2005)).
- Real effective exchange rate indices (REER, 1994=100) are from the Bank of Thailand, as a proxy of the real exchange rate (see Bleaney and Greenaway (2001)).
- As a proxy of corporate leverage, the debt to equity (ratio of total liabilities over total equity of non-financial listed companies) data are from the Stock Exchange of Thailand (see Mallikamas *et al* (2003)).
- Industrial capacity utilisation rate (quarterly average) is from the Bank of Thailand, albeit imperfectly, as a proxy of the *marginal* rate of return on investment (see Mallikamas *et al* (2003)).

Tables A1 and A2 in the Appendix provide the descriptive statistics for and correlations between these variables.

4.3 Econometric Analysis and Results

In line with the standard practice in time series econometrics, the time series properties of the data are tested at the outset using the Augmented Dickey-Fuller (ADF) test. The test results are reported in Table A3 (see Appendix). According to the results, the variables under consideration all are non-stationary ($I(1)$). The two-step residual-based procedure adopted by Engle and Granger (1987), however, are not applicable in our case. Therefore, we convert the non-stationary variables into first difference form by calculating the quarter-on-quarter growth rates of the seasonally adjusted series. The subsequent ADF tests indicate that the variables exhibit stationary property once in first difference form[8].

After taking into account the unit root problem, the base model to be estimated is the following.

$$\Delta \boldsymbol{I}_t = c + \Delta \boldsymbol{GDP}_{t-1} + \Delta \boldsymbol{REER}_{t-1} + \Delta \boldsymbol{GDE}_{t-1} + \Delta \boldsymbol{CAPU}_{t-2} + \boldsymbol{CRISIS} + \boldsymbol{POL} + \boldsymbol{\varepsilon}_t$$

8. We also test for the presence of unit roots utilising the Phillips-Perron (PP) test. The results are similar to the ones reported here.

Only ***I*** and ***GDP*** are in log form. All explanatory variables are lagged by at least one period to partially account for the endogeneity problem and allow for the independent variables taking time to influence private investment (behavior).

In estimating the equation, we expect positive coefficients on real GDP growth and change in return on investment, based on the previous discussion. The exchange rate effect, on a *priori basis*, is inclusive because its coefficient can be either positive or negative. We are also interested in the estimated coefficients on ***GDE***, ***CRISIS*** and ***POL***, which would be negative. Our basic regression results are reported in Table 4.

Table 4
Regression Results for Private Investment Determinant Equations

Dependent variable: Δ***I*** **Sample:** 1997:3 – 2008:2 **Independent variables**	**1**	**2**	**3**	**4**	**5**	**6**
Constant	0.02***	0.01***	0.03***	0.01**	0.01***	0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Δ***GDP(-1)***	1.57***	1.57***		2.02***	1.54***	2.57***
	(0.23)	(0.24)		(0.34)	(0.34)	(0.43)
Δ***REER(-1)***	0.01***	0.01***	0.01***	0.01***	0.01***	
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	
Δ***GDE(-1)***	-0.01***	-0.01***	-0.01*	-0.01*		-0.01***
	(0.01)	(0.01)	(0.01)	(0.01)		(0.01)
Δ***CAPU(-2)***	0.01**	0.01**	0.01**	0.01**	0.01*	0.01**
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
CRISIS	-0.10***	-0.10***	-0.13***			
	(0.01)	(0.01)	(0.02)			
POL	-0.04***	-0.04***	-0.04***			
	(0.01)	(0.01)	(0.01)			
Δ***GCRE(-1)***		0.01				
		(0.01)				
Δ***PUB(-1)***			0.09**			
			(0.04)			
GTOB(-2)				0.01***	0.01**	
				(0.01)	(0.01)	
Δ***INT(-1)***					-0.06***	
					(0.02)	
Δ***VOL(-2)***						-0.01**
						(0.01)
N	44	44	44	44	44	44
Adjusted R^2	0.92	0.92	0.83	0.79	0.83	0.66
LM (2)	0.35	0.34	1.51	1.30	0.72	1.47
	(0.71)	(0.71)	(0.23)	(0.28)	(0.49)	(0.24)

Notes: Numbers in parentheses are standard errors. ***, ** and * denote statistical significance at 1, 5 and 10%, respectively. LM(2) is the test for second-order serial correlation in the residuals (with *p*-value in parentheses).

