

WORKING PAPER

WP/14/2008

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

Donni Fajar Anugrah

December 2008

Investment in the SEACEN Countries in the Post-Crisis Era: Issues and Challenges

Donni Fajar Anugrah¹

Working Paper No. 14
December 2008

Abstraks

Penelitian ini bertujuan untuk mengkaji faktor-faktor yang mempengaruhi investasi domestik di Indonesia dalam jangka panjang dan jangka pendek. Adapun pendekatan yang dilakukan menggunakan pendekatan ekonometrik dengan metode Engle Granger yang menggunakan ECM (Error Correction Mechanism). Sebelum dilakukan pengujian empirik, masing-masing data yang digunakan diuji stasioneritas dengan unit root test untuk mengetahui order of integration masing-masing variabel.

Dari hasil pengujian empirik diperoleh bahwa suku bunga riil, jumlah kredit yang disalurkan, PDB riil, dan nilai tukar berpengaruh pada investasi dalam jangka panjang. Faktor kredit dan PDB memiliki tingkat elastisitas yang paling besar yaitu masing-masing sebesar 0.47 dan 0.40. Besarnya pengaruh kedua faktor tersebut perlu mendapat perhatian terkait dengan kebijakan pemerintah untuk mendorong investasi, serta peran Bank Indonesia dalam perekonomian.

Selain itu, dalam penelitian ini juga menganalisis masalah-masalah dan terkait investasi beserta tantangannya. Terlihat bahwa masalah terbesar dalam mendorong pertumbuhan investasi yaitu ketersediaan infrastruktur yang dapat mendukung investasi itu sendiri. Misalnya, pasokan listrik yang masih sering menjadi problem dan ketersediaan sarana komunikasi serta transportasi. Faktor kedua yang menghambat investasi yaitu birokrasi, hal ini terlihat, contohnya, dalam perijinan dalam berinvestasi yang cukup lama.

JEL classification: E22, C22

Keywords: Investment, Error Correction Mechanism (ECM)

¹ Peneliti Ekonomi Muda Senior di Biro Riset Ekonomi (BRE), Direktorat Riset Ekonomi dan Kebijakan Moneter (DKM), Bank Indonesia. Pandangan dalam paper ini merupakan pandangan penulis dan tidak semata-mata merefleksikan pandangan DKM atau Bank Indonesia. Kesalahan atau kekeliruan yang ada adalah semata-mata kesalahan penulis. E-mail: donni@bi.go.id

DAFTAR ISI

Abstraks.....	ii
DAFTAR ISI.....	iii
DAFTAR GRAFIK.....	iv
DAFTAR TABEL.....	v
I. Introduction.....	1
II. Trend of Investment Since 1980.....	1
2.1 Development of Foreign Direct Investment.....	3
2.2 Development of Domestic Investments.....	5
III. Major Policies Related to Foreign Direct Investment and Domestic Investment.....	6
IV. Determinants of The Domestic Investment.....	10
V. Issues and Challenges regarding FDI and Private Investment.....	15
VI. Conclusion.....	22
BIBLIOGRAPHY.....	24

DAFTAR GRAFIK

Graph 1. Economic Growth vs. Real Investment Growth	6
Graph 2. Investment/GDP	6
Graph 3. Country Risk Index of Indonesia	7
Graph 4. Rupiah Exchange Rate	7
Graph 5. Inflation	7
Graph 6. Real Interest Rate	7
Graph 7. Stock Price Index	7
Graph 8. Foreign Direct Investment	8
Graph 9. Major Foreign Investors in Indonesia	8
Graph 10. FDI: Primary Sector	9
Graph 11. FDI: Secondary Sector	9
Graph 12. DI: Primary Sector	10
Graph 13. DI: Secondary Sector	10
Graph 14. Real Investment & its Growth	11
Graph 15. Real Investment by Its Component	11
Graph 16. FDI to GDP Ratio	11
Graph 17. Investment Ratio (DI/GDP)	11
Graph 18. Current Account (millions USD)	15
Graph 19. The residual of long run equation	20
Graph 20. Actual and Fitted of Investment Model	23
Graph 21. The Most Problematic Factors for Doing Business in Indonesia	24
Graph 22. A number of days to obtain permission in Indonesia	26
Graph 23. Human Capital	27
Graph 24. Total Factor Productivity	27
Graph 25. Ratio of education to total budget	27

DAFTAR TABEL

Table 1. The Deregulation to Improve Investment Climate	15
Table 2. The Result of Unit Root Test at Level	19
Table 3. The Result of Unit Root Test at First Difference	19
Table 4. The Result of The Long Run Equation	20
Table 5. The Result of Unit Root Test at Level	20
Table 6. The Result of Parsimonious Equation	21
Table 7. The Infrastructure Performance in Indonesia	25
Table 8. The Rank of Basic Requirement in Indonesia	26
Table 9. The Rank of Efficiency Enhancer in Indonesia	28

I. Introduction

Investment is the most important economic activities as both domestic and foreign direct investments is the most effective ones in generating employment, raising productivity and transferring skills and technology in support of a more sustained economic growth. The study of Chay and Roy (2006) stated the investment share to GDP is the important factor of economic growth. The reason is the high investment creating a high effective demand. Another reason is the high investment increasing capital stock that causes a high production capacity. Having been aware of these advantages, regulations on investment in Indonesia had progressively improved along with the change in domestic and global economic environment. The Investment Coordinating Board (BKPM), established by the government of Indonesia in 1973, has the main function to implement the government objective for enhancing investment in Indonesia.

Since the beginning of the 1990s, investments in Indonesia, had progressed favorably, being supported by financial sector reform and foreign investment deregulation which promoted a more conducive environment for the development of financial sector and investment activities. Investment reached its peak level in 1997, before it dropped substantially in 1998 -1999 because of the Asian crisis. The poor economic condition during the crisis period was exacerbated with political instability which heightened the country risk of Indonesia and drove capital out of the country.

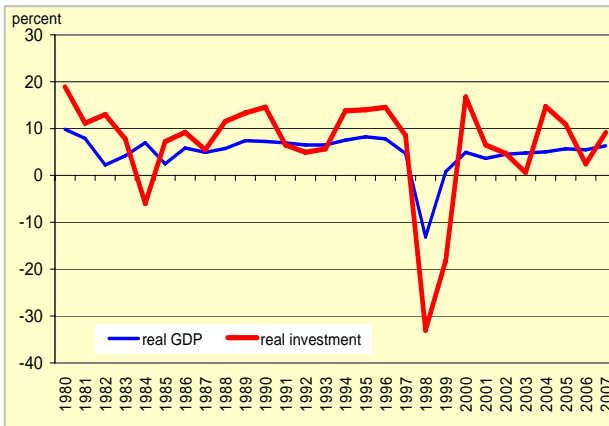
The economy has gradually improved since 2000 and regained investors' confidence. Subsequently, investment growth improved, supported with strengthened prudential measures in financial sector aiming at maintaining monetary and financial stability as well as government reforms in several areas needed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

In recent times, investments are of interesting issues. As different countries have different speed of growth in investments, it becomes intriguing to examine the determinants of investment in developing countries and its role in economic development. This study investigates the determinants of investment in Indonesia, since it is crucial to understand factors that have significant influence on the investment growth. Result 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 an Engle Granger's method as an econometric approach. The Engle Granger's methodology needs a stationary test for each variable to obtain the order of integration.

II. Trend of Investment Since 1980

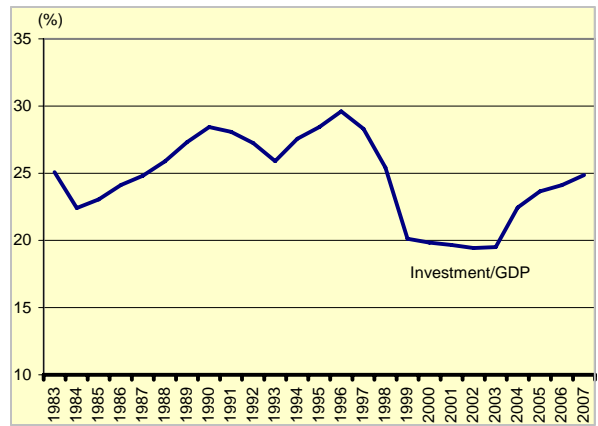
It has been well acknowledge that there is a close relationship between investment and economic growth. Before the occurrence of crisis (1980-1996), the economy grew at 6.4% on average and during the same period, real investment grew at 9.7% on average, supported by strong and stable economic condition (graph 1). High economic growth was followed 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 particularly in early 1990s changed the economic policy to become more market oriented, as private sector investment had taken over the role of main driver for economic growth.

