

Research.

INVESTMENT PROJECTION MODEL IN INDONESIA

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Abstract. *The achievement of economic activities in a country is measured by the economic development which is the projection of an increasing output as well as the increasing of the revenue to the owner of the production factors. Either Local Investment contribution or Foreign Investment has been an important role to reach the economic development, in order to reach it, the estimation of investment requirement either local investment or foreign one has to be done. This research aims to find out the connection between investment and economic development, the investment projection model, and the total amount of investment for the economic development. The research method has applied an explanatory method. The connection between economic development and investment can be analyzed by Capital Output Ratio (COR) concept. Having had the different perspectives of time, it has caused that mostly COR on average has been applied only to measure the productivity of the investment activities at a certain year, however, MCOR is used as the tool to predict the future investment's requirement and the economic development.*

Key words: investment, economic development, capital output ratio

INTRODUCTION

Background

The existence of investment cannot be questioned anymore relating to the continuous economic development. The second trimester of 2010, the investment development had indicated an outstanding figure. This investment is not only coming from local investment, but also from foreign investment. Because of that the government could claim that the investment development had reached more than 40 percent comparing to the first trimester which was 42.1 trillion or 24.56 percent of the development. The investment development of the first trimester was occurred due to the Foreign Investment (PMA). The total amount of Foreign Investment at the first trimester was 3.8 billion US\$, and Local Investment was 6.7 trillion rupiah. This kind of condition had indicated that the foreign investor had trusted the investment climate in Indonesia that had been becoming better. Referred to the aforementioned data, it could be said that the foreign investment (PMA) has still dominated the total amount of the investment. As a matter of fact, Indonesia has still required some foreign investment accordingly. However, it would be better if the local investment (PMDN) could become more stronger so that it could reduce the dependence on foreign party.

Aims of the Research

The aims of the research are as follows:

1. To study more about the connection between the investment and the economic development.
2. To study more about the investment projection model
3. To study more about the total amount of the investment requirement upon the economic development.

LITERATURE REVIEW

Local Investment

On the Regulation number 25 year of 2007 regarding Investment, has explained that local investment is an investment activity to execute a business in the Republic of Indonesia area done by local investor using local capital.

Local investor is the person of Indonesian Citizen, an Indonesian enterprise, a country of the Republic of Indonesia or its district/area which has been investing the money in the area of the Republic of Indonesia. Local investment or gross domestic fixed assets development is covering the supply, manufacture or purchase of new assets locally used assets from abroad. The assets which have been purchased or produced is a long-live product that can be used for the production activity for a year period or more than a year. Gross domestic fixed assets development are divided as follows: Fixed Assets which are the building or construction. Fixed assets which are machineries and equipments, either they are imported or local manufactured.

The targets to recover the domestic investment in the periode of Indonesia economic recovery are based on the resource-based, exportation oriented, tourism, industry substitutes import, which is affecting the multiplier and labours employment.

Local / domestic investment has provided the important roles of the economic development in the developing countries in various types. And the investment is able to reduce the lack of savings thru the incoming of equipment and raw materials. Therefore, it can increase the capital receiving. Besides of that, the low savings and low investment have indicated that lack of the investment has happened in the countries having underdevelopment of technology. The finance investment and physical investment are the capital investment providing the technical skills, experts, organization experience, market information, modern production technics, product engineering and others. Moreover, it has trained and introduced local manpower to a new skills. Eventually it can speed-up the economic development of underdeveloped countries.

Foreign Investment

Foreign Investment (PMA) is an investment done by the foreign government or expatriates into the country which has imported the capital investment.

Foreign investment is an investment done by the expatriates in our country to gain the profit from the business they have been doing. Foreign investment is considered as foreign payment which is not a part of the property of Indonesia's foreign exchange that has been approved by the government to be used for the financing of the company in Indonesia. Besides that, it can be said as the tools of the company, including new innovation belongs to the expatriates and the materials imported from abroad to Indonesia as long as the related tools are not financed by the property of Indonesia's foreign exchange.