Column 1 of Table 4 exhibits the results (44 observations) from our base specification. Most significantly, the empirical measures of investment determinants seem to influence private investment over the period, as suggested by the previous studies. The estimated coefficients for all the six explanatory variables take their expected signs and are statistically significant. All things being equal, higher growth rates of GDP and capacity utilisation as well as Baht appreciation lead to higher growth of private investment in the subsequent quarters. On the other hand, higher growth of corporate leverage deters the growth of private investment. In addition to corporate leverage, our findings suggest that the financial crisis and political instability lower private investment. We undertake the LM test to check for the presence of (second-order) serial correlation; and, the test indicates the residuals are independent and identically distributed.

To capture the additional effect through credit availability (Jongwanich and Kohpaiboon (2008)), as presented in Column 2, we include lagged real private credit growth[9] (***GCRE***) to the model. The estimated coefficient is not statistically significant, but the impact of the explanatory variables in the base model is similar to that obtained before. This implies that credit availability may not lead private investment. The finding, however, is not entirely surprising. The post-crisis corporate sector, in an attempt to minimise their financial risks, has been depending more on FDI and equity financings as well as internal funds rather than external borrowing to finance its capital spending (Schnitzer (2002)).

The previous literature (e.g. Cardoso (1993), Oshikoya (1994) and Jongwanich and Kohpaiboon (2008)) also suggests that the private and public investment relationship can be either positive or negative (crowding-in or crowding-out effects), depending on the nature of the public investment. On one hand, public-sector investment, which results in large fiscal deficits, may crowd out private investment through high interest rates, credit rationing, and a higher current of future tax burden on the household (Oshikoya (1994)). On the other hand, most developing countries have a large component of government investment concentrated on infrastructure projects (e.g., transport, communications and irrigation); public and private investments are able to complement each other (Jongwanich and Kohpaiboon (2008)).

With the significance of public investment, we include lagged public investment (***PUB***) to the basic model[10] (Column 3). The estimated coefficient of public

9. Real private credit is available from the Bank of Thailand; public investment is from the NESDB.

10. Lagged GDP growth is dropped to avoid the multi-collinearity problem.

investment is positive and statistically significant. This implies that an increase in public investment can encourage domestic demand expansion, inducing an expansion of private investment, as found in Jongwanich and Kohpaiboon (2008).

In Column 4, we test whether investment decisions depend on the expectations of future returns relative to the current actual returns. In this paper, we measure the gap between the expected and actual returns by Tobin's q – the market value of the firm's capital relative to its replacement cost[11]. The rationale is that a firm will increase (reduce) its capital stock if the market value of capital exceeds (falls below) the cost of acquiring it (Mallikamas *et al* (2003)). Hence, we add lagged growth of Tobin's q (***GTOB***) to our base model. Once we drop the dummy variables, which in part influence market expectations and sentiment, its coefficient is demonstrated to have a positive sign and is statistically significant. In line with our hypothesis, therefore, investment decision also relies on the expectations of future returns.

To see if a measure of cost of capital (***INT)*** would help explain the patterns of private investment, we include lagged average cost of borrowing[12] to the previous specification. To avoid the multi-collinearity problem, we also drop change in growth of debt to equity ratio (***GDE)***. Once we do so, ***INT*** becomes statistically significant and shows a negative sign as expected. In addition, other independent variables are statistically significant and show the expected signs. The finding thus supports the argument of the previous studies, indicating that, all things being equal, the greater the extent to which private investment is discouraged, the greater is the cost of capital.

In the last column, to test for the importance of economic uncertainties (Bleaney and Greenaway (2001)), we add REER volatility[13] (***VOL***) to our base model. At the same time, we drop real exchange rates (***REER***) to avoid the multi-collinearity problem, and the dummy variables that seem to be associated with erratic swings in the exchange rates. When included to our model, ***VOL*** is shown to have a negative coefficient and statistically significant, suggesting

11. We approximate Tobin's q for the non-financial SET-listed firms by dividing the sum of total liabilities and market capitalisation of the firm's equities by the total asset value. Admittedly, this is only an approximation of the true q measures as we lack data on the market value of debt as well as the actual replacement cost of capital. However, this proxy should still give a relatively reasonable benchmark for the assessment of market sentiments over time (Mallikamas *et al.* (2003)).
12. The average cost of borrowing is measured as interest expense over interest-bearing debt. The raw data are from the non-financial SET-listed firms.
13. It is the conditional variance of REER, using GARCH (1,1) model with AR(1).

that entrepreneurs do respond to exchange rates: an appreciation encourages private investment and the variability discourages it. Perhaps it is because this is correlated with the economic and political uncertainties, which appear to reduce private investment.