Graph 1. Economic Growth vs. Real Investment Growth



Source: Indonesian Board of Statistics (BPS), computed

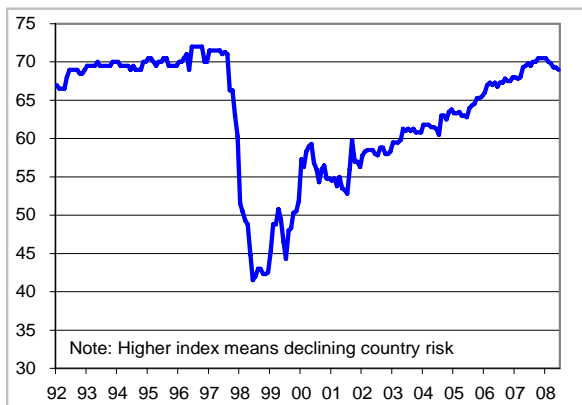
Graph 2. Investment/GDP



Source: Indonesian Board of Statistics (BPS), computed

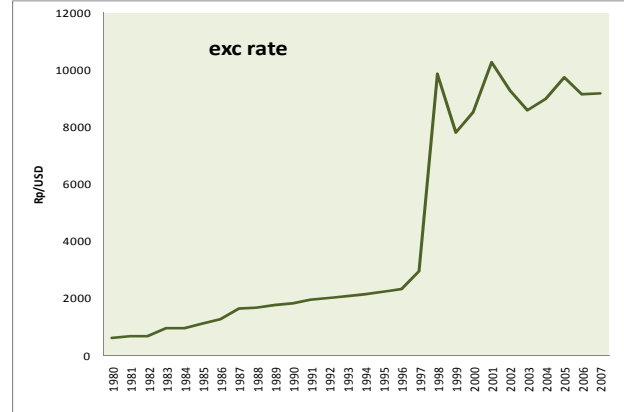
Unfortunately, financial crisis burst in mid 1997 reversed the situation rapidly. The May 1998 social riot occurred in several cities of Indonesia and political instability exacerbated the poor economic condition. The subsequent sudden stop and massive capital outflows caused the rupiah exchange rate depreciated substantially from Rp2,450/USD in June 1997 to become Rp14,900/USD in June 1998 (graph 4). 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 Indonesia risk index (graph 3) and led to negative growth of investment accordingly in 1998-1999. Investments fell significantly from 29.6% of GDP in 2006 to 20.1% of GDP in 1999. Recovery period for investment took several years. Although the expansion trend of investment has started in 2002, it was only in 2003 that investment to GDP ratio have started to be in an upward trend (graph 2).

Graph 3. Country Risk Index of Indonesia



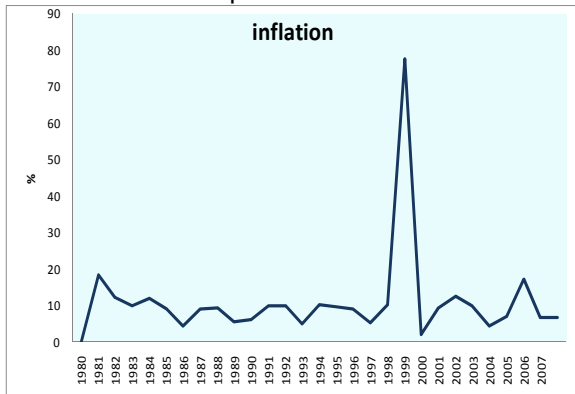
Source: International Country Risk Guide

Graph 4. Rupiah Exchange Rate



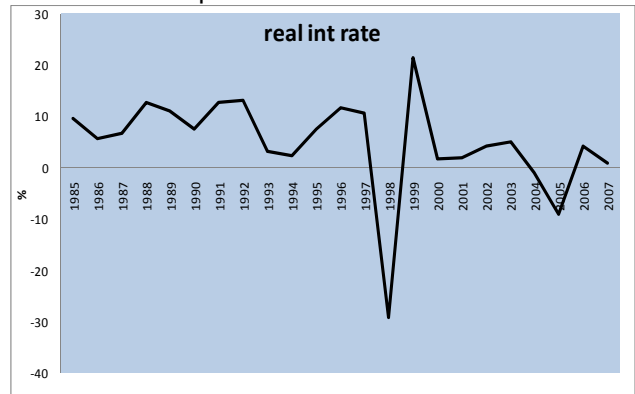
Source: Bank Indonesia

Graph 5. Inflation



Source: Indonesian Board of Statistics (BPS)

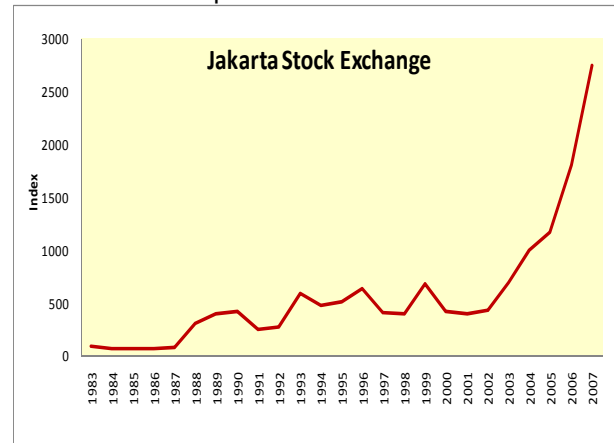
Graph 6. Real Interest Rate



Source: Bank Indonesia, computed

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

Graph 7. Stock Price Index



The major factors contributed 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 went stable, investors' confidence strengthened as reflected in higher investment growth, both domestic and foreign direct investments. Capital flows have also surged in, particularly short-term capital flows in the form of portfolio investments induced by attractive yields of rupiah assets. High portfolio investment flows was among others reflected in the steep upward trend of Jakarta Composite Index achieving 2,745.83 in December 2007 (graph 7). Such favorable in economic development resulted in higher accumulation of international reserves achieving USD 56.9 billion at the end of 2007, or equivalent to 5.7 months of imports and official debt repayments.

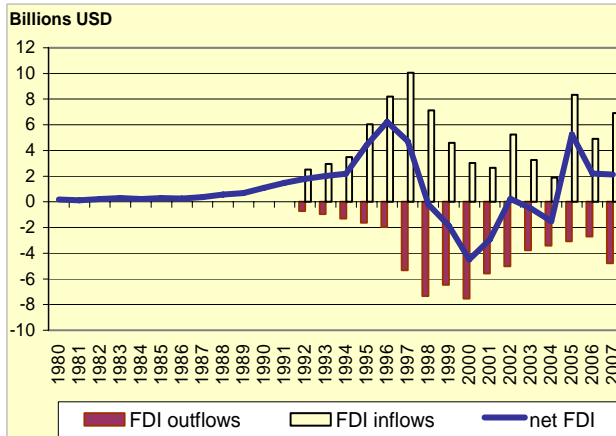
2.1 Development of Foreign Direct Investment

FDI is an important component of foreign private capital to developing countries including Indonesia, due to the fact that FDI has been proved to be more sustainable and not easily reversible during financial crisis than other forms of foreign investment.

In the pre-crisis period, net FDI flows had constantly registered surplus, and recorded the highest performance above USD 6 billion in 1996. This performance had been supported by government regulation issued in 1994 which permits up to 100% foreign ownership in direct investment. As

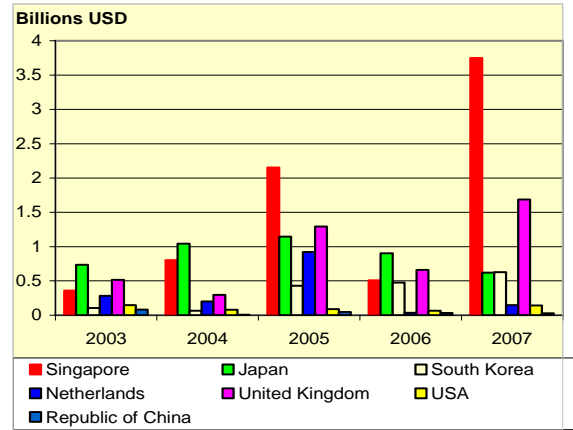
reflected in graph 8, during the years 1995 to 1997 the inward FDI increased sharply from about USD 6 billion to more than USD10 billion. The strong inward direct investment ended in 1997 with the onset of the Asian crisis.