Foreign Investment is said that it is a part of company's revenue based on the applicable regulation about the transfer permitted, but it has to be used to finance the company in Indonesia (Regulation No.1 year of 1967 regarding the Foreign Investment). In the Regulation No.25 year of 2007, it has described that the foreign investment as an

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investment activity has to execute the business in the area of the Republic of Indonesia done by foreign investor either using totally the foreign investment or being a joint venture with domestic investment.

Capital Investment Concept

Concept of capital ratio output has indicated a connection between capital investment value and output value. And it has defined that total amount of the investment required to produce an output unit. If the ratio of investment output in economics is 5:1, it means the capital needed is Rp 5, - to get an output of Rp 1.- Therefore, it can be defined that a connection has happened between the investment being done and yearly revenue gained from the investment.

The ratio of investment/capital output is consisting of two types, an average ratio of capital output (ACOR) and ratio of marginal capital output or an incremental (ICOR). The ratio of Capital Output on average has indicated the connection between the current reserved capital and flow of current output has happened. The ratio of Incremental Capital Output (ICOR) has indicated the connection of the increasing of the total outputs (ΔY) received from the increasing of a certain capital stock (ΔK) And it can be described as $\Delta Y/\Delta K$. On the other words, the average ratio of output capital has indicated that all the things which had been invested in the past and all the revenue obtained, but the marginal ratio has figured out that all the things which have been added recently into the capital or the revenue (Jhingan, 1999:613). The concept of ratio of capital output can be implemented not only in the economics in overall, but also in the various economic sectors. Each one is depending on the technics (solid capital or huge employments) being used. At the sector using the technics of output capital ratio has been becoming bigger than the technics of huge employments). Ishak, JF et al., (2018), revealed that investment has effect against income inequality. Returns to human capital are largely driven by the market, and it may not be efficient and or even desirable for governments to try to alter them.

RESEARCH METHOD

Data Collection Method

This study has applied secondary data. The secondary data is the data which has been taken from Capital Investment Coordinator Boards (BKPM) regarding Domestic Capital Investment (PMDN) for the period of 2002 up to 2010 and the data from BPS (Statistics Center Bureau) regarding Gross Domestic Products within 2002 up to 2010. This study will cover the analysis of domestic capital investment projection along with its contribution upon Gross Domestic Products.

Sampling Method

This research has applied a sampling method of Purposive Sampling, the samples taken for a certain purpose based on the particular determined criteria. The data from BKPM and BPS are issued legally.

Data Analysis Method

The connection between the economic development and the investment revenue which can be analysed by the Capital Output Ratio (COR) either on average or marginal. The differences of time perspection have caused the COR on average is used mostly to measure the productivity of investment activity at a particular year, however, COR marginally is used as a tool to predict an investment requirements and economic development in the future. A dynamic COR is stated as the Incremental Capital Output Ratio (ICOR).

1. ICOR Calculation

Actualy ICOR has indicated that the increasing of the total ouput (ΔY) has happened due to a particular increasing of Capital Stock (ΔI). Investment calculation has been using the commodity flow approach or indirect method. The investment is considered the same with fixed capital establishment of (PDB) plus capital stock establishment.

Yearly ICOR prediction has been done based on the yearly data of serial time that can be divided according to the following considerate time (Daryanto and Hafizrianda, 2010:49):

a. ICOR without considerate time

If the investment is done in t-year, it is assumed that it will have an additional ouput at the same t-year too, so that, ICOR prediction which is obtained from this approach is the ICOR without considerate time that can be formulated as follows;

$$k_t = \frac{I_{it}}{\Delta Y_{it}} = \frac{\frac{I_{it}}{Y_{it-1}} \times 100}{g_{it}}$$

which is

- k_{it} = ICOR at the t-year for sector-i.
- I_{it} = Investment at the t-year for sector-i.
- Y_{it-1} = The revenue at the t-year for sector-i.
- g_{it} = The development of sector-I at the t-year.

b. ICOR with considerate time more than a year.