5. Issues and Challenges Regarding FDI and Private Investment

5.1 Issues and Challenges

After examining the determinants of private investment in Thailand, this section, in a forward looking manner, further identifies the key concerns expected to confront both FDI and private investment in Thailand over the coming years. As shown earlier, the post-crisis era witnessed the private investment performing less strongly compared to the pre-crisis record. This was in spite of the presence of several positive factors conducive for the recovery process. Regardless of the pain and casualty, the restructuring taken place after the crisis fortified both the banking and business sectors. At the same time, saving is not a constraint to investment recovery because the saving-investment gap has always been positive. Nonetheless, private investment continued to be subdued as a set of negative factors from both external and internal sources continued to depress the overall investment climate. These major challenges include the global financial turmoil, global economic downturn, and lower domestic business sentiment and political stability, and they are likely to remain testing challenges to the government as well as other stakeholders – financiers and investors –alike.

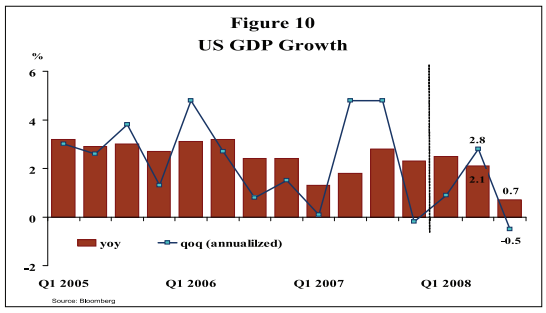
5.1.1 Global Financial Turmoil

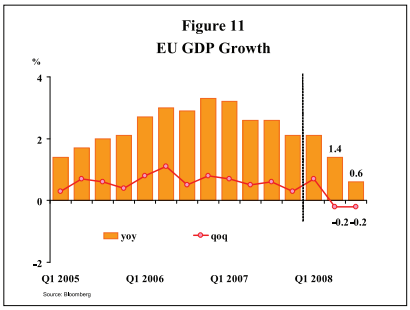
Thailand has become more integrated to international trade and investment. After the adoption of liberalisation policy in 1993, the economy has been subject to greater external risks. The current sub-prime loan problem in the US housing market as well as the ensuing losses and turbulent conditions in the financial market have posed a severe risk to global liquidity shortage and its impact has spread to financial institutions, insurance companies, and business sector. Funding costs for households and businesses in the major economies (e.g., the United States, the United Kingdom) have risen as banks continue to tighten credit standards. Although the Thai financial system is currently strong, the impact from the US housing downturn and the sub-prime loan crisis remains highly uncertain. Multinational corporations (MNCs) are in a vulnerable position. They might suffer from declining profitability and need some liquidity support from

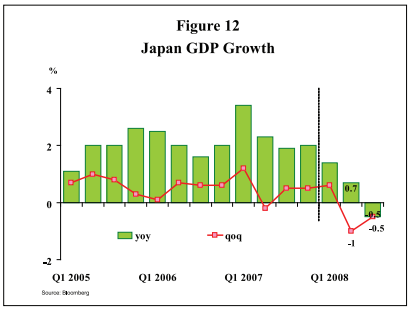
their subsidiaries, including those in Thailand. As FDI is generally of a long-term nature, the risk of divestment is expected to be low. However, if the loan crisis was prolonged, FDI prospects would be highly affected.

5.1.2 Global Economic Slowdown

On the other hand, the current round of financial crisis also unavoidably resulted in a dip in global economic development. This plays an important role, through both the direct and indirect channels, in further damping Thailand's investment prospect. In addition to the financial turmoil, the sub-prime problem has spawned economic downturns and crestfallen sentiment throughout the world. The repercussions were felt in the real sector, reflecting in the soaring unemployment rate as well as declining production, consumer income and spending. For the US economy, the NBER recently, on 1 December 2008, announced a recession beginning since December 2007. In the third quarter of 2008, the US GDP growth lingered around 0.7% (Figure 10), while the other advanced economies, the Euro area and Japan, also experienced major slowdowns (Figures 11-12). It was shown that these economic powerhouses have been among the major sources of Thailand's inward FDIs. It should also be noted that after the crisis, Thai economy has relied more on FDI as a foreign source of funds, accounting around 80% of gross capital inflows over the last five years. Therefore, their economic decline, accompanied by slowdowns in other emerging markets, is expected to lower FDI inflows into Thailand.