Graph 8. Foreign Direct Investment



Source : BOP, Bank Indonesia

Graph 9. Major Foreign Investors in Indonesia



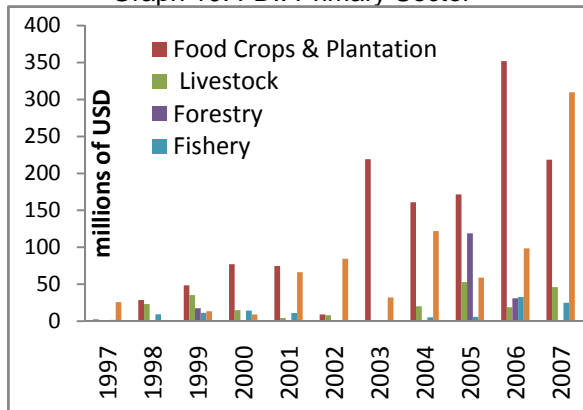
Source : Source: Investment Coordinating Board (BKPM)

The 1997 financial crisis exacerbated with political and social disputes decreased inward foreign direct investment significantly, so that net FDI flows turned into negative. The largest negative net FDI flows of USD 4.5 billion was recorded in 2000 (graph 7). Structural problems of financial governance, lack of credibility of the legal and judicial system, political uncertainty, and issues regarding regional decentralization of power to approve investments and impose regional taxes altogether discouraged investors from making long-term commitments.

However, government efforts in conducting continuous structural reforms, in various areas, including the financial sector restructuring, have all contributed positively to create more conducive environment for investments. FDI inflows improved gradually and in 2005 net flows of FDI has begun to be positive reaching USD 5.3 billions with inward FDI accounted for 8.3 billions (graph 8).

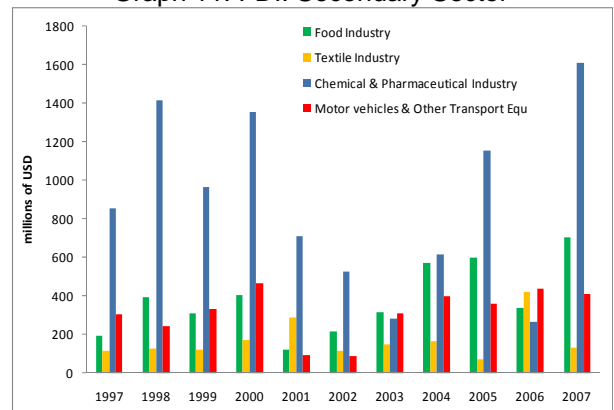
In order to recognize the major foreign direct investors in Indonesia, it is important to identify inward direct investment based on their country of origin. In recent years, Singapore was the largest foreign investors in Indonesia, outperforming United Kingdom, Japan and South Korea (graph 9). Meanwhile,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

Graph 10. FDI: Primary Sector



Source: Indonesian Investment Coordinating Board (BKPM)

Graph 11. FDI: Secondary Sector

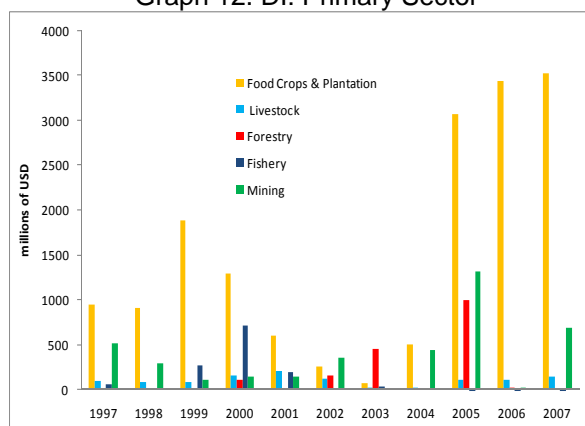


Source: Indonesian Investment Coordinating Board (BKPM)

By economic sectors, FDI in primary sectors in recent years were particularly dominated by investments in food crops and plantation sector as well as in mining sector, especially in oil and gas sector. After financial crisis, investment in oil and gas sectors has bigger proportion than the other sectors. Share of investment in oil and gas sectors to total FDI inflows is around 50-70%. Meanwhile, in the secondary sector, FDI in the Chemical & Pharmaceutical Industry remained the largest, exceeded investment in the food industry (graph 11).

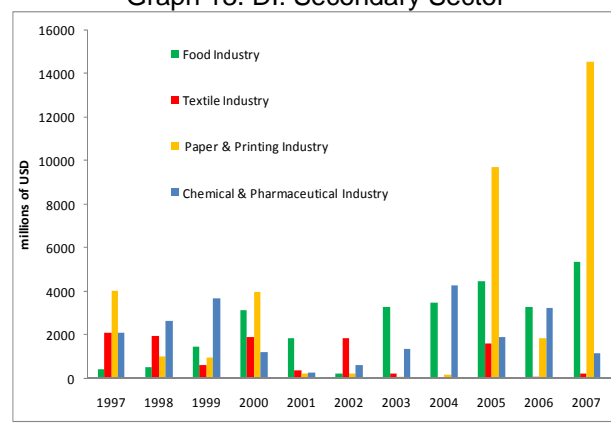
Similarly, the domestic investment in the food crops and plantation sector was the highest in the primary sector, followed by the mining sector. The domestic investment in food sector and mining sector was Rp3,528.8 billions Rp691.4 billions respectively in 2007. In the secondary sector, the paper and printing industry was the leading domestic investment with its investment value was Rp14,548.3 billions, while the second place was investment in the food industry (Rp5,371.8 billions). This condition also proved that the food area was the most favorite of both domestic and foreign investors, considering that the prospect of food market in Indonesia remains high with its high population.

Graph 12. DI: Primary Sector



Source: Indonesian Investment Coordinating Board (BKPM)

Graph 13. DI: Secondary Sector



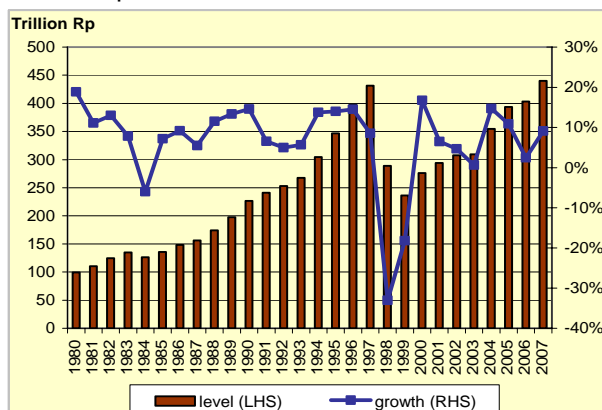
Source: Indonesian Investment Coordinating Board (BKPM)

2.2 Development of Domestic Investments

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

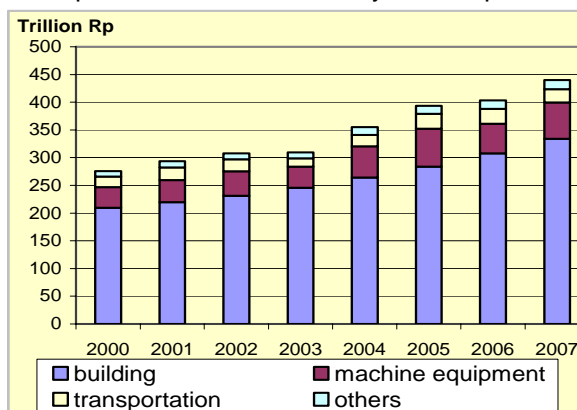
Total domestic investment (DI) as reflected in the gross fixed capital formation had been in an expansionary phase during 2000s, with the accelerated growth continuing to date. Average growth rate of investment during 200-2007 attained 8.2%. In 2007, with real investments grew by 9.2%, value of investment 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

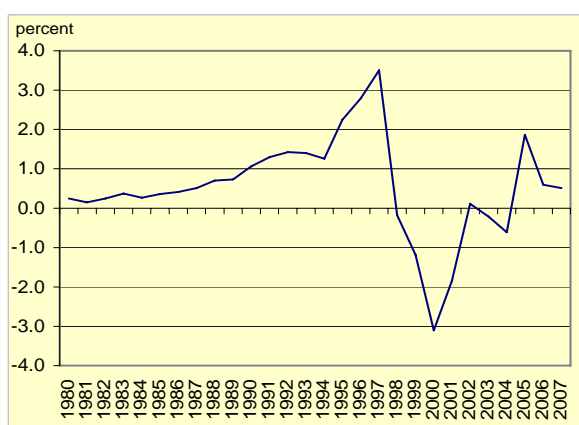
Graph 15. Real Investment by Its Component



