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THE ROLE OF INVESTMENT TO THE INDONESIAN ECONOMIC GROWTH

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ABSTRACT

As one of the developing countries, Indonesia needs to increase its economic growth in order to improve the country prosperity as well as to overcome poverty, unemployment, and inequality of income distribution matters. Additionally, Indonesia also needs to obtain both national and international economic competitiveness, specifically in facing Asean Economic Community.

The aim of the research is to identify the role of investment to the Indonesian Economic Growth. The data used is the secondary data taken from The Central Bureau of Statistics and Indonesia Investment Coordinating Board. The data analysis technique used is *Error Correction Model* which is useful to examine the long-term correlation amongst economic variables and to capture the economic phenomena as well.

The result of the research indicates that the domestic investment and foreign investment variables have a long-term relation with the economic growth. In a short-term, the domestic investment and foreign investment variables also show significant influences. There are positive and significant influences of the domestic investment to the economic growth. This research is expected to become a recommendation and information to the government and policy makers.

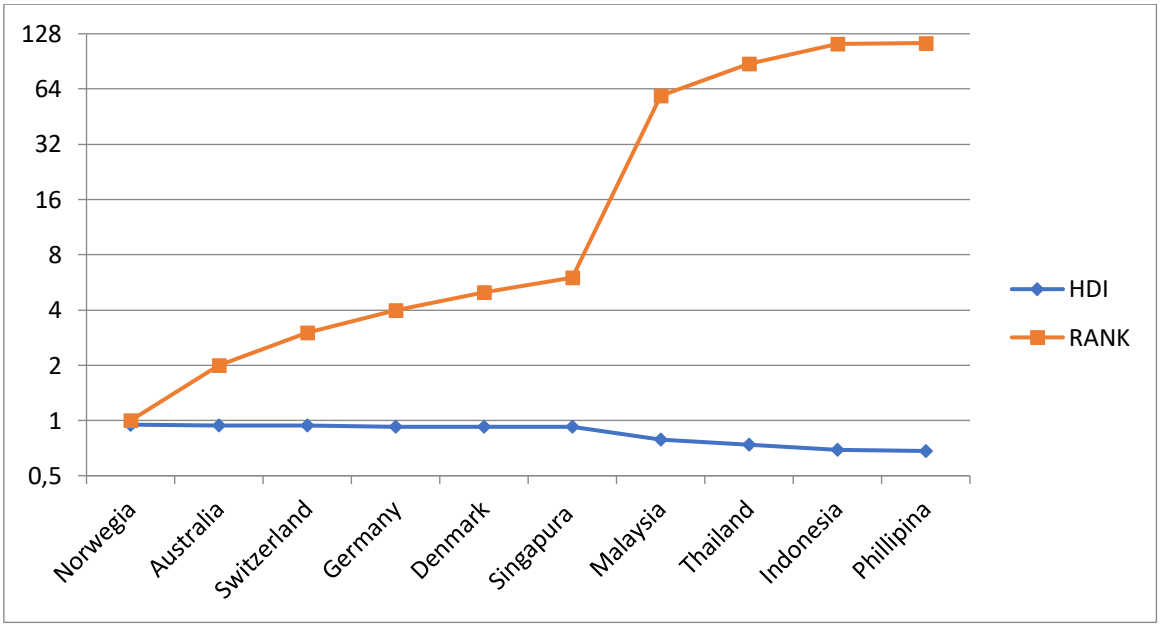
Keywords: foreign investment, domestic investment, economic growth, error correction model

Introduction

A wealthy prosperous country and equal distribution of income in the society are the dream of all countries including Indonesia. Having the *Asean Economic Community* (AEC) agreement been implemented in 2015, the economic integration in South East Asia has been started (Pelkmans, 2016). The challenge faced by Indonesia in entering the ASEAN economic integration is not only from the local competition, but also the competition amongst the ASEAN countries and other non-ASEAN countries as well.

Referring to the *Human Development Index* (HDI) in 2016, Indonesia with HDI of 0.689 was placed at number 113 out of 188 countries, and categorized as *Medium Human Development*. Three components were measured by the *United Nations Development Programme* (UNDP) in determining the countries HDI ranking, they are index of education, index of health, and index of economy.