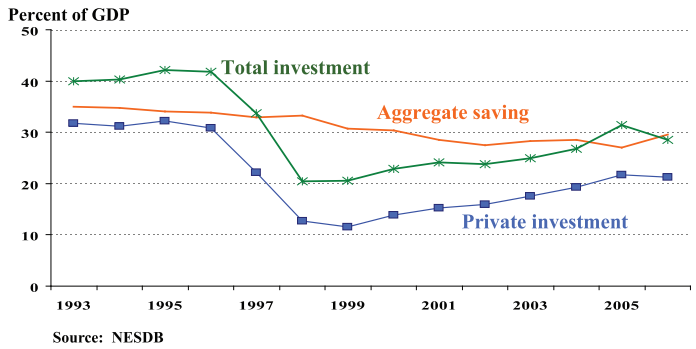
In addition to the direct impact on FDI outlook, such a global economic downward trend would also negatively affect Thailand's export expansion as well as its overall economic growth. According to the World Bank's forecast in December 2008, Thailand is expected to grow around 2% in 2009, drastically declining from the April forecast mostly stemming from both the increased internal political uncertainty and the grim outlook for exports, the major growth driver of Thailand for the past several years, as a result of the global recession.

As illustrated earlier, GDP growth is a key factor of private investment in Thailand. Consequently, the global economic slowdown and its implications on Thai exports and economy are also expected to discourage investment decisions in Thailand. Going forward, this is likely to become a significant downside risk to private investment, even though Thai economic fundamentals remain quite strong.

5.1.3 Domestic Financial Conditions

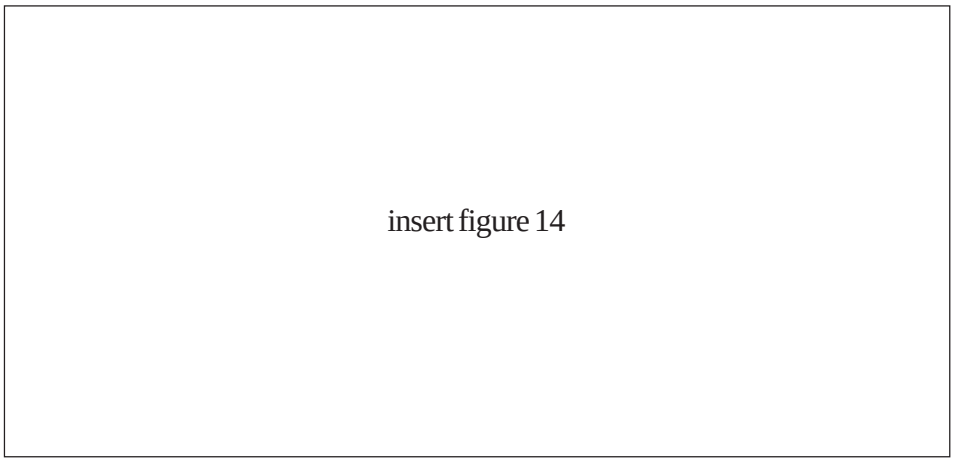
It is noteworthy that in the post-crisis era a number of factors have been in favor of the recovery process of Thailand's private investment. In terms of financing (Figure 13), the pre-crisis pattern of domestic savings shows that it narrowly sufficed to fulfill the expansion of private investment and not covered the funding of total investment. Following the onset of the crisis, the positive S-I gap was much widened due to the slowdown in investment. During 1999-2005, private investment picked up steam and the S-I gap narrowed once again. However, the recent trend indicated that the economy now enjoys a higher level of domestic savings, while private investment slightly decline. Thus, it is apparent that the domestic saving, as a source of financing, is not a constraint for private investment growth, at least, in the near term.