Source: Indonesian Board of Statistics (BPS), computed

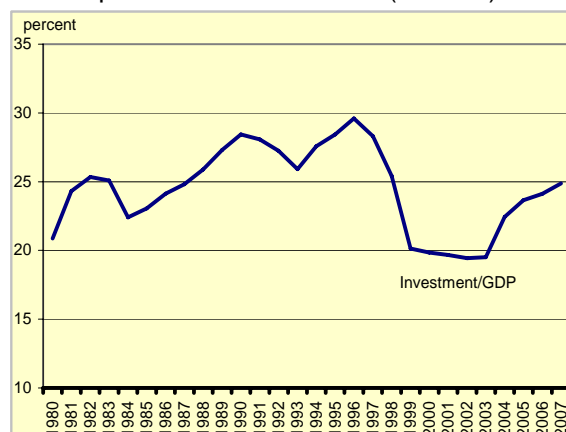
Disaggregating by component, about 76% of investments were in the form of building/construction, followed by investments in machinery & equipment (14%), investment in transportation (6%) and others (4%). In 2007, investment growth from non-building investment accelerated to 10.9%, exceeding the growth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

Graph 16. FDI to GDP Ratio



Source: Bank Indonesia, computed

Graph 17. Investment Ratio (DI/GDP)



Source: BPS, computed

Investment has progress quite well in recent years and since 2003, investment ratio (investment/GDP) has tended to increase. Nonetheless, investment ratio in Indonesia was still considered low. In 2007, Investment ratio in Indonesia was about 24.9%, much lower than that of China that was around 33% to 50%. Therefore, many works remain to be done for the government to foster higher growth of productive investment so that investment ratio at least can achieve the level before crisis i.e. 30%. Particularly, various hurdles hampering the progress of investments need to be resolved, such as those in infrastructure construction projects as well as to encourage more inward foreign direct investments.

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

Considering the importance of enhancing investment to spur higher and sustainable economic growth, government has released some major policies related both direct and indirectly to foreign direct investment and domestic investment. During 1980s, government had announced

some deregulation particularly in financial sector by taking into account that strengthened and competitive financial sector are needed to support all economic activities, including investment. The deregulation also affected both current account and capital account.

Banking sector deregulation took place on 1 June 1983, and became the starting point of a more market based monetary policy framework (i.e., liberalizing interest rate, streamlining Bank Indonesia's liquidity credit, abolishing credit ceilings, and concurrently introducing new indirect instruments, namely the open market operations). With this regulation, state banks were allowed to determine the deposit rate and the credit rate on their own. Moving toward more market mechanism, the government expected the state banks to be more competitive, so that they could improve their financial intermediation function in the economy, and could play important role in financing the 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 goods. In the following year, government released the regulation that removed completely the export certificate (SE). The regulation was taken into effect on 6 May 1986. SE is the facility to exporter to attain a free tax and a subsidy.

Furthermore, in 1987, government released three policies: the first policy related to the current account liberalization, the second policy was purposed to promote domestic investment, and the third one was aimed to enhance the foreign direct investment. The first policy was deregulation on the automotive industry, machine industry, electrical machinery, and import tariff reduction. Government reduced tariffs for some goods, such as textile, cotton, and iron-steel. With this policy, the government also simplified the procedure of business permission in machine industry and simplified procedure to assemble an automobile, as well as procedure to assemble and to build automotive part. These policies were implemented on 15 January 1987. The second policy were the Government Regulation No.13, 1987 and the Presidential Decree No. 16. Those policies were implemented on Juni 1987. Government simplifies the procedure obtaining permission to invest in some areas such as mining, agriculture, health, and manufacturing sectors. On 24 December 1987, Government released the third policy to promote foreign direct investment and exports. By this policy, the government simplified the procedures of FDI like the procedures of domestic investment. Moreover, government also simplified permission to export. It aimed to improve export and to create the economic competitiveness. Furthermore, in November 1988, a measure to reduce restriction in distribution of product by foreign factory was issued.

More broadened financial reforms were introduced aggressively in late 1980s, starting with deregulation in banking sector and foreign exchange transactions, subsequently followed by deregulation in capital market and foreign direct investment. The deregulation was aimed at attracting foreign capital and creating conducive environment for investment. The "October 1988 Package Policy" was intended to increase the degree of monetization in the economy through broadening the opportunity to open bank and its branches, facilitating the operation of foreign banks' joint ventures with local partners in six major provincial cities, and smoothing the conversion of national private banks into foreign exchange banks.

Later, 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 investment was replaced by a simplified "negative list" of closed sectors.

In the capital market, the government reform was initiated in October 1987 and December 1988. These measures were aimed at fostering development of the capital market in view of boosting investor confidence and improving investment climate. Since then, foreigners were

allowed to purchase stocks in the domestic capital market, while foreign securities companies were permitted to form joint ventures with local partners. In 1995, a new capital market law was enacted aimed at strengthening the legal foundation of the market

Policy measures issued in 1980s showed that investment had improved quickly, especially foreign direct investment. Share of foreign direct investment to GDP and investment to GDP had improved significantly (Graph 16 and 17). This result proved that government policies were effective to promote foreign direct investment in 1980s. However, government still continued to release the other policies related to both domestic investment and foreign direct investment before Asian financial crisis started in the middle of 1997.

In 1990s, the Government continued its endeavor to foster investments and exports. Starting in May 1990, government issues the deregulation package covering four development sectors, such as manufacturing, trade, health, and agriculture sectors. In the following year, government released another deregulation packet. It implemented in June 1991 and covered five sectors, such as investment, manufacturing, agriculture, trade, and financial sectors. The deregulation also removed the monopoly power of the state companies in importing some goods such as foods, fruits, and meat. The government also allowed state companies who has license to import commerce cars. This policy immediately increased the import of commerce cars, that caused the price of commerce car in domestic market dropped. The deregulation has enhanced market competitiveness.

Further measures were introduced to promote foreign investment, 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 to Foreigner Investors) and import tariff reduction. The easy market access for foreign investors is opened in any sector of the economy for which equity ownership is allowed up to 100%, except for banking and finance companies. For insurance businesses, foreign investors are allowed to own equity up to 85% whereas for banking and securities companies up to 99%. Like most countries, Indonesia still maintains some restrictions on sectors that are considered strategically important to the country and serving as public goods. For instance, investments in infrastructure projects such as port, electric power plant, telecommunication, shipping lines, airlines, potable water, public railways, atomic energy reactors and mass media are only able to be established in the form of joint ventures between foreign and local partners. The share of domestic partner in the joint venture company shall be at least 5% of the total paid-up capital upon its establishment. The government also improved domestic investment by the deregulation policies in automotive sector and wheat in 1993. These policies supported domestic investors who interested to develop factory of wheat.

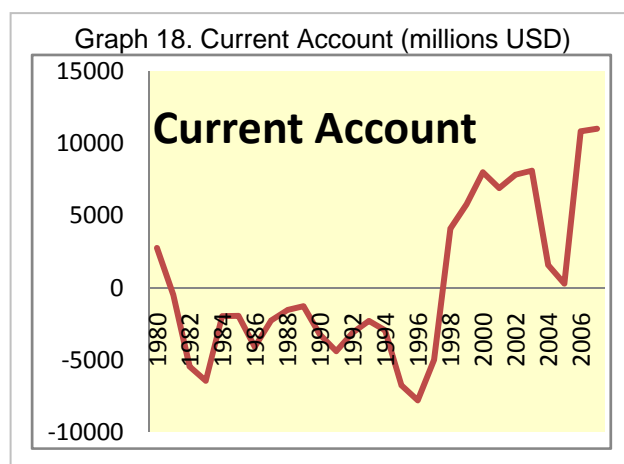
One year before financial crisis began, government released 11 deregulations related to current account liberalization. The one of them is to not binding export import of FDI's factory in 1996. When Asian financial crisis started in middle of 1997 and affected Indonesia by depreciating Rupiah against US Dollar, government released the packet of deregulation on July 1997. It contained some rules to support current account liberalisation. It reduced 1600 import tariffs of variant products. The products were agriculture product, trading product, and healthy product. This regulation was followed by the government 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 industry area, agriculture area and health area consecutively. The government released the Ministry of Finance Decree to reduce the export tariffs on palm oil, palm oil seed, and Crude Oil Palm (CPO). The reduction was from 30% to 10%. These policies were aimed to promote export, then affected a current account. The packet

deregulation urged the import tariff to be reduced in average from 13,0% to 11,9%. In this packet, government allowed the private companies to import a sugar. Before the deregulation began, the Bureau Logistic (states company) had a monopoly power to import sugar.