Basically, *Human Development Index* (HDI) is a measurement instrument to identify the quality of the human resources of a country. A high HDI shows a successful development, while a low HDI shows a failed development of a country. The high HDI ranking, seen from five top countries such as Norway, Australia, Switzerland, Germany, Denmark, and Singapore, is achieved by the countries which have well-established environment, advanced and well-equipped facilities, high average per capita income approximately USD 57,896 in 2015, equal income distribution, very low corruption and criminality level. Figure 1 below shows the HDI rank of several countries in 2016. It is shown that Norway with its HDI of 0.949 ranked as the first position, followed by Australia with the HDI of 0.939. Singapore, the neighboring country, had quite high HDI of 0.925 ranked as the sixth out of 188 countries. Whereas Indonesia is placed 113th in the list with its HDI of 0.689, a slightly higher than the Philipines which ranked 116th with its HDI 0.682.



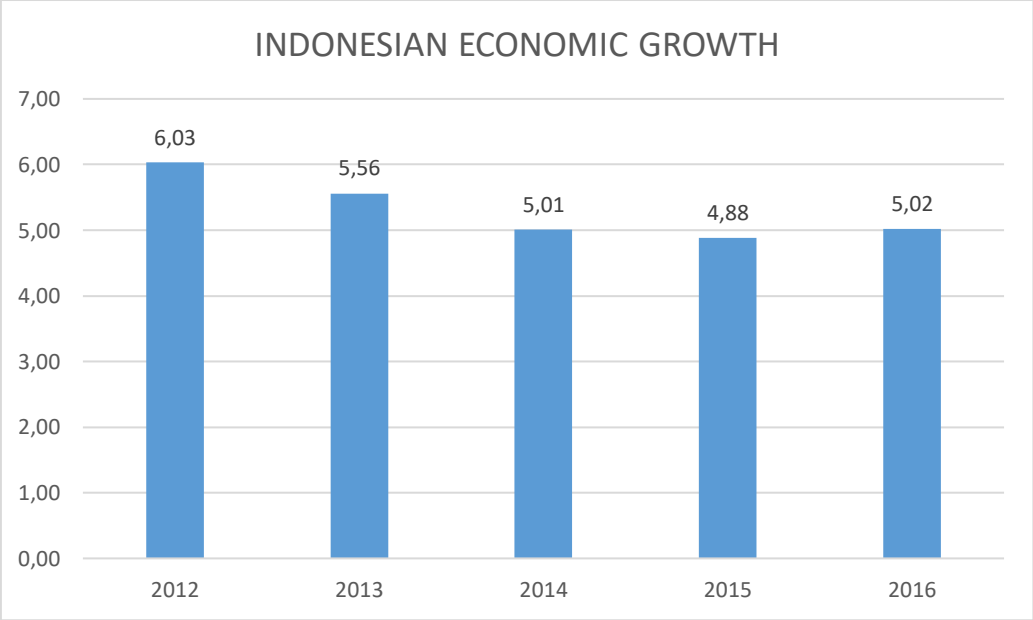
Source: Human Development Report ,2016

Figure 1. HDI Rank of Several Countries in 2016

Referring to the HDI elements, the Indonesian income per capita is USD 10.053 in 2016 and is far below developed countries. From the socio-economic of its society, it is found that the poor residents in Indonesia are 28,01 million (7.79%) and the open unemployment rate is

5.61% in the period of August 2016. Furthermore, the unstable politics and terrorism threat still vulnerably appeared which caused the hampered its economic growth and investment, both domestic and foreign investments.

Based on the above condition, a high economic growth should be continuously attempted, in order for Indonesia to catch up other countries. The economic growth of a country can be achieved through the enhancement of yielded commodity/service from each sector in the economy (Moutinho, 2016). The development of Indonesian economic growth can be seen in figure 2 below. The growth was steadily decreasing from 2012 to 2015 (6.03% in 2012, 5.56% in 2013, 5.01% in 2014 and 4.88% in 2015). However, it started to rise back up to 5.02% in 2016.