Figure 13
Saving and Investment



Source: NESDB

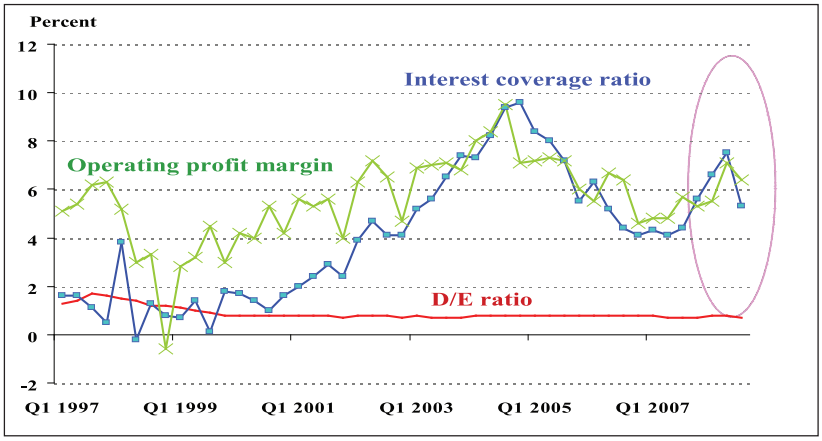
Meanwhile, the banking sector also readily strengthened. This is mirrored in its reinforced financial position in the post-crisis era with healthy debt conditions, increased capital accumulation, as well as continual positive returns (Figure 14). The ratio of the Thai banking sector's gross non-performing loans (gross NPLs) to total credit remained very low, less than half of the average of 22.2 % during 1999-2003. The capital adequacy ratio, on the other hand, rose constantly and stood well above the official minimum standard of 8.5%, signifying a strong financial buildup. As for the sector's profitability, the return on asset ratio also shows positive figures for all quarters, even during the last three quarters of 2007 where all banks were required to comply with IAS 39 reserve requirements.



5.1.4 Domestic Business Conditions

From the business sector's perspective, it is evident as its financials has grown more solid in the post-crisis era, it also stood ready to make investment (Figure 15). Since the crisis, businesses, as represented by listed-companies in the Stock Exchange of Thailand, witnessed a steady improvement in their operating profit margin as well as interest coverage ratio from the sharp drops after the crisis. This was in line with a declining debt to equity (D/E) ratio. The better leverage condition and profitability allows plenty of room for businesses to make investment with less risk, compared to the pre-crisis era.

Figure 15
Business Sector Readiness



Source: SET
Calculation by Bank of Thailand

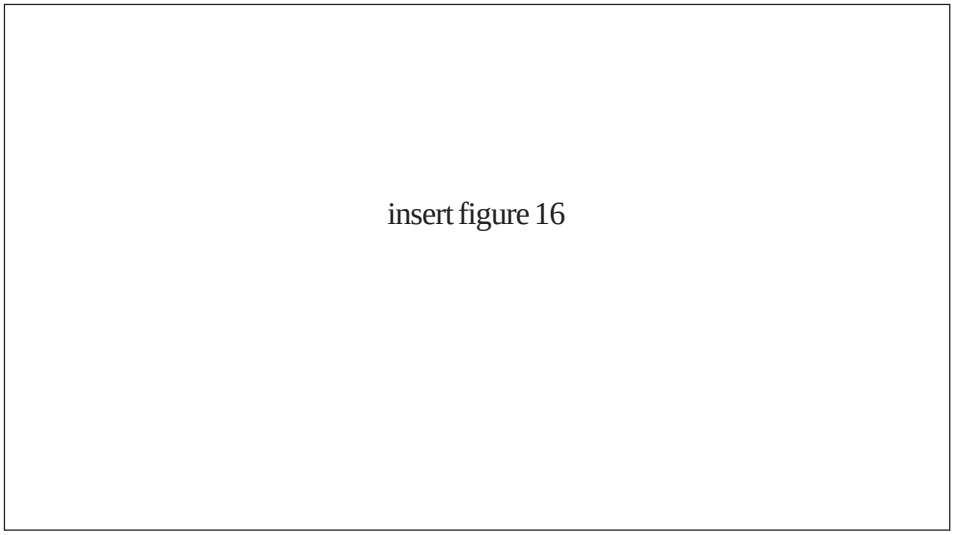
In addition, according to the World Bank "*Doing Business 2009*" survey during April 2007 to June 2008, Thailand improved by six rankings to 13th position out of 181 countries in terms of making it easy for foreign investors to do business (see Appendix). The survey collected data on the regulations applied to different stages of business's life cycle, such as starting a business, employing workers, paying taxes, and closing a business in a particular country. Thailand made major improvements in the areas of registering property, protecting investors, and trading across borders. This reflected Thailand's commitment made, in an attempt to become an investment hub and to boost private investment through inward FDI. Yet the private investment, albeit these positive factors, still underperforms its own record.