The government also opened the import of used ship. Meanwhile, the government simplified the export procedures by increasing the reports of export value (PEB). In other words, the companies only reported the export if the values was more than 300 million rupiah. Before this policy began, the companies should report their export while the export value was more than 100 million rupiah. As the result, the low and middle companies could export their product with value until 300 million rupiah without PEB.

Structural reforms in various areas have successfully improved economic stability and supported stronger economic performance in 2000s. The balance of payments had recorded surplus in 2000s, mainly on the strength of the current account surplus 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).



Source : Bank Indonesia, computed

Promoting the domestic investment, government also gave the facility to private companies similar to the FDI companies. The facility had been a duty free to import the material and capital goods for two years. The effect of the government policies on July 1997 was investment grew at 8.6%. The investment had increased from 397 trillions rupiah in 1996 to 431 trillions rupiah in 1997.

Table 1. The Deregulation to Improve Investment Climate

No	Area	Contains
1	General	- To improve investment services - To coordinate between the centre government rule and the regional government rule
2	Customs	- To develop special regions - To cease smuggle
3	Tax	- To give the incentive tax of investment - To promote both transparency and disclosure
4	Labor	- To create industrial relationship and improve job opportunities - To become labor market more flexible and productive
5	Small-Medium Business Scale and Cooperation	- To support small-medium business scale and cooperation

Source : Ministry of Finance

By Act No. 5, 1999 about privatization policies, government and legislative council strengthened economic. This policy aimed to invite foreign investor and solved the crisis problem

in Indonesia. In 2005, the government also released four policies packet in energy, monetary, fiscal, and investment. The government wanted to promote investment and anticipated the increases of oil price and the depreciation of Rupiah against US Dollar.

Finally, the government released the deregulation packet in 2006 to promote investment climate. The policy was Presidential Decree No.3, 2006. The area was covered, such as, general, customs, tax, labor, and small-medium business scale and cooperation (table 1). The result of these policies were in following year that investment increased by 9.16% from Rp403 trillions (2006) to Rp440 trillions (2007).

In conclusion, the government policies after financial crisis focused on strengthening investment improvement. Financial crisis caused investment to be down, especially foreign direct investment. Therefore, the government deregulation that supported investment climate should be introduced. Some of the government deregulation aimed to enhance the current account performance. By current account liberalisation, the business climate becomes more competitive and this situation attracts the foreign investors to invest in Indonesia.

IV. Determinants of The Domestic Investment

In this chapter, we will exercise the factors of the domestic investment. Although we do not study the determinants of foreign direct investment, we will explain briefly its determinants. The current study in Bank Indonesia² investigates the factors of FDI in Indonesia. This study confirms the other researches relating to determinants of investment. The finding of this research is that the most important factor of investment is economic growth.

Economic growth indicates the economic prospect of one country, since it has higher market size. If the country has the good prospect, it can attract the foreign investor to invest in this country. Therefore, the relationship between economic growth and FDI is positive. It means the higher economic growth can increase the inflows of FDI. Another important factor is a labour wage that has a negative link with FDI, since increasing labour wage causes cost production growing up. The high cost of production will decrease profit. This condition is unadvantage to investors. One of foreign investor's reasons placing their investment in one country is low labour wage. Therefore, if the labour wage in one country is lower than the other countries, foreign investor will invest, otherwise they won't.

Supply of infrastructure is the most important factor of both domestic investment and foreign direct investment. Electricity, communication, and transportation are the part of infrastructure. The supply of them should be available to support the business. The less supply of them can cause investor, particularly foreign investors to replace their investment to other countries. We can conclude that the relationship between infrastructure and FDI is strongly positive. Therefore, development of infrastructure is needed to support improving investment.

Similarly, exchange rate affects both the domestic investment and foreign direct investment. Yet, the relationship between exchange rate and investment is negative. Depreciation Rupiah against US Dollar attracts the foreign investors to invest in Indonesia, since they can buy the domestic company with low price. Meanwhile, the domestic investors will prefer to increase their investment in domestic rather than in foreign countries, because the price of foreign companies raises. As conclusion, the lower value of exchange rate will be followed by the higher

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

investment. Meanwhile, volatility of exchange rate has no effect to foreign direct investment, since foreign direct investment is investment in long term.

The political stability is also important factor to foreign direct investment. The foreign investors will concern with it, since they need a guarantee that their investment is safe. The political instability makes investors worry, thus they will draw their investment if they think their investment is not safe. The political stability is indicated by country risk. The lower country risk means the lower political stability. International country risk guide (ICRG) reports the country risk in each country in the world. Some studies also proved that country risk is one of investment's determinants.

Government bureaucracy is also the important factor of the foreign direct investment. The more complicated procedure of investment can reduce investors's interest. They will leave the country with complicated procedure indicated by the how long is needed to get permission to invest. Therefore, this factor should be noticed to each country to attract investors, especially the foreign investors.

Furthermore, we will examine the determinant of domestic investment. Actually, the domestic investment can be classified as private investment and public investment. Since the data of public investment is relatively small and not available in Indonesia, we will define fixed gross capital formation as private investment. The determinants of FDI and private investment are relatively similar. For example, GDP growth as one of factors that influence investment in both sides. The country with high growth will be interesting for foreign investors, since the economic prospect guarantees the profitable investment. Therefore, FDI will grow up when GDP growth grows up. Meanwhile, high GDP growth also creates expectation in domestic investor to get high profit. Since GDP growth means economic business in the country grow up in generally. We can conclude that GDP growth factor can influence both FDI and private investment.

The other factors of private investment are real exchange rate, real interest rate, and real credit. To find the effect of some factors to private investment, we develop model of real investment. The macroeconomic time series data is usually non stationary at the level and stationer at the first difference. We need to do unit root test for random walk variables, to find both the stationary of each variable and the order of integration for each variable. They are 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.

The real investment, the real GDP and the real credit have a trend, therefore we do unit root test including constant and trend. Alternatively the other variables, such as real interest rate and real exchange rate have no trend and no seasonal. Therefore we do unit root test including constant only. We do unit root test on each variable using one lag, because we want to know which lag has no serial correlation with residual in the variable. The null and alternative hypotheses are specified:

H_0 : Non Stationer

H_1 : Stationer

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	Not stasioner
2	Real GDP (LGDP)	Constant & Trend	1	-1.96	-4.04	Not stasioner
3	Real Interest Rate (IR)	Constant	1	-2.49	-3.49	Not stasioner
4	Credit (LCred)	Constant & Trend	1	-1.99	-4.04	Not stasioner
5	Real Exchange Rate	Constant	1	-0.88	-3.49	Not stasioner

We can summary that at level I(0) all variables and continuously test all variables at 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	stasioner
2	Real GDP (LGDP)	Constant	1	-10.43	-3.49	stasioner
3	Real Interest Rate (IR)	Constant	1	-5.05	-3.49	stasioner
4	Credit (LCred)	Constant	1	-5.78	-3.49	Stasioner
5	Real Exchange Rate	Constant	1	-4.99	-3.49	Stasioner

We can conclude that all data are stationer at first difference I(1), therefore the order of integration of all variables is one. That means all variable can be cointegrated in the long run. Therefore, we can continue to develop model for investment in Indonesia using Engle Granger's technique.

To investigate the effect of all independent variables to real investment in the long run, we run 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 result of the long run equation is shown on table 4.

Table 4. The Result 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

$$R^2 = 0.98 \text{ and } DW = 1.93$$

Furthermore, we do test the residual to confirm whether the equation is cointegrated. If the residual of the long run equation is stationer that means the equation is cointegrated in the long run.