Source: Central Bureau of Statistics

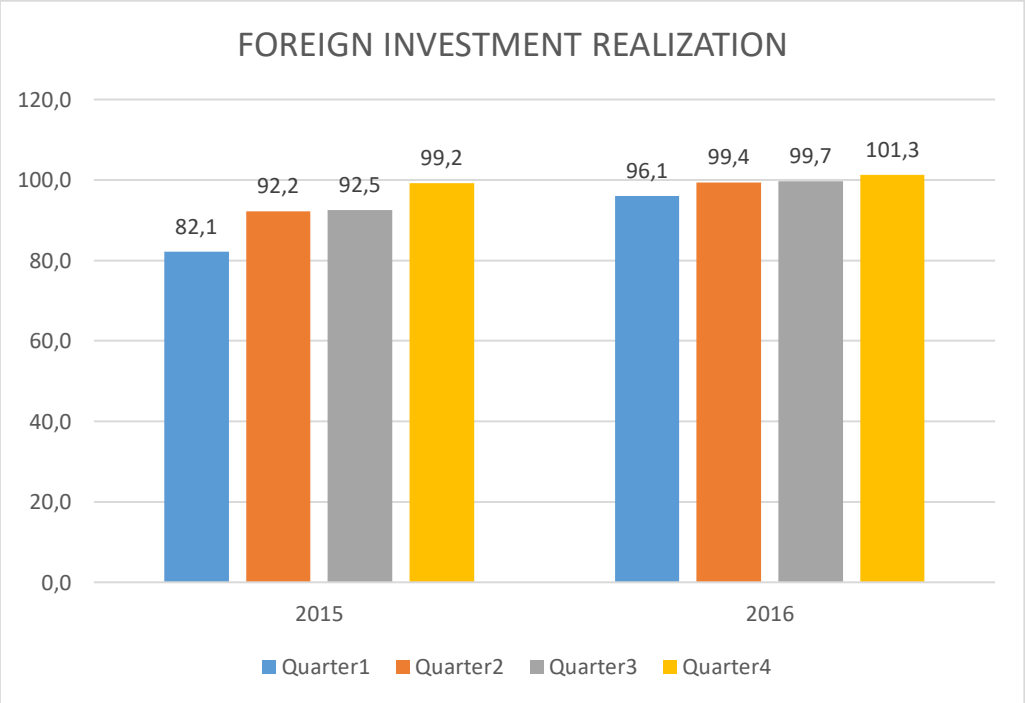
Figure 2. Indonesian Economic Growth from 2012 to 2016

From the production approach, the processing industry sector gave the highest contribution to the Gross Domestic Product (GDP) which was 21%. Other sectors which also contributed greatly are the wholesale and retail trade (automobile and motorcycle repairs were 13%, agricultural, forestry, and fisheries sectors were 13%). The lowest contributor to GDP was the water supply, waste management, effluent, and recycling sector which was 0.1%.

In terms of expenditure, the components to be improved are the investment grade and international trade. The contributions of investment and net export to GDP in 2016 were only 32% and 21%, respectively. The greatest contributor still belonged to the consumption sector which was 54% and able to lead to an inflation increase.

In line with Attanasio (2000), Chaudhary et al (2002), Chow et al (2002), investment played important role to a country's economic growth and development. The investment can be derived from government and private investments, also from domestic and foreign investments. Government investment is done to provide public commodity that can complete and improve the infrastructure in each region of Indonesia. The result of a research done by Mahmood (2014) and Attanasio et al (2000) also showed that there was a positive correlation between output growth and investment. Considering the important role of investment, it is necessary to

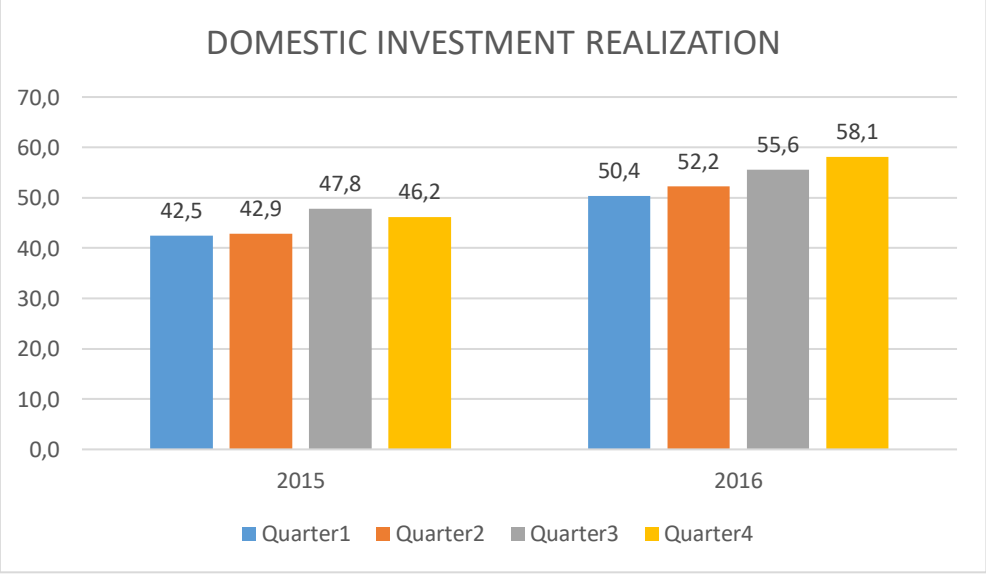
enhance both foreign and domestic investments. The progress of Foreign and Domestic Investments is illustrated in figure 3 and 4 below.