5.1.5 Domestic Business Confidence

Both Thailand's private investment and inward FDI still appeared downcast. This could be partly explained by the overall business sentiment which remained mostly dim in the past four years. The Business Sentiment Index (BSI) [14], compiled by the Bank of Thailand (BoT), fluctuated below the benchmark of 50 since 2004 (Figure 16), indicating weakened confidence of the business sector. This has a strong implication for investment. As argued in a BoT analysis, the investor confidence (as measured by BSI) leads private investment by one quarter,

14. The monthly survey is sent to 865 medium- and large-sized businesses for information relating to business performance and confidence. Its results are presented in the form of diffusion indexes, varying from 0 to 100. For interpretation, the index above 50 suggests business sentiment is improved; otherwise, the sentiment is worsened.

and has a co-movement with private investment in the long-run. Given the reflection of sluggish confidence from the index, the big question mark is how our government is going to tackle the challenge of rebuilding and restoring the confidence of both domestic and foreign investors.



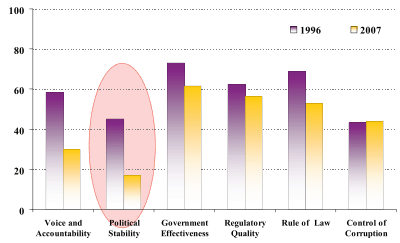
5.2 Role of Government

With the importance of maintaining business confidence, the government plays a vital role in the recovery process of Thailand's private investment and in attracting FDI inflows to the country. This could be attributed to the positive impact of clear and transparent investment policy direction and necessary infrastructure in improving investment efficiency and lowering investment risks and costs. The public sector can also indirectly induce a crowding-in effect by spearheading investment projects and spending to boost private sentiment and investment.

Nonetheless, during the second half of this decade we encountered an incessant series of political challenges. The adverse political atmosphere as well as the uncertainty it engendered have exacerbated investment sentiment, which has caused investment projects to be deferred. More specifically, since 2006 prolonged political tension has put the government's investment expenditures on mega projects on high uncertainty, and, till recently, they are still subject to postponement. The volatile and shaky balance of political conditions was captured and reflected in the World Bank's Governance surveys. Compared to the pre-crisis year 1996, Thailand in 2007 worsened in most of the governance indicators,

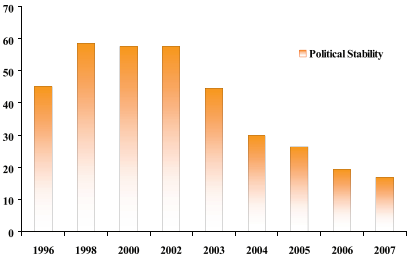
including voice and accountability, government effectiveness, regulatory quality, rule of law, and political stability (Figure 17). The most severe issue was the political instability which declined constantly throughout the five-year period between 2002 and 2007 (Figure 18).

Figure 17
Thailand's Governance Indicators



Source: World Bank

Figure 18
Thailand's Political Stability



Source: World Bank

Therefore, in the time where no one could predict with certainty how and when the current political instability is going to be resolved, it is imperative that in order to promote investment in the longer term, the government should take the necessary steps to boost both domestic and foreign investors' confidence. To do so, the government should focus on creating a conducive investment climate, such as enhancing transparency of investment policies, which are likely to reduce economic uncertainty burdened by investors. To this end, the private and foreign investors would attain greater comfort in making investment decisions.

Furthermore, another important role the public sector can play to enhance private investment is through taking a lead in investment projects and activities, particularly in the forms of infrastructure and human capital, which will raise the country's productivity and competitiveness. It is notable that public investment has been mostly passive since 1980 (Figure 19). Taking into account the ratio of public debt to the GDP (Figure 20), it is clear that there is ample room, in terms of financing, for the public sector to make a greater commitment in investment expenditure. This is crucial considering the crowding-in effect of public investment on private investment. Moreover, the increased investment will provide greater capital formation to help boost Thailand's potential output and facilitate long-term productivity growth (see Figure 21).

Figure 19
Public and Private Investment

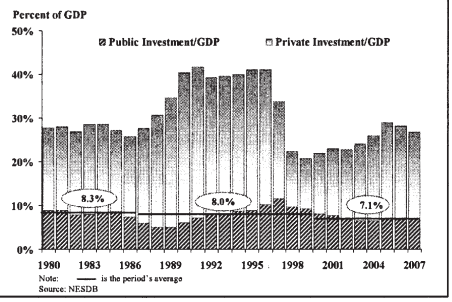
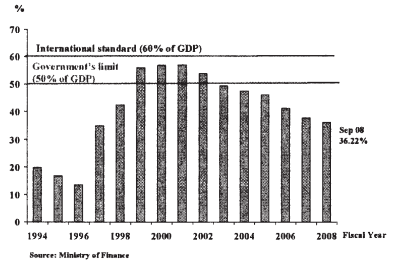


Figure 20
Ratio of Public Debt to GDP



In summary, this section points out that the imminent challenges for private investment in Thailand lie in the impact of the current global financial turmoil, world economic slowdown, weak domestic business confidence, and political instability. Amidst the volatile global factors as well as domestic constraints, Thailand would be able to maintain its growth momentum and business prospects partly through the acceleration of private investment recovery and promotion of inward FDI. This calls for significant undertaking of public sector commitment as well as the right mix of public policies, which is discussed at greater length in the next section.