Graph 19. The residual of long run equation

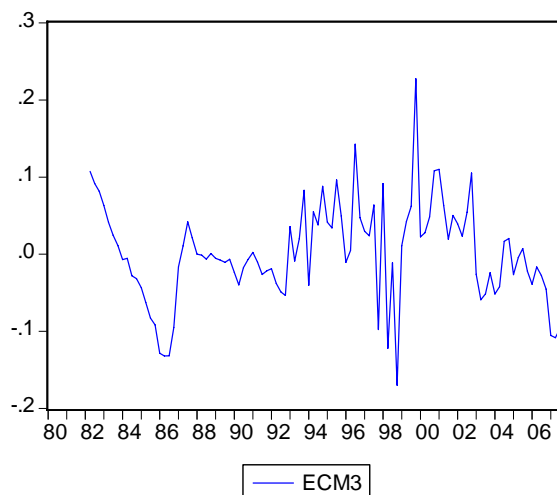


Table 5. The Result of Unit Root Test at Level

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

Since the result shows that the residual has no unit root in level that means it is stationer. Therefore, we obtain the equation as cointegrated in the long run equation. The equation is

$$I(I) = 1.23 - 0.01 * ir + 0.47 * I(Cr) + 0.4 * I(GDP) + 0.02 * REM - 0.36 * Dummy + \varepsilon$$

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

On the contrary, both the 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 classified by three categories: credit of investment, credit of consumption, and credit of working capital. Therefore, the increasing credit affect to raise investment. Similarly, increasing real GDP can raise real investment, since real GDP indicates the economic prospect.

The slope of real exchange rate is 0.02 , meaning depreciating Rupaih against US dollar 1% affect to raise real investment by 0.02% . People will invest more when the value of rupiah against US dollar is fall. Holding rupiah is not valuable, therefore they will prefer buy US dollar or invest their money.

The ECM is obtained from the residual of the long run equation. Then we put the ECM to the dynamic equation of real investment. The parsimonious equation is below:

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

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

$$R^2 = 0.38 \text{ and } DW = 1.92$$

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

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

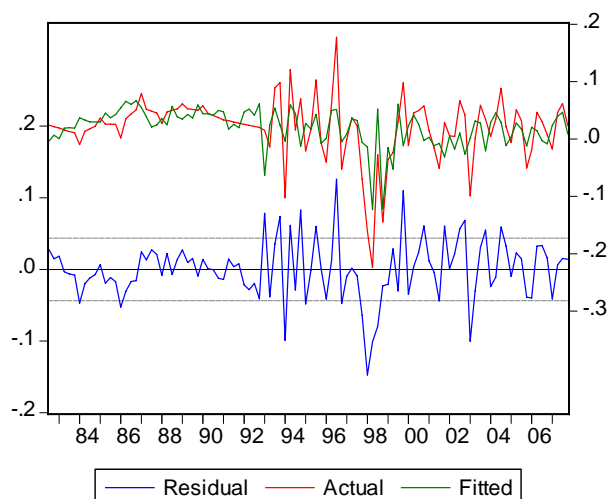
The elasticity of Δir_{t-3} is minus 0.004, meaning if real interest rate three quarters ago goes up by 1%, the average investment will go down by 0.4%. Theory stated that the real investment will decrease if the real interest rate goes up. The cost of investment will raise when interest rate is high.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

The elasticity of $\Delta L(GDP)_t$ is 0.46 that means if real income goes up by 1%, the average investment goes up by around 0.46%. There is relevant with theory that the real GDP indicates the prospect of economy. Therefore, the high economic growth will be followed by increasing investment, since this condition attracts investors to invest. Moreover, the high GDP means the high income. When income of individuals increase, they will invest more. Therefore, GDP growth affects increasing both foreign direct investment and domestic investment.

The elasticity of $\Delta L(I)_{t-3}$ is 0.17 that means if real investment 3 quarters ago goes up by 1%, the average investment goes up by around 0.17%. Theoretically, individual's investment in the past will affect to individual's investment now. The affect can be positive or negative, yet in this case the effect is positive. Dummy variable representing the period after financial crisis shows strongly significant with t-probability 0.035 below 5%.

The graphical analysis comparing between actual and fitted of investment as shown in figure below indicates the regression model is excellent fit, since both lines (red line for actual and green line for fitted) are very close. It means the short run investment model is valid.

Graph 20. Actual and Fitted of Investment Model



V. Issues and Challenges regarding FDI and Private Investment

Issues related to both foreign direct investment and private investment are interesting topic after Asian financial crisis ended. Investment in some countries has grown significantly, yet investment in the other countries has grown slowly. Indonesia, one of the Asian countries, has investment with slowly growth. This situation can be seen from some indicators, such as³ : Trend of Incremental Capital Output Ratio (ICOR) is decreasing. Decreasing of ICOR indicates capital productivity becomes slowdown.

Moreover, in average, percentage of FDI realization to FDI application is about 50% since 1990s. It shows that most of foreign project plan are cancelled. The foreign direct investment in Indonesia has grown relatively slow. It was indicated by reducing the new project of foreign direct investment, based on approval data by BKPM, after 2000s. After crisis, the new project of FDI in yearly average is higher than the new project of domestic investment. It indicates development of direct investment showing that the rule of FDI is more important than domestic investment after crisis. However, the net FDI (inflows minus outflows) after crisis is not good, even though it was positive in 2002 and 2004.

The outflows are higher than inflows indicating a bad climate investment. Especially foreign companies in industry which footloose production, not depending on local material and natural source, such as electronics, textiles, clothes, and shoes. Therefore, foreign companies will easily move their factories if the condition is not good enough.

The competitiveness of Indonesia is lower than the other Asian countries. Indonesia, the only one country in Asian countries, had a negative FDI after financial crisis. This situation relates

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

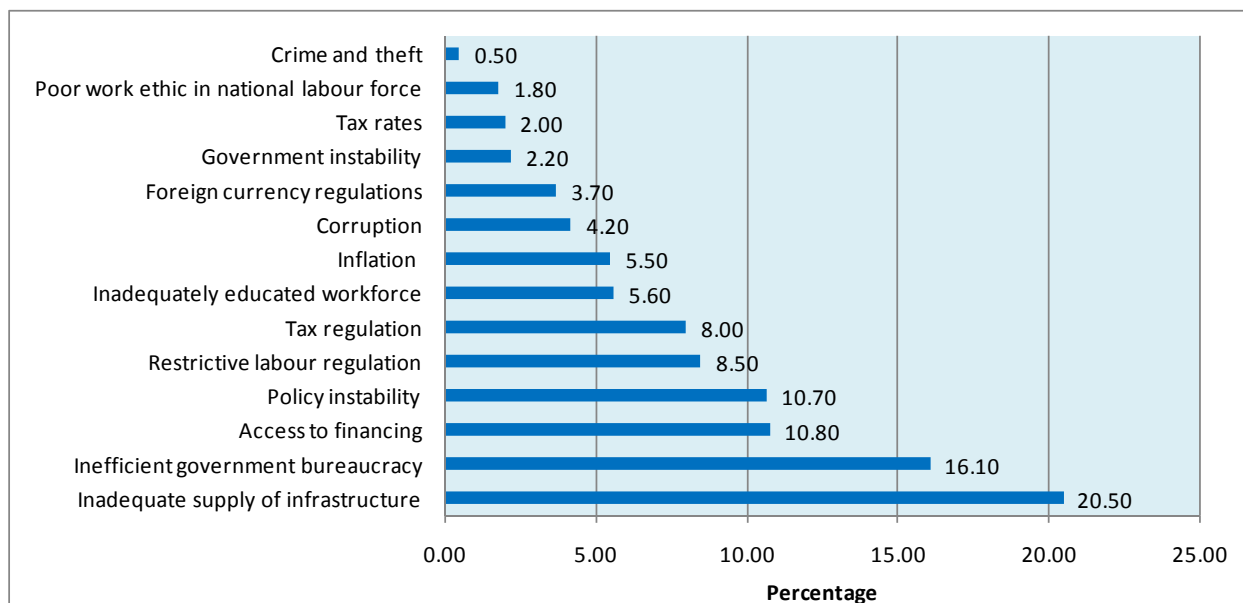
on political stability which is better after 2000. The stability of politics can delete the doubt of foreign investor to invest in Indonesia.

Investment climate indicates some factors related to location creating chance and incentive to investors to invest productively and developed. Stern (2002) states that business or investment climate is condition that people want to invest with low cost and low risk and potentially obtaining high profit in the long term. For example, some studies report that the improvement of investment climate in China by decreasing investment cost and reducing investment risk has promoted investment.

The problem of investment climate affects to oil problem, since the investor of oil in Indonesia reluctant to improve the new sources. Therefore, the oil problem actually is not only the high price, but also reducing the sources. Investors do not renew their oil source by exploring, because it will be taxed. Exploration oil source will be charged both value added tax (PPN) and income tax (PPH), eventhough the exploration is fail. Moreover, the environment risk of Indonesia is high. This condition does not attract the investors to invest in Indonesia.