Source:Investment Coordinating Board

Figure 3. The Progress of Foreign Investment Realization (Trillion Rupiahs)

On Figure 3 above, it is shown that the value of Foreign Investment realization relatively increased from the first to fourth quarter in 2015. For the first quarter in 2016, it is shown that Foreign Investment slightly decreased from 99.20 trillion rupiahs to 96.10 trillion rupiahs. However, it raised up and reached 101.30 trillion rupiahs at the end of the fourth quarter in 2016. The number of Foreign Investment projects fell from 9,612 in 2013 to 8,885 projects in 2014, while in 2015 there was a rapid increase to 17,738 projects.



Source: Investment Coordinating Board

Figure 4. The Progress of Domestic Investment Realization (Trillion Rupiahs)

On Figure 4 above, it is shown that the progress of Domestic Investment realization gradually increased from the first quarter to the third quarter in 2015, yet in the fourth quarter slowly declined from 47,80 trillion to 46,20 trillion rupiahs. In the fourth quarter of 2016, Domestic Investment rapidly rose to 58,10 trillion rupiahs. The government needs to propel the conducive national business climate to the capital investment for the reinforcement of both national and international economy competitiveness, especially in facing AEC. It is done to overcome the impact of global economy crisis which leads to the decline of investment value in many countries (Inklaar, 2012).

According to Solow-Neo Classical Growth theory, some factors that influence economic growth of a country are capital, labour, and knowledge (augmented labour), in which from those factors, the capital has major role (Acemoglu, 2007; Romer, 2012; Barro et al, 2004). The Economic growth will go up if there is a capital increase in each unit of effective labour. It can be achieved if the actual investment is raised. The assumption of Solow theory is that stock of capital, labour, and knowledge are changing from time to time. Labour and knowledge are assumed as exogeneous. Besides, technological change is also able to increase the economic growth. In improving the economic growth, all of the countries in the world always refer to balanced growth path, in which actual investment equals to break event investment (BEI) (Romer, 2012). BEI is a part of capital which should be excluded to maintain the stock of capital that lost.

Based on the Solow theory, a country is able to speed its growth up if it escalates the rate of return, so the capital inflow is also increased and the productive employement is employed. Therefore, the steady state condition can be achieved immediately. According to the Indonesian law concerning investment (*UU No 25 Tahun 2007*), capital investment or investment means any form of investing activity by both domestic investors and foreign investors to do business in the territory of the state of the Republic of Indonesia. Domestic investment means an investing activity to do business in the territory of the state of the Republic of Indonesia that is carried out by a domestic investor by use of domestic capital. Foreign investment means an investing activity to do business in the territory of the state of the Republic of Indonesia that is carried out by a foreign investor both by use of all of foreign capital and by engagement in a joint venture with a domestic investor. Based on the background above, the researcher is interested in examining further the role of investment to the Indonesian economic growth.

To answer the empirical question above, dynamic model specification is used. Dynamic model is derived from quadratic cost function since it is considered to be more suitable to economics. Quadratic cost function is also called as the approach of economic theory towards dynamic model. The derivation of dynamic model based on quadratic cost function yields the backward-looking model, which is Error Correction Model (ECM) that emphasizes on present variable and lag variable. ECM has its excellence either from the value in obtaining the equation which is estimated by the desired estimated statistic properties or from the ease of the equation to be interpreted.

Research Methods

To achieve the aim of this research regarding to the role of investment to the Indonesian economic growth, ECM dynamic model specification is used with Foreign Investment and Domestic Investment as the explanatory variable and economic growth as the dependent variable. The data used in this research is the secondary data obtained from Central Bureau of Statistics and Investment Coordinating Board.

Domestic investment (DI) means an investing activity to do business in the territory of the state of the Republic of Indonesia that is carried out by a domestic investor by use of domestic capital. While Foreign Investment (FI) means an investing activity to do business in the territory of the state of the Republic of Indonesia that is carried out by a foreign investor both by use of all of foreign capital and by engagement in a joint venture with a domestic investor. In this research, DI and FI are measured from quarterly data of DI value realization and FI value realization (in trillion rupiahs) of the period 2012-2016. The dependent variable in this research is economic growth (G), the enhancement of final product and service yielded by the residents of a country in certain period and rated in applied market price. Economic growth is measured from the quarterly growth rate of Gross Domestic Product (GDP) towards similar quarter in the previous year (y-on-y), 2012-2016 period was based on the business field with constant price of 2010.