Figure 21
The Desired Level of Investment for Thailand's Sustainable Economic Growth

Cheunchoksan and Nakornthab (2008) examine the growth patterns of Thailand, and project the growth path into the future, using the econometric method and growth accounting. The key findings are briefly summarised here.

Going forward, Thailand is set to face a fall in labor force's total hours worked. This stems mainly from the current trend in the demographic structural change. The elderly population, of age over 60, tends to increase while the birth rate declines as a consequence of advancement in medicine and healthcare, accompanied by highly successful government campaigns on family planning. Compared to the middle-age group, the elderly population group probably has a lower participation rate in labor market and lower average hours worked per week.

Given the practical constraints on measures to lift the total hours worked, for example promotion of quality labor immigration and extending the retirement threshold to the age of 65, Thailand is in need of an increase in labor productivity so as to support a sustainable economic growth in the future. This inevitably calls for an increase in total investment in the present.

This analysis, which sets an assumption that capital stock and GDP expand at the same rate (a balanced growth path), suggests that for the economy to grow as such, the ratio of total investment to the GDP need to increase from the current level of 22.0% to 28.0-30.0% within 2015. Otherwise, Thailand would have lower-than-expected economic expansion (see below).

The Outlook for Thailand's Potential Output
(based on production-function approach)

Average annual growth rate	2000-2007	2008-2015^{E}	2016-2025^{E}	2026-2035^{E}
Total hours worked	1.4	0.5	0.1	-0.2
Productivity*	3.5	5.0-5.6	5.0-5.6	5.0-5.6
Real GDP	5.0	5.5-6.1	5.1-5.7	4.8-5.4

Nevertheless, gathering from the historical data, increasing the total investment is achievable in light of the past performance. In particular, the total investment to the GDP ratio rose from 22.0% in 1973 to 30.0% in 1980 and from 20.0% in 2002 to 23.0% in 2005.

Public investment in mega projects (such as infrastructure, irrigation, mass transport and logistics) therefore is essential. The public-sector expenditure will add to total investment, and indirectly induce more private investment through the crowding-in effect. More advantages are also expected in increased productivity and lower production costs, which will, in turn, help contain the cost-push inflation in the longer term. This, in conjunction with the government's policies to stimulate productivity and labour's quality, is possibly to ensure that Thailand will accomplish the desired level of long-term economic growth.

6. Conclusion and Policy Recommendations

The major objective of this paper is to examine the patterns and determinants of private investment in Thailand with a view of understanding the factors hindering its recovery in the post-crisis period. In attempting to clarify the weakness observed in private investment, we apply some standard empirical and econometric methods to estimate an empirical model.

Our regression analysis, which is broadly consistent with the prior expectations and previous studies, suggests that Thailand's private investment is influenced by both economic and institutional factors. Higher (real) GDP growth, returns on investment and expectations of future returns, *ceteris paribus*, lead to increase in private investment in the subsequent periods. On the other hand, the local currency devaluation, corporate leverage and political instability appear to have a negative impact on private investment. In addition to the Baht depreciation, the volatile exchange rate, capturing economic and political uncertainties, is able to postpone an entrepreneurs' decision to undertake investment in the country. The 1997 financial crisis also reduces private investment during 1997-99.

This paper, moreover, supports an argument of previous research, indicating that, all else being equal, the greater the extent to which private investment decline, the greater is the cost of capital. However, credit availability fails to exhibit any significant impact on the investment. Finally, an increase in public investment could encourage domestic demand expansion, inducing an expansion of Thailand's private investment.

These findings suggest several policy implications. Firstly, given that investment itself is a key factor contributing to economic growth, Thailand's government should pursue a policy package in order to help foster balanced growth in both private investment and GDP. Secondly, a significant amount of infrastructure investment is required so as to help stimulate private investment (the crowding-in effect) in the following years. Nonetheless, future government budgets should accommodate mega projects without putting excessive pressures on public finances and the external balance. As a consequence, it is crucial to implement the projects in a transparent and efficient manner, giving proper consideration to avoiding cost overruns and ensuring rigorous selectivity.