Why each country has different investment growth? This situation can be explained by exploring the problem of investment in each country. Actually the investment issues in some countries are similar, such as supply of infrastructure and government bureaucracy. The most problem in Indonesia is inadequate supply of infrastructure (Graph 21).

Graph 21. The Most Problematic Factors for Doing Business in Indonesia



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

The supply of infrastructure is the most investment issues in Indonesia, since it is less developed. For example, electricity, a part of infrastructure, has performance only 53% (Table 7). The supply of electricity is not enough to cover all regions in Indonesia. The problem of electricity is the high cost of source of electricity, such as oil and gas. While the price of oil and gas raises, the cost of electricity will be high. Therefore, the supply of electricity will be reduced. Moreover, the

supply of electricity depends on the tower capacity. If the tower has a problem, the electricity will be shut down in some areas.

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 fix line phone and road network. Some regions in Indonesia, for example Sumatera and Java, have a good infrastructure with many fix line phone and good road network. In the other hand, the other regions, for example Kalimantan and Sulawesi, have less supply of infrastructure. The number of fix line phone is low, so the communication is not as well as in Java. Therefore, the communication in this area is expensive. Moreover, the road network is less developed, so the transportation is expensive. Therefore, the cost of production is high in those regions. This situation causes investors reducing their interest to improve their investment.

The second problem is the government bureaucracy. The World Bank's survey indicates the procedure, time, and cost to starting business in Indonesia having some problems. Table 8 reports that the rank of institution representing government bureaucracy in Indonesia is 63 (out of 131 countries) with score 3.9 (out of 7). Compared with the other Asian countries, such as Singapore, Malaysia, and Thailand, the rank of Indonesia is lower.

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)

Furthermore, if we observe at the how long the investment procedures to obtain permission in Indonesia, we will find the environment permission taking 43 days. The second longest is building development permission taking 35 days. Meanwhile, to obtain principle permission is by 27 days. Those indicate the government bureaucracy in Indonesia more complicated, since to take the investment permission is too long.

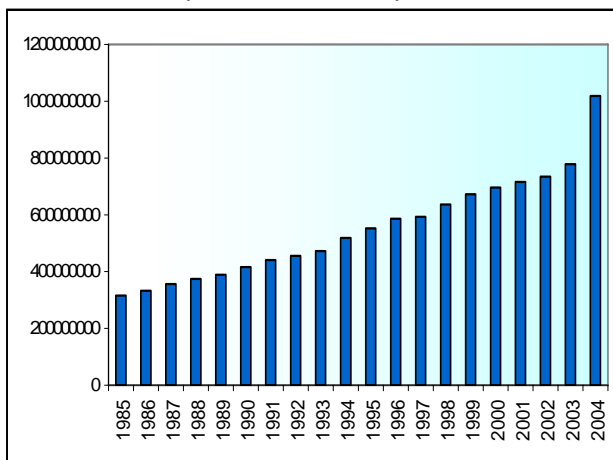
Graph 22. A number of days to obtain permission in Indonesia



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

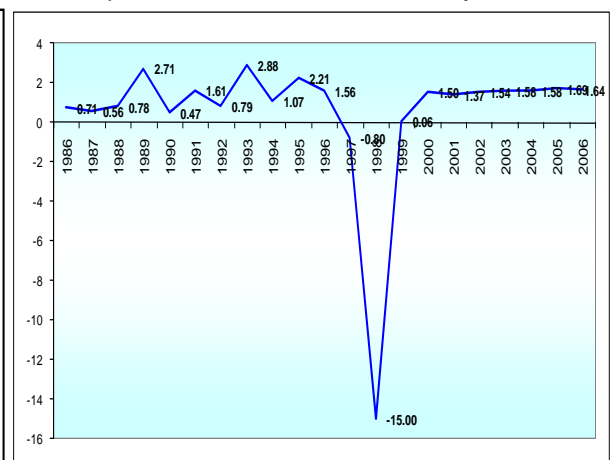
Inadequately educated workforce is also important issue, particularly after financial crisis productivity of human resource deeply down. It was indicated by total factor of productivity (TFP) reaching below zero percent (graph 27). The development of human capital shows rising trend (graph 26), but it doesn't mean the higher educated labour. Human capital increases, because of the number of labor rising.

Graph 23. Human Capital



Source: BPS, computed by author

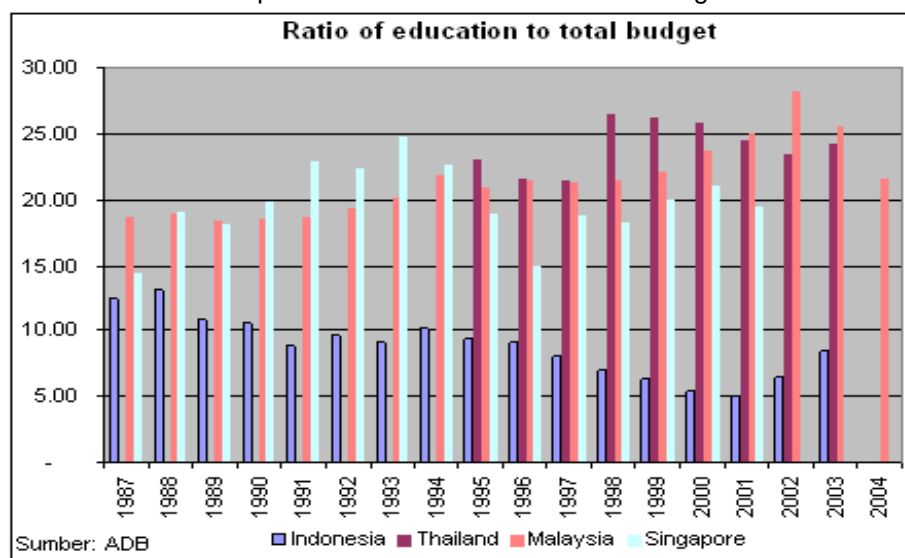
Graph 24. Total Factor Productivity



Source: computed by author

The high supply of labour itself is not enough, we need labours with high skill. To develop high skill labor need education. Educated workforce means higher productivity. The investors is looking for not only cheap labour wage but also high labour productivity. Therefore, educated labours are needed to attract investors. Governemnt should concern to develop human capital by increasing education facility in which it is still low. As can be seen, the ratio of education budget to total budget in Indonesia is still lower than the other Asian countries, such as Singapore, Thailand, and Malaysia.

Graph 25. Ratio of education to total budget



Source: ADB

The rank of category “higher education and training” is 65 with the score by 4 (table 9). It is be evidence that Indonesia has the problem of educated workforce. Meanwhile the labor market efficiency has the rank at 31 with the score by 4.74. Therefore, the problem in labour is not only the less skill of labours, but also the problem in market efficiency. Moreover, the labour union often makes strike action lowering productivity of factory. This condition will be considered by investors, if they want to invest in Indonesia.

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: Labor 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)

Regarding to the investment issues, government has challenges to promote investment. The first, the government should improve the supply of infrastructure supply of electricity, network road, and supply of fix line phone. To enhance the supply of electricity, government by its state company need to add electriciry generator to increase the electricity capacity. If the capacity of

electricity overs electricity demand, the electricity problem can be handled. We can keep the supply of the electricity without shut down some time.

Meanwhile, to support the transportation, the government can develop the new road or repair the damage road. The priority development of road network is in some regions that are still less developed, for example in East Indonesia. The better network road is needed to ease transportation among regions. With many alternative transportation, the cost of transportation will be reduced. People have some alternative, so the transportation will be competitive and the price will reduce.

The communication is also the important factor to promote investment. Therefore, the government should enhance the number of fix line phone, especially the regions in East Indonesia. By policy in telecommunication, the government can control the price of communication. Therefore, the cost of telecommunication can be reduced, so the production cost is also reduced. By reducing cost of component of production, such as communication cost, transportation cost, and material cost (electricity), the owners of factory can reduce their production cost and they will increase their investment.

Reformation in government bureaucracy is needed to simplify the investment procedure. Therefore, investors, especially foreign investors, can ease to obtain permission and they can immediately invest in Indonesia. The shorten procedure can attract investors. The complicated procedure can reduce the investors's interest. They will move their investment to the other countries, if they think the procedure is costly. The government can release the rules relating to investment that simplify the investment procedure. Openness of trading, such as the low obstacle in bureaucracy, this situation will benefit to regions that opens the bureaucracy. Therefore, the regions can promote regional investment.