In various particular activities, considerate time between the investment and the additional revenue is the result of the investment more than a year. If the considerate time of investment at the year of t-2 will give an additional revenue at the year - t, the formulation of ICOR calculation is as follows;

$$k_t = \frac{I_{it-2}}{\Delta Y_{it}} = \frac{\frac{I_{it-2}}{Y_{it-1}} \times 100}{g_{it}}$$

However, if the additional revenue will be gained within the next five years, ICOR will be calculated based on the following formulation

$$k_t = \frac{I_{it-5}}{\Delta Y_{it}} = \frac{\frac{I_{it-5}}{Y_{it-1}} \times 100}{g_{it}}$$

which is

$$k_t = \frac{I_{it-2}}{\Delta Y_{it}} = \frac{\frac{I_{it-2}}{Y_{it-1}} \times 100}{g_{it}}$$

- k_{it} = ICOR at the year-t for sector-i.
 l_{it-2} = Investment at year t-2 sector-i.
 l_{it-5} = Investment at year t-5 for sector-i.
 Y_{it-1} = Revenue at year t-1 for sector- i.
 g_{it} = The development of sector-I at year-t.

Furthermore, the prediction of ICOR on average will be done based on the investment development and additional revenue cumulatively at the particular period. Just like yearly ICOR, the calculation of ICOR on average can be differentiated based on the considerate time. But, in general the formulation of ICOR on average is as follows;

$$\bar{k}_t = \frac{\sum_{t=0}^{t-n} l_{it-n}}{\Delta Y_{it}}$$

which is

- k_t = ICOR on average
 l = Investment
 ΔY = Additional revenue
 i = the sector-i
 t = the t-year
 n = Considerate time being used when $n \geq 1$.

Based on the result of the survey being done, it explains that considerate time of payback at each sector of Gross Domestic Product (PDB) as follows;

- Sector of agriculture, livestock and forestry = 3 years
- Sector of mining and excavating = 9 years
- Sector of industrial manufacturing = 3 years
- Sector of electricity, gaz and drinking water = 3 years.
- Sector of buildings = 4 years.
- Sector of trading, hotel and restaurant = 9 years.
- Sectors of transporation and communication = 5 years
- Sector of finance, real-estate and company's fee = 4 years.
- Sector of services = 4 years.

2. Investment Projection

Determining an accurate target of economic development has implicated significantly the prediction of investment requirements to reach the target of the related economic development. Suppose the ICOR has been identified either yearly or on average and has been determined the target of economic development, then, the investment required to achieve the target economic development can be formulated as follows;

$$\hat{I} = k \Delta Y$$

which is

- \hat{I} = Prediction of investment required.
 k = ICOR
 ΔY = The total amount of the additional revenue(output)

The aforementioned investment prediction is calculated based on its considerate time, which is in compliance with ICOR considerate time used on the related equation. For example, ICOR being used having one year considerate time,

the calculation of investment predicted is also having one year of considerate time accordingly.

3. Regression model of ICOR and Investment

In order to measure the changes of ICOR continuously and stable, the following equation is determined:

$$Y_{it} = \alpha + bI_{it-n} + e_{it}$$

which is

Y_{it} = PDB (Gross Domestic Product)

I = Investment

According to the aforementioned equation, Marginal Capital Output Ratio (MCOR) is obtained

$$k = \frac{1}{b}$$

which is

k = MCOR

b = coefficient

DESCRIPTION

Connection of the Investment with the Economic Development

1. The Connection of the Domestic Investment (PMDN) with the Economic Development.

Analyzing the connection of PMDN with the economic development has used the investment reference in 2010 with the different considerate time of investment payback for each sector. According to the considerate time of investment payback, then ICOR calculation has to be done as on the following table:

Table 1.
The Calculation of ICOR of Domestic Investment

Sector	Investment (billion rupiah)	Gross Domestic Products (billion rupiah)	COR	g^* (%)	ICOR
Agriculture, Livestock, Forestry	1,238.50	284,619.10	0.004	2.863	0.15
Mining and Excavating	694.60	169,932.00	0.004	3.484	0.12
Manufacturing Industries	15,914.8	557,764.40	0.029	4.480	0.64
Electricity, gaz and drinking water	519.80	14,994.40	0.035	5.312	0.65
Building	1,223.20	121,808.90	0.010	6.979	0.14
Trading, Hotel and Restaurant	1,189.10	243,266.60	0.005	8.692	0.06
Transportation and Communication	1,230.60	124,808.90	0.010	13.453	0.07
Finance, Real Estate and company's fee	481.50	183,659.30	0.003	5.653	0.05
Services	1,216.10	181,706.00	0.007	6.011	0.11