Furthermore, the authorities should provide prudent macroeconomic policies, along with clear communication about the policy framework. These will help to contain any increase in perceived macroeconomic risks. From this standpoint,

the recent monetary policy stance of inflation targeting with a flexible exchange rate seems to be serving Thailand well as it encourages efficient market decisions by bringing private and social costs of investment closer together.

To secure greater amounts of private investment, another policy emphasis should be on promoting a favorable investment climate by removing obstacles to private investment, such as reducing red tape, improving governance, and, perhaps most importantly, establishing political stability. Going forward, productivity should be raised over the long run (via human capital improvement and higher research and development (R&D) spending) to further boost the returns on investment, because this is the only way to maintain steady investment given an increasingly competitive international business environment.

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Table A1: Descriptive Statistics

Sample: Quarter 1: 1996 to Quarter 2: 2008

	I	*GDP*	*REER*	*GDE*	*CAPU*	*INT*	*GCRE*	*VOL*	*GTOB*	*PUB*
Mean	143,094.2	852,759.9	84.9	-1.0	69.3	5.3	2.1	14.0	-0.5	60,632.2
Max	270,719.0	1,128,105.0	106.6	139.6	77.6	10.0	26.2	71.4	50.3	123,607.0
Min	70,875.0	658,899.0	71.3	-40.4	56.1	2.4	-18.9	0.6	-39.5	33,123.0
S.D.	50,053.1	129,416.7	8.7	32.9	5.1	2.4	10.9	19.6	19.8	16,882.6

Sources: National Economics and Social Development Board (Thailand), Bank of Thailand, Stock Exchange of Thailand, and author's computation

Table A2: Correlation Matrix

Sample: Quarter 1: 1996 to Quarter 2: 2008

	I	*GDP*	*REER*	*GDE*	*CAPU*	*INT*	*GCRE*	*VOL*	*GTOB*	*PUB*
I	**1**									
GDP	0.81	**1**								
REER	0.42	0.16	**1**							
GDE	-0.08	-0.32	0.00	**1**						
CAPU	0.84	0.82	0.34	-0.24	**1**					
INT	-0.51	-0.71	0.25	0.65	-0.62	**1**				
GCRE	0.54	0.22	0.11	0.42	0.25	0.02	**1**			
VOL	-0.34	-0.53	0.18	0.62	-0.58	0.87	0.30	**1**		
GTOB	-0.27	0.06	-0.22	-0.40	0.03	-0.30	-0.31	-0.31	**1**	
PUB	0.10	-0.20	0.37	0.43	-0.02	0.42	0.33	-0.30	-0.30	**1**

Sources: National Economics and Social Development Board (Thailand), Bank of Thailand, Stock Exchange of Thailand, and author's computation

Table A3: Unit Root Tests

Variable	Test Specification	ADF statistics
I	C,T	-2.89
Δ***I***	C,T	-3.45***
GDP	C,T	-1.75
Δ***GDP***	C,T	-4.95***
REER	C,T	-2.30
Δ***REER***	C,T	-4.73***
GDE	C,T	-3.02
Δ***GDE***	C,T	-6.98***
CAPU	C,T	-2.70
Δ***CAPU***	C,T	-5.79***
INT	C,T	-1.30
Δ***INT***	C,T	-6.86***
GCRE	C,T	-1.77
Δ***GCRE***	C,T	-5.85***
VOL	N	-1.64
Δ***VOL***	N	-2.95***
GTOB	C,T	-4.01**
PUB	C,T	-2.17
Δ***PUB***	C,T	-6.48***

Notes: In the test specification column, the symbol indicates whether a constant (C), a trend term (T) or none of the above (N) is included in the ADF specification; *** and ** denote statistical significance at 1 and 5%, respectively.

Table A4: Thailand's Rankings in the World Bank's Doing Business Surveys

	2006/07	2007/08
Overall ranking: Ease of Doing Business	**19**	**13**
Starting a Business	37	44
Dealing with Construction Permits	13	12
Employing Workers	54	56
Registering Property	20	5
Getting Credit	61	68
Protecting Investors	33	11
Paying Taxes	92	82
Trading Across Borders	51	10
Enforcing Contracts	26	25
Closing a Business	46	46

Source: World Bank, Doing Business Surveys 2008 (April 2006-June 2007; 178 countries) and 2009 (April 2007-June 2008; 181 countries)