Dynamic model used in this research is able to cover the interpretations of economic variable behavior in a long term because, generally, theory of economics explains the long-term relation amongst the economic variables (Woodridge, 2013). The estimation result of the economic model can be used as the analytical instrument for economic theory testing, decision making, and future value forecasting. In a certain economy, the reaction caused by a certain action rarely happens at one time. The variations of dependent variable in the applied period are not only determined by the variations of explanatory variable at the same period, but also from their variations in the past and in the future. In this case, economic agents face the imbalance since the desired phenomena is not necessarily the same as what happens and as what is needed to adjust. Therefore, the model that is aligned with the reality is dynamic linear model.

Due to the reaction resulted from an action that rarely occurs instantly, the dynamic linear model then involves lag variable in its analysis. There are three reasons for the lag (Gujarati 2008, Insukindro, 2011), they are psychological reason, technological reason, and institutional reason. Those reasons show that the lag factor plays important role in the economy since there are efforts to establish the unsteady economic system. In other words, the changes of variable behavior happen at any time. However, there is no standard agreement on the establishment of this dynamic model due to several influenced factors.

The derivation of dynamic model with quadratic cost function approach has been widely used in economics research, although that is not the only method to derive the dynamic model. However, this research focuses on the single quadratic cost function approach only, due to its advantages. ECM model is able to cover more variables in analyzing short and long-term economic phenomena, to review the consistency of empirical model with the economics theory, and to find the solution to the problem of nonstationary time series variable as well as spurious regression in econometrics (Gujarati 2008, Insukindro, 2011).

The derivation ECM model developed by Domowits and Elbadawi in 1987 is used to achieve the equilibrium by minimizing imbalance cost and adjustment cost in seeing the investment influence to economic growth. In this case, there is an imbalance in reaching Indonesian economic growth's rate set by the government with the realization of Indonesian economic growth's rate.

ECM Model

The model of economic growth can be specified in the following formula:

$$\mathbf{G_t^* = e_o + e_1\ PMDN_t + e_2\ PMA_t} \quad \textbf{(1)}$$

In which: $e_1, e_2 > 0$

G_t^* = the expected economic growth's rate

PMDN = Domestic Investment (DI)

PMA = Foreign Investment (FI)

Then, that model can be formulated as follows:

$$\mathbf{G_t = m_o + m_1\ PMDN_t + m_2\ PMA_t + m_3\ LPMDN_t + m_4\ LPMA_t + m_5\ L\ G_t + Ut} \quad \textbf{(2)}$$

In which G_t is the actual economic growth's rate

The standard ECM model if $m_1 + m_3 + m_5 = 1$, it will become:

$$\mathbf{(1\text{-}L)\ G_t = m_o + m_1\ (1\text{-}L)\ PMDN_t + m_2\ (1\text{-}L)\ PMA_t + (m_2+m_4)\ LPMA_t + (1\text{-}m_5)\ L(Gt - PMDN_t\text{-}PMA_t)} \quad \textbf{(3)}$$

From the equation above, it can be seen that economic actors make the marginal adjustment to the rate of economic growth G_t from LG_t (G_t in the period t-1) as the response of the changes in DI and FI, FI's rate, and ($Gt–PMDN_t$) component in the previous period. Coefficient m_1 dan m_2 can be used for seeing short-term influence, while other coefficients can illustrate the long-term influence. Afterwards, coefficient ($1\text{-}m_5$) is to see the adjustment speed from economic agents towards the changes in economic policy.

To obtain the equation that has a long-term equilibrium relation amongst variables, cointegration approach is needed through stationarity test that consists of unit root test and degree of integration. The researcher should be convinced that the observed variable has the same degree of integration. The cointegration approach can also be seen as the test to economic theory and as the important part in formulation as well as estimation of a dynamic model. Besides, cointegration approach is correlated with the attempts to avoid the occurrence of spurious regression which causes inefficiency in the coefficient of regression. Spurious regression is shown by the high R^2 value followed with the low Durbin-Watson statistics value (Insukindro, 2011). The stationer data is basically having no great variation during observation period and having a tendency to approach its average.