Source: data processed

The value of ICOR at the sectors of agriculture, livestock and forestry of 0.15 has interpreted that each domestic investment (PMDN) invested in agriculture, livestock and forestry sectors was Rp 0.15 in 2008 and it was predicted to get the revenue (PDB=gross domestic products) of Rp 1.- in 2010 at those sectors. The value of ICOR at the sectors of Mining and Excavating of 0.12 has interpreted that each domestic investment (PMDN) invested in the sectors of mining and excavating was Rp 0.12 in 2002 and it was predicted that the revenue (PDB) of Rp 1.- in 2010 at these sectors. The value of ICOR at the sector of manufacturing industries of 0.64 has interpreted that each domestic investment (PMDN) at the sector of manufacturing industries was Rp 0.64 in 2008 and was predicted it would gain the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at the sectors of electricity, gaz and drinking water of 0.65 has interpreted that each domestic investment (PMDN) invested in the sectors of electricity, gaz and drinking water was Rp 0.65 in 2008 and it was predicted to get the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at the buildings sector od 0.14 has interpreted that each domestic investment (PMDN) invested in this sector was Rp 0.14 in 2007 and it was predicted to gain the revenue (PDB) of Rp 1- in 2010. The value of ICOR at the sectors of trading, hotel and restaurant of 0.06 has interpreted that each domestic investment (PMDN) invested in these sectors was Rp 0.06 in 2002 and it was predicted to gain the revenue (PDB) of Rp 1,- in 2010. The value of ICOR at the sectors of transportation and communication of 0.07 has interpreted that each domestic investment (PMDN) invested in these sectors was Rp 0.07 in 2006 and it was predicted to gain the revenue (PDB) of Rp 1,- in 2010. The value of ICOR at the sectors of finance, real estate and companies' fee of Rp 0.05 has interpreted that each domestic investment (PMDN) invested in those sectors was 0.05 in 2007 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at the services sector of 0.11 has interpreted that each domestic investment (PMDN) invested in this sector was Rp 0.11 in 2007 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The biggest value of ICOR of domestic investment (PMDN) is happened at the sectors of electricity, gas and drinking water which is 0.65. Nevertheless, the sector of manufacturing industries is not far from the sectors of electricity, gas and drinking water which is 0.64. However, the smallest value of ICOR is in the sectors of finance, real estate and companies' fee which is 0.05.

2. The Connection of Foreign Investment (PMA) with the Economic Development.

The value of PMA ICOR for each sector is described on the following table.:

Table 2.
The Calculation of ICOR of Foreign Investment

Sector	Investment (billion rupiah)	PDB (Gross Domestic Products) (billion rupiah)	COR	g* (%)	ICOR
Agriculture, Livestock, Forestry	1,494.53	284,619.10	0.005	2.86	0.18
Mining and Excavating	460.31	169,932.00	0.003	3.48	0.08
Manufacturing Industries	43,762.96	557,764.40	0.078	4.48	1.75
Electricity, Gas and Drinking water	261.69	14,994.40	0.017	5.31	0.33
Buildings	15,795.54	121,808.90	0.130	6.98	1.86
Trading, Hotel and Restaurant	10,672.78	243,266.60	0.044	8.69	0.50
Transportation and Communication	2,712.69	124,808.90	0.022	13.45	0.16

Sector	Investment (billion rupiah)	PDB (Gross Domestic Products) (billion rupiah)	COR	g* (%)	ICOR
Finance, Real Estate and Companies' fee	10,093.50	183,659.30	0.055	5.65	0.97
Services	3,686.81	181,706.00	0.020	6.01	0.34