The government can also reduce days to obtain permission relating to investment. Policy direction to create investment climate to be more conducive covered:

1. Shortening procedure of investment to be about 30 days
2. Assuring business certainty by solving problem between national policies and regional policies, also a problem inter sector policies
3. Giving incentive to investors
4. Promoting investment with better coordination in both domestic and overseas, including promotion staff in abroad

Moreover, the government need to announce the rules relating to both domestic investment and foreign direct investment that promotes the investment climate. In case, to promote investment in oil and gas, government should be simplify the investment procedure. If possible, they can deregulate the tax of exploration by reducing the tax. Hopefully, the reducing tax can attract the oil investors to increase their effort to renew oil sources by exploring.

Furthermore, the government has challenges to keep the policy consistency. As we know, each changes in the structure of bureaucracy organization is usually followed by changes the government policy. This situation causes investors reluctant to improve their investment. They think that investment in indonesia under uncertainty condition. They need guarantee that their investment is safe. The government should have the strategy plan in the long term about investment. Even though the incumbent government will be replaced in the future, the new

government can continue the previous policy. Therefore, the policy will be consistency for the long term

The next challenge is how to improve the supply of educated labour. The government should improve the labour skills by promoting education. Labour wage is one part that calculated by investor, but the low wage without high skills is not competitive. The government policy in both education and wage becomes important issues. Labour wage should be more competitive than the other countries. If the wage in Indonesia is competitive, foreign investor will interest to invest their fund. Then, foreign domestic investment will increase. Yet, the competitive wage is not enough, we find that the productivity of labour is another important factor.

The government can improve their budget to education. The ratio education budget to total budget should be over 20%. The better education can cause the higher labour skills. The government can also develop the informal education, such as the training and education council. It can also improve the skill of labour. It is important to enhance both quality and quantity of education in Indonesia. The government should enhance the quantity and quality of education in all regions in Indonesia. It is important to solve the education gap between regions in Java and regions in East Indonesia. The regions in East Indonesia have less developed. The education facility is lower than the other regions in Indonesia. Therefore, the well educated workforce will be found in Java, but we difficulty find in the regions in East Indonesia. Hopefully, increasing the education facility in each region can solve the problem of inadequately educated labour.

Another challenge of government to promote investment is to maintain political stability. It is very important, since the investors, particularly foreign investors, will invest if only the risk of one country is low. The stability of politics have the big effect to country risk. The country risk is one important variable affecting foreign direct investment. If the country risk is low meaning the political condition is stable. Therefore, the foreign investors will feel safe to improve their investment. They have a guarantee that their investment will be profitable and safe.

Another recommendation is the government having to keep policy consistency. It means the new government can not release the new policy without considering the previous policy. It is really important, since the investors need the guarantee their investment is safe. Changing policy many times can affect to investors. If foreign investors have disadvantage of the policy changes, they can claim the government to international arbitrage. This condition can affect to the other foreign investors. They don't want to invest in the country with policy inconsistency any more. They think their investment is not safe in the future. We can conclude that the government should consider the previous contract of foreign investors, so each new policy does not lose the the investors.

The government need to monitor the application of the law or the rules relating to investment. The rule relating to joint investment with the other countries should be maintained. The bilateral agreement with other countries, especially with countries which have foreign direct investment improvement, such as China, India, and Singapore is to coordinate among countries. It is also improving production networking and finally can promote economic growth, FDI inflow, and investment. According to the tax regulation, the government can promote investment climate by giving the incentive tax to foreign direct investment. The government can discount the tax, while the foreign investors raise their investment. Therefore, the investors interest to improve their

investment. The tax policy should be applied equally to all regions in Indonesia, since it is important to develop equal investment in each region.

VI. Conclusion

Regarding to the long run model of investment, it demonstrates the strong relationship among the real interest rate, the real GDP, the real credit, and the real exchange rate. The empirical result verifies that real interest rate can influence directly to the real investment. Decreasing the real interest rate can raise the real investment vice versa. However, the effect of that is relatively smaller than the other factors. This condition indicates that the real interest rate is not stronger factor to determine real investment. Moreover, the banking sectors tend to be reluctant providing credits to real sectors, after currency crises during 1997-1998. The commercial banks tend to place their fund in the financial market with lower risk, for example trading in SBI (Bank Indonesia's Certificate).

In the meantime, the both long run and short run models of investment prove that the real output can affect the investment in the long term and short term. Indeed, the effect of both real GDP and real credit is bigger than the other factors in the long term. The role of GDP to promote investment is consistent with economic theory, since increasing real income means people have more money to invest and this condition can attract investor to invest. Investor believes that high economic growth meaning high business prospect.

Therefore, government need to increase the real GDP growth to attract investors to increase their investment. By increasing government's expenditure, the real GDP can be improved. Government can also support the real sectors growth, especially the sectors having the high export. Bank Indonesia as a central bank can help government by maintaining the macroeconomic stability.

Conversely, the real credit has affected the investment only in the long term. The long run model explains that escalating real credit can increase real investment. The elasticity of real credit to real investment is the highest meaning that the effect of real credit to investment is strong and significant. If we want to increase the real investment, we need to increase the real credit. In this situation, the role of central bank is important to help the one of investment's issues, the access to finance. However, the central bank has no authority to push the commercial bank to providing credit. The commercial banks provide the credit based on their analysis whether the creditors are proper or not.

To help improving the real credit, the central bank can announce the rule of credit procedure that simplifies the procedure of credit, particularly credit of investment. The commercial banks in general will follow the rule by central bank. By simplifying procedure of credit, investors can interest to raise their investment. The simplification of credit procedure does not mean the banks will give the credit without selection based on performance of creditors. Central bank can also suggest the commercial banks to increase the credit, particularly the investment credit. It means the central bank asking the commercial banks to allocate their fund placement not only in money market, but also in credit market.

Similarly, the real exchange rate has an effect to real investment in the long run, but it has no effect in the short run. The investment model explains that depreciating real exchange rate can upper the real investment in the long term. Economic theory stated that the correlation between real investment and real lending rate is negative, that means investment goes up if the real exchange rate goes down or depreciating. Therefore, the investment model can be evidence for investment theory.

Even though, the depreciating exchange rate can improve investment, it doesn't mean we should depreciate the exchange rate. Depreciating Rupiah can affect directly to upper inflation

rate. Therefore, the central bank should keep the stability of exchange rate. Another factor is dummy variable that indicates the period pre and post Asian financial crisis is significant in both long run equation and short run equation. That means the investment model has a structural break. It can be evidence that financial crisis affects the real investment in Indonesia.

BIBLIOGRAPHY

- Enders, Walter, *Applied Econometric Time Series*, Wiley, 2004
- J.C.H. Chai and K.C. Roy, *Economic Reform in China and India: Development Experience in a Comparative Perspective*, Edward Elgar, Cheltenham, UK, 2006
- Johansen, S. and Katarina, J., "Identification of The Long-Run and The Short-Run Structure an Application to The ISLM Model", *Journal of Econometrics* 63, 1994, p.8
- Kurniati, Y., Prasmuko, A., and Yanfitri, "Determinan FDI", Bank Indonesia, 2007
- Mankiw, N. Gregory, *Macroeconomics*, Fifth Edition, Worth Publishers, 2003
- Ndikumana, Leonce, "Financial Determinants of Domestic Investment in Sub-Saharan Africa: Evidence from Panel Data", *World Development* Vol. 28, No. 2, 2000, p.381-400
- Patterson, Kerry, *An Introduction to Applied Econometrics: A Time Series Approach*, First Edition, Palgrave, 2000
- Purwanto, Antonius "Pengurusan Izin Rumit dan Mahal", *Kompas*, Bisnis & Keuangan, Selasa, 21 Februari, 2006, p. 21.
- Razin, Assaf, "FDI Flows and Domestic Investment: Overview", *CESifo Economic Studies*, Vol. 49, 2003, p. 415–428
- Romer, David, *Advanced Macroeconomic*, Second Edition, McGraw-Hill, 2001, p.472.
- Shiau, A., Kilpatrick, J., Matthews, M., "Seven percent growth for Mexico? A Quantitative Assessment of Mexico's Investment Requirements", *Journal of Policy Modeling* 24, 2002, p. 781–798
- Stiroh, Kevin J., "Investment and Productivity Growth: a Survey from the Neoclassical and New Growth Perspectives", *Research Publications Program Industry Canada, Occasional Paper Number 24*, June 2000
- Tambunan, Tulus, "Iklim Investasi Di Indonesia: Masalah, Tantangan dan Potensi", *Kadin-Indonesia*, Jetro, 2006