Unit Root Test

This test is seen as data stationary test and meant to observe whether certain coefficient of the estimated autoregressive model has a value of more than one or not (in an absolute value). If that coefficient has the value of one or less than one, then the data is not stationary. The first step to do in this test is appraising the autoregressive model from each variable that will be used in OLS research as follows:

$$\mathbf{DX_t = a_0 + a_1 BX_t + \sum_{i=1}^{k} b_i\ B^i\ DX_t} \quad \textbf{(4)}$$

$$\mathbf{DX_t = c_0 + c_1 T + c_2 BX_t + \sum_{i=1}^{k} d_i\ B^i\ DX_t} \quad \textbf{(5)}$$

in which $DX_t = X_t - X_{t-1}$, $BX_t = X_{t-1}$, T = time trend and X_t is the observed variable in t periode, and B is the operation of backward lag operator.

The second step is calculating the DF (Dicky-Fuller) and ADF (Augmented Dickey Fuller) statistics value. DF and ADF values are used for hypothesis testing that $a_1=0$ dan $c_2=0$ are

shown by the t value in BX_t coefficient of the equation above. The optimum lag is determined by $k = N^{1/3}$ or AIC/SBIC value in STATA program (Woodridge, 2013).

Degree of Integration Test

If the observed data in unit root test is not stationary, then the next conducted step is degree of integration test. This test is done to identify on which degree or on which order of differentiation the observed data will be stationary. The definition of data integration means the X time series data is integrated in d degree if the data needs to be differentiated for d times to be able to become stationary data or I (0) (Insukindro, 2011).

The first step in degree of integration test is doing the autoregressive model estimation with OLS:

$$\mathbf{D2X_t = e_0 + e_1 BDX_t + \sum_{i=1}^{k} f_i B^i D2X_t} \quad \mathbf{(6)}$$

$$\mathbf{D2X_t = g_0 + g_1 T + g_2 BDX_t + \sum_{i=1}^{k} h_i B^i D2X} \quad \mathbf{(7)}$$

in which $D2X_t = DX_t - DX_{t-1}$, $BDX_t = DX_{t-1}$,

The DF and ADF values in this test can be found out by seeing the t statistics value in BDX_t regression coefficient of the equation above. If e_1 and g_2 equal to one, then X variable is stationary in the first differential or integrated with one degree. If e_1 dan g_2 are not different from zero, it means the variables have not yet been stationary in the first differential. In this case, degree of integration test is necessary to be continued until a stationary condition is obtained.

Cointegration Test

It is a continuation of unit root and degree of integration tests. This test is meant to test whether residual regression resulted is stationary or not (Engle dan Granger, 1987). To be able to conduct the cointegration test, it should be convinced whether the observed variables have the same degree of integration or not. If one or more variables have different degree of integration, for example X = I(1) and Y = I(2), then those variables cannot be cointegrated. If they are not stationary in the same level and having the same degree of integration, cointegration test with Engle Granger Method can be conducted. Generally, most of the discussion regarding to related issue focuses on the variables which have zero I (0) or I (1) integration. A set of X time series variables is said to be cointegrated in the degree of d, b or is written CI (d,b) if each X element is integrated to the degree of d or I (d), and there is one k vector which does not equal to zero. There are three tests which are commonly conducted to test the non hypothesis of no cointegration, which are Cointegrating Dickey Fuller (CRDW), Dickey-Fuller (DF), and Augmented Dickey Fuller (ADF). To calculate the CRDW, DF, and ADF statistics, cointegration regression is appraised as follows with OLS:

$$\mathbf{Y_t = m_0 + m_1 X_{1t} + m_2 X_{2t} + E_t} \quad \mathbf{(8)}$$

In which Y = dependent variable, X_1 and X_2 are explanatory variables, E is residual. Afterwards, the following regression is appraised with OLS:

$$DE_t = p_1 B E_t \quad (9)$$

$$DE_t = q_1 + B E_t + \sum_{i=1}^{k} w_i B^i D E_t \quad (10)$$

CRDW statistics value is shown by Durbin Watson statistic value in equation 5, then DF and ADF statistics values are shown by t value in the coefficient of equation 6 and 7.

Aside from the above tests, classical assumption test is needed as well to see whether the regression line obtained can be really used to predict the dependent variable (Gujarati, 2008). The tests conducted are normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test.

Result and Discussion

As previously stated, to be able to use cointegration approach, it is necessary to observe the time series economic data used. It means the research should be firstly sure whether the data used is stationary or not. Therefore, as the prerequisite cointegration test, unit root test must be conducted first.