Source: processed data

The value of ICOR at the sectors of agriculture, livestock and forestry of 0.18 has interpreted that each foreign investment (PMA) invested in these sectors was Rp 0.18 in 2008 and it was predicted to get the revenue (PDB) of Rp 1,- in 2010. The value of ICOR at the sectors of mining and excavating of 0.08 has interpreted that each foreign investment (PMA) invested in these sectors was Rp 0.08 in 2002 and it was predicted to gain the revenue (PDB) of Rp 1,- in 2010. The value of ICOR at the manufacturing industries os 1.75 has interpreted that each foreign investment (PMA) invested inthis sector was Rp 1.75 in 2008 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at the sectors of electricity, gas and drinking water of 0.33 has interpreted that each foreign investment (PMA) invested in these sectors was Rp 0.33 in 2008 and it was predicted to gain the revenue (PDB) of Rp 1,- in 2010. The value of ICOR at the buildings sector of 1.86 has interpreted that each foreign investment (PMA) invested in this sector was Rp 1.86 in 2007 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at the sectors of trading, hotel and restaurant of 0.50 has interpreted that each foreign investment (PMA invested in these sectors was Rp 0.50 in 2001 and it was predicted to gain the revenue (PDB) of Rp 1,- in 2010. The value of ICOR at the sectors of transportation and communication of 0.16 has interpreted that each foreign investment (PMA) invested in these sectors was Rp 0.16 in 2006 and it was predicted to gain the revenue (PDB) of Rp 1,- in 2010. The value olf ICOR at the sectors of finance, real estate and companies' fees of 0.97 has interpreted that each foreign investment (PMA) invested in these sectors was Rp 0.97 in 2007 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at the services sector of 0.34 has interpreted that each foreign investment (PMA) invested in this sector was Rp 0.34 in 2007 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The biggest value of ICOR of foreign investment is at the sectors of buildings and manufacturing industries which is 1.86 and 1.75. Nevertheless, the smallest one is at the sectors of mining and excavating which is 0.08.

3. The Connection of the Investment with the Economic Development.

The value of ICOR of the total investment for each sector is described on the following table:

Table 3.
The Calculation of ICOR of the Total Investment

Sector	Investment (billion rupiah)	Gross Domestic Products (billion rupiah)	COR	g* (%)	ICOR
Agriculture, Livestock, Forestry	2,733.03	284,619.10	0.010	2.863	0.34
Mining and Excavating	1,154.91	169,932.00	0.007	3.484	0.20
Manufacturing Industries	59,677.76	557,764.40	0.107	4.480	2.39

Sector	Investment (billion rupiah)	Gross Domestic Products (billion rupiah)	COR	g* (%)	ICOR
Electricity, Gas and Drinking water	781.49	14,994.40	0.052	5.312	0.98
Buildings	17,018.74	121,808.90	0.140	6.979	2.00
Trading, Hotel and Restaurant	11,861.88	243,266.60	0.049	8.692	0.56
Transportation and Communication	3,943.29	124,808.90	0.032	13.453	0.23
Finance, Real Estate and Companies' fees	10,575.00	183,659.30	0.058	5.653	1.02
Services	4,902.91	181,706.00	0.027	6.011	0.45

Source: processed data

The value of ICOR at the sectors of agriculture, livestock and forestry of 0.34 has interpreted that each investment invested in these sectors was Rp 0.34 in 2008 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at the sectors of mining and excavating of 0.20 has interpreted that each investment invested in these sectors was Rp 0.20 in 2002 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at the manufacturing industries of 2.39 has interpreted that each investment invested in this sector was Rp 2.39 in 2008 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at the sectors of electricity, gas and drinking water of 0.98 has interpreted that each investment invested in these sectors was Rp 0.98 in 2008 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at buildings sector of 2.00 has interpreted that each investment invested in this sector was Rp 2.- in 2007 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at the sectors of trading, hotel and restaurant of 0.56 has interpreted that each investment invested in these sectors was Rp 0.56 in 2002 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at the sectors of transportation and communication of 0.23 has interpreted that each investment invested in these sectors was Rp 0.23 in 2006 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at the sectors of finance, real estate and companies' fees of 1.02 has interpreted that each investment invested in these sectors was Rp 1.02 in 2007 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The value of ICOR at the services sector of 0.45 has interpreted that each investment invested in this sector was Rp 0.45 in 2007 and it was predicted to gain the revenue (PDB) of Rp 1.- in 2010. The biggest total value of ICOR of the investment is at the manufacturing industries which is 2.3 and buildings sector which is 2.00. However, the smallest value of ICOR is at the sectors of mining and excavation (0.20) and the transportation and communication sectors (0.23)

Investment Projection

The investment projection is done based on the analyses of ICOR, PMDN, PMA and the investment or total amount of capital investment which has been described above. The calculation of investment projection is described at the following table:

1. Projection of Domestic Investment (PMDN)

In order to know the investment projection of 2011 the table below has calculated it:

Table 4.
 Projection of Domestic Investment in 2011

Sector	PMDN 2010 (billion rupiah)	ICOR	g^{*2011}	ΔI^{A2011}	I^{A2011}
Agriculture, Livestock, Forestry	9,056.4	0.15	3.05	0.46	13,258.81
Mining and Excavating	3,075.0	0.12	3.52	0.41	4,344.09
Manufacturing Industries	25,612.6	0.64	4.60	2.93	100,606.45
Electricity, Gas and Drinking Water	4,929.8	0.65	5.35	3.49	22,137.75
Buildings	67.6	0.14	7.02	1.01	135.84
Trading, Hotel and Restaurant	506.7	0.06	8.99	0.51	762.76
Transportation and Communication	13,787.7	0.07	13.54	0.99	27,472.81
Finance, Real Estate and Companies' fees	261.7	0.05	5.73	0.27	331.22
Services	3,328.6	0.11	6.15	0.68	5,607.84
Total	60,626.1	0.22	6.44	1.42	146,919.73

Source: processed data

The table above has described that if the economic development had been predicted 6.44 percent in 2011 and ICOR 0.22, so that, in order to achieve the related economic development it would need the additional of domestic investment (PMDN) of 1.42 percent or Rp. 146,919.73 billion.

2. The Projection of Foreign Investment (PMA)

In order to figure out the PMA projection of 2011, the following table has described its calculation:

Table 5.
 Projection of Foreign Investment in 2011

Sector	PMA 2010 (billion rupiah)	ICOR	g^{*2011}	ΔI^{A2011}	I^{A2011}
Agriculture, Livestock, Forestry	7,387.82	0.18	3.05	0.56	11,524.65
Mining and Excavating	20,257.90	0.08	3.52	0.27	25,798.48
Manufacturing Industries	30,506.35	1.75	4.60	8.05	276,128.65
Electricity, Gas and Drinking Water	12,980.03	0.33	5.35	1.76	35,789.92
Buildings	5,633.10	1.86	7.02	13.03	79,058.87
Trading, Hotel and Restaurant	9,966.75	0.50	8.99	4.54	55,173.74
Transportation and Communication	45,855.40	0.16	13.54	2.19	146,185.24
Finance, Real Estate and Companies' fees	9,543.29	0.97	5.73	5.57	62,687.65
Services	5,214.19	0.34	6.15	2.08	16,038.42
Total	147,344.84	0.69	6.44	4.42	798,163.74

Source: data processed

The table above has explained that if it had predicted the economic development of 6.44 percent in 2011, and ICOR of 0.69, so that, in order to reach the economic development it would need an additional foreign investment (PMA) of 4.42 percent or to Rp. 798,163.74 billion.

3. Projection of the Total Investment

Investment projection of 2011 has been figured out on the following calculation:

Table 6.
 Projection of Investment in 2011

Sector	Investment 2010 (billion rupiah)	ICOR	g^*_{2011}	ΔI^A_{2011}	I^A_{2011}
Agriculture, Livestock, Forestry	16,444.22	0.34	3.05	1.02	33,282.76
Mining and Excavating	23,332.90	0.20	3.52	0.69	39,344.29
Manufacturing Industries	56,118.95	2.39	4.60	10.98	672,278.07
Electricity, Gas and Drinking Water	17,909.83	0.98	5.35	5.25	111,898.91
Buildings	5,700.70	2.00	7.02	14.04	85,761.92
Trading, Hotel and Restaurant	10,473.45	0.56	8.99	5.04	63,271.49
Transportation and Communication	59,643.10	0.23	13.54	3.18	249,339.22
Finance, Real Estate and Companies' fees	9,804.99	1.02	5.73	5.83	67,011.42
Services	8,542.79	0.45	6.15	2.76	32,126.56
Total	207,970.94	0.91	6.44	5.84	1,422,594.48

Source: data processed

The result of the calculation on the table above has explained that when the economic development in 2011 was 6.44 percent and ICOR of 0.91, so that, in order to reach the economic development, it would need an additional investment of 5.84 percent or Rp.1,422,594.48 billion.