From the unit root test, it is shown that research variables have not been stationary in zero or I (0) degree. Afterwards degree of integration test is conducted. Degree of integration test's results using Augmented Dickey Fuller Test shows that all research variables are stationary in 1 degree of integration or I (1). For DGROWTH variable, statistics test value (-5.516) that is lower than critical value (-3.00) and it lies on the rejection region Ho (Ho: not stationary).

Table 1. Augmented Dicky Fuller Test for DGROWTH Variable

Dfuller DGROWTH, lags (0)						
Dickey-Fuller test for unit root				Number of obs =	18	
		----------Interpolated Dickey-Fuller----------				
	Test Statistics	1% Critical Value		5% Critical Value	10% Critical Value	
Z(t)	-5.516	-3.750		-3.000	-2.630	
MacKinnon approximate p-value for Z(t) = 0.0000						

For DI variable, after conducting first difference, lag optimum determination test is then conducted. From table 2, it is known that lag optimum for DPMDN (DDI) is 1 seen from the AIC value in the position that equals to 1.

Table 2. Lag Optimum Determination of DPMDN (DDI) Variable

Selection-order criteria								
Sample: 2013q2 - 2016q4 Number of obs = 15								
lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-31.7182				4.59398	4.36243	4.36192	4.40963
1	-30.1130	3.2103	1	0.073	4.24379*	4.28174*	4.28073*	4.37614*
2	-29.8552	.51572	1	0.473	4.70335	4.38069	4.37918	4.52230
3	-29.1546	1.4011	1	0.237	4.93301	4.42062	4.41860	4.60943
4	-29.0853	.13862	1	0.710	5.65936	4.54471	4.54219	4.78072

Afterwards, from the result of Augmented Dickey Fuller Test (Table 3), it is known that DPMDN (DDI) variable is stationary in degree of integration 1, seen from statistics test value (-3.985) which is lower than critical value (-3.00) and it lies on the rejection region Ho (Ho: not stationary).

Table 3. Augmented Dicky Fuller Test for DPMDN (DDI) Variable

Dfuller DPMDN, lags (1)								
Dickey-Fuller test for unit root					Number of obs =		17	
		----------Interpolated Dickey-Fuller----------						
	Test Statistics	1% Value	Critical	5% Value	Critical	10% Value	Critical	
Z(t)	-3.985	-3.750		-3.000		-2.630		
MacKinnon approximate p-value for Z(t) = 0.0015								

For FI variable, after conducting first difference, lag optimum determination test is conducted. From table 4, it is known that lag optimum for DPMA (DFI) variable is 1, seen from the AIC value in lag position equals to one.

Table 4. Lag Optimum Determination of DPMA (DFI) Variable

Selection-order criteria								
Sample: 2013q2 - 2016q4								Number of obs = 15
lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-38.6684				11.6051	5.28913	5.28862	5.33633
1	-37.3046	2.7277	1	0.099	11.071*	5.24061*	5.23961*	5.33502*
2	-37.3043	.00064	1	0.980	12.6986	5.3739	5.37239	5.51551
3	-36.8801	.84831	1	0.357	13.8186	5.45068	5.44867	5.63950
4	-36.5542	.65177	1	0.419	15.3201	5.54056	5.53805	5.77658

Afterwards, from the result of Augmented Dickey Fuller Test (Table 5), it is known that DPMA (DFI) variable is stationary in degree of integration 1, seen from statistics test value (-3.471) which is lower than critical value (-3.00) and it lies on the rejection region Ho (Ho: not stationary).

Table 5. Augmented Dicky Fuller Test for DPMA (DFI) Variable

Dfuller DPMA, lags (1)								
Dickey-Fuller test for unit root					Number of obs =		17	
		----------Interpolated Dickey-Fuller----------						
	Test Statistics	1% Value	Critical	5% Value	Critical	10% Value	Critical	
Z(t)	-3.471	-3.750		-3.000		-2.630		
MacKinnon approximate p-value for Z(t) = 0.0088								

The result of diagnostics test shows that the model passed the diagnostic test which consists of normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test.

Estimation Result of Cointegration Regression

To see the long-term relation amongst the variables, cointegration test was conducted. From the Egranger test result (Table 6), it is seen that statistics test value (-5.107) is lower than critical value (-4.245), then Ho (three variables are not cointegrated) is rejected. In other words, amongst Growth, foreign investment, and domestic investment variables are cointegrated. Based on the cointegration test result, it is known that there is a long-term relation amongst growth, foreign investment, and domestic investment.