Investment Requirement

1. The requirement of domestic investment (PMDN)

The result of the regression calculation between domestic investment (PMDN) and Gross Domestic Products resulting a regression equation of: $Y = 1,848,543.62 + 0,352I_d$. The calculation has obtained the coefficient of 0.35 which explaining that MCOR value is 2.84 ($1 / 0.352 = 2.84$). And the value of MCOR is interpreted that in order to increase Gross Domestic Product or to push the economic development, each one percent will need domestic investment (PMDN) of Rp 2.84 trillion. Nevertheless, this MCOR can describe the requirement of domestic investment for the following year which is described on the following table:

Table 7
 The Requirement of Domestic Investment (PMDN)

Year	MCOR (m)	g* (g)	Requirement	
			(m.(G/100))	(percent)
2011	2,84	6,44	0.1828	18.28

Source : data processed

The table above has explained the requirement of investment for the future, if the Government wanted to get 6.44 percent of economic development in 2011, the additional of domestic investment (PMDN) would require 18.28 percent.

2. The Requirement of Foreign Investment (PMA)

Based on the regression calculation between foreign investment (PMA) and Gross Domestic Product, it has produced the following regression equation: $Y = 1,741,793.57 + 0,883I_a$. This coefficient value of 0.88 has explained that the MCOR is 1.13 ($1 / 0.833 = 1.13$). However, the value of this MCOR is interpreted that in order to increase the Gross Domestic Product or to evolve the economic development, each one percent will need the total amount of foreign investment (PMA) of Rp 1.13 trillion. This MCOR has figured out the requirement of foreign investment (PMA) for the following years as described on the following table:

Table 8.
 The Requirement of Foreign Investment (PMA)

Year	MCOR (m)	g* (g)	Requirement	
			(m.(G/100))	(percent)
2011	1,13	6,44	0.0730	7.30

Source: data processed

Based on the table above it has described the requirement of the investment for the following years, if the government wanted to have the economic development of 6.44 percent in 2011, it would need an additional amount of foreign investment (PMA) 73.0 percent.

3. The Requirement of Total Investment:

The result of the regression calculation between total investment and Gross Domestic Product has produced the following regression equation of: $Y = 1,783,924.74 + 0,404I_a$. And the regression calculation has obtained the coefficient of 0.40 describing that the MCOR is 2.48 ($1/0.404 = 2.48$). However, the value of MCOR has interpreted that in order to increase the Gross Domestic Product or to push the economic development, every one percent will need the total investment of Rp. 2.48 trillion. This MCOR has described the requirement of the investment for the following years as explained herebelow:

Table 9.
 The Requirement of Total Investment

Year	MCOR (m)	g* (g)	Requirement	
			(m.(G/100))	(percent)
2011	2,48	6,44	0.1595	15.95

Source: data processed

The table above has described the requirement of investment for the following years, if the Government wanted to have the economics development of 6.44 percent in 2011, it would need the additional investment of 15.95 %

CLOSING

Conclusion

Based on the result of the description described in the previous chapters, this study has come into the following conclusions:

1. Based on the calculation of ICOR value, it has indicated that the biggest value of ICOR PMDN is at the sectors of electricity, gas and drinking water and the sector of manufacturing industries. Furthermore, the smallest value of ICOR PMDN is at the sectors of finance, real estate and companies' fees. However, the biggest value of ICOR PMA is at the sectors of buildings and manufacturing industries, but, the smallest one is at the sectors of mining and excavating. Moreover, according to the calculation of ICOR value of the total investment, it has figured out that the biggest ICOR value is at the sectors of manufacturing industries and buildings, however the smallest one is at the sectors of mining and excavation, transportation and communication.
2. The Domestic Investment (PMDN) projection in 2011 was Rp 146,919.73 billion, and the Foreign Investment (PMA) projection in 2011 was 798,163.74 billion. However, the total of all investment projection in 2011 was Rp 1,422,594.48 billion.
3. The projection of domestic investment (PMDN) requirement in 2011 was 18.28 percent, but the foreign investment (PMA) requirement in 2011 was 7.30 percent. Nevertheless, the total amount of investment requirement in 2011 was 15.95 percent.

REFERENCES

Acts No.25 year of 2007. Regarding Capital Investment.

Indonesia Investment Coordinating Board (IICB). 2010. The data of Investment Development of 2010, IICB, Jakarta.

Basri, Faisal. (1997). Indonesia Economy anticipating the 21st century. Erlangga, Jakarta.

Daryanto, A and Hafizrianda, Y. (2010). Quantitative Models, for District Economic Development Planning: Concept and Application, first edition. PT Penerbit IPB Press. Bogor.

Dornbusch, Rudiger and Firscher. (2004). Economics Macro. 8th edition. PT Media Global Edukasi, Jakarta.

Ishak, JF., Alamanda, AR., and Kusumah, RWR. (2018). The Effect of Capital Expenditure and Investment on Income Inequality, *The Accounting Journal of Binaniaga*, 3 (01), pp 51-57.

Jhingan, M.L. (1999). Economic Development and Planning (translated by D. Guritno). PT Raja Grafindo Persada. Jakarta.

Kalangi, L.S. (2006). Investment Impact at the Agriculture and Agroindustry Sectors in Manpower Absorption and Revenue Distribution. Thesis. Post Graduated Program Bogor Agriculture Institute, Bogor.

- Kuncoro, Mudrajad. (2003). *Research Method for Business & Economics*. Erlangga. Jakarta.
- _____. (2005). Expecting the reformation of Investment Climate and Business in Indonesia. Papers in the Experts Panel Discussion Kompas 24 January 2005. *Harian Kompas Newspaper*, Jakarta.
- Lestari, E. (2010). Foreign Domination at the Stock Market in Indonesia Economics. *Journal of Economy and Development*. LIPI, Jakarta.
- Purwanto. (2010). The Role of Foreign Investor at the Construction Service Sector in Indonesia. *Journal of Economics and Development*, LIPI. Jakarta.
- Raharja, S.J. (2005). Challenges and Opportunity of Investment in Indonesia. Papers at the Symposium of Indonesia-Malaysia Culture (SKIM) IX 10 – 12 May 2005. Bandung.
- Sarwedi. (2002). Foreign Investment in Indonesia and The Factors influencing it. *Journal Accountancy and Finance*. Jakarta.
- Sinaga, Murbanto, (2003). The Importance of Investment Evolvement to Speed Up the Economic Development in North Sumatera. Department of Development Economics. Faculty of Economy. Universitas Sumatera Utara. Medan.
- Soekarni, M., Hidayat, A.S., Suryanto, J. (2010). Outline of Foreign Capital Investment (PMA) and Domestic Capital Investment (PMDN). *Journal Economics and Development*, LIPI. Jakarta.
- Statistics Center Bureau/BPS (1999). *The Economic Indicator*. (Monthly Statistical Bulletin). BPS. Jakarta.
- _____. (2002). *The Economics Indicator*. Monthly Statistical Bulletin. BPS. Jakarta.
- _____. (2010). *Indonesia Economics Report 2010*. BPS Head Office, Jakarta.
- _____. (2010). *Indonesia Gross Domestic Products 2010*. BPS Head Office, Jakarta.
- Susanti, EN. (2003). The Impact of Investment Change and Productivity at Fishery Sector upon the Macro Economy in Indonesia (Application of General Balance Economy Model). Thesis of Post Graduated Program, Bogor Agriculture Institute, Bogor.
- Susanti, H. Moh. Iksan and Widyanti. (2000). *Macro Economics Indicators*, second edition. Press Administration Faculty of Economy UI, Jakarta.
- Widod, Triyanto, Suseno. (1990). *Economics Indicators, Basic Calculation of the Indonesia Economics*. Kanisius Press. Jogjakarta.
- Yuliana, C.I. (2008). *Foreign Capital Investment Anatomy in Indonesia*. Research Center of LIPI Economy. Jakarta.