Tabel 6. Cointegration Test Result

Engle-Granger test for cointegration			N (1^{st} step) = 19	
			N (test) = 18	
	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-5.107	-5.190	-4.245	-3.809

Critical values from MacKinnon (1990, 2010)

Engle-Granger 1^{st} step regression

DGROWTH	Coef.	Std. Err.	t	P>| t |	[95% Conf.	Interval]
DPMDN	-.0236525	.0294160	-0.80	0.433	-.0860117	.0387067
DPMA	.0030624	.0170142	0.18	0.859	-.0330061	.0391309
_cons	-.0218028	.1022800	-0.21	0.834	-.2386267	.1950211

Engle-Granger test regression

D._egresid	Coef.	Std. Err.	t	P>| t |	[95% Conf.	Interval]
_egresid L1.	-1.198454	.2346664	-5.11	0.000	-1.693557	-.7033515

The existence of the long-term relation shows that the role of investment, either foreign investment or domestic investment, is really important to the economic growth of a country. Investment sector is a foundation or a space for the economics of a country. Investment enhancement through the new projects opening is the prime activator of development. Investment activity is able to increase national output, add more jobs, create employment opportunities, enable the occurance of technology transfer, and finally increase public welfare.

Estimation Result of ECM Model

From ECM test result, it is shown that Error Correction Term (ECT) is significant for degree of trust 5%. It is seen from the coefficient value of EGRESID (Engel Granger Residual) which is commonly negative. From Table 7, it is seen that ECT has probability <0.05, which means there is a long-term relation between domestic investment and economic growth (G). Besides, this result indicates that model specification is feasible. In the short-term, the influence of domestic investment to economic growth is positive and significant with coefficient value 0.046. This result is in line with the research conducted by Mahmood et al (2004), the role of investment to the economic growth is really important compared to other growth components. Through domestic investment in various sectors, employment opportunity and output escalation will be opened. On the other hand, capital increase can form new capital, machine, and equipment needed in industrialization process. Therefore, a sustainable modern economic growth that is necessarily needed by a developing country can be established.

Table 7. ECM Test Result

Engle-Granger 2-step ECM estimation				N (1st step) = 19 N (2st step) = 17		
Engle-Granger 2-step ECM						
D.DGROWTH	Coef.	Std. Err.	t	P>| t |	[95% Conf.	Interval]
_egresid L1.	-.9285983	.2476969	-3.75	0.002	-1.459855	-.3973413
DPMDN LD.	.0455707	.0149913	3.04	0.009	-.0134176	.0777239
_cons	-.0021344	.0489416	-0.04	0.966	-.1071037	.1028350

Various attempts are continued to be made by the government to increase domestic investment, particularly in the manufacturing industry, service, food crop, and plantation sectors that until recently dominate the amount of domestic investment realization in Indonesia. For the foreign investment variable, it can be seen that Error Correction Term (ECT) is also significant. It is seen from the egresid (Engel Granger Residual) coefficient value.

From Table 8, ECT can be seen to have probability of < 0.05 which meanst there is a long term relation between foreign investment and economic growth (G). In the short term, the influence of foreign investment to economic growth is negative and significant with coefficient value of -0.02 that was due to the global economic condition that also declined. The FI's influence is more in the long term and from the result of calculation the influence to economic growth is known to be significant on the long-term. To catch up the high economic growth, the FI's role is necessarily required to complement domestic capital, to obtain the skill assistance and technology, also to broaden the trade cooperation network which can increase foreign exchange revenue of export result. Additionally, foreign investment can raise the employment opportunity and speed the ongoing industrialization process up. The stable social-political condition and conducive investment climate are essential to attract foreign investors to Indonesia.

Table 8. ECM Test Result

Engle-Granger 2-step ECM estimation				N (1st step) = 19 N (2st step) = 17		
Engle-Granger 2-step ECM						
D.DGROWTH	Coef.	Std. Err.	t	P>| t |	[95% Conf.	Interval]
_egresid L1.	-1.183427	.2127768	-5.56	0.000	-1.639788	-.7270666
DPMA LD.	-.0217317	.0076667	-2.83	0.013	-.0381751	-.0052882
_cons	-.0037533	.0442723	-0.08	0.934	-.0987078	.0912013

Conclusion

OLS estimation result used the ECM model shows that foreign investment and domestic investment variable have a long-term relation with economic growth variable and it is shown on the significant Error Correction Term (ECT) figure. In the short-term, both foreign investment and domestic investment also have significant influence which is seen from the significance of coefficient ECM model regression. Domestic investment positively influenced

economic growth, while foreign investment gave negative influence due to the decline of global economic condition in the recent years and domestic macro variables got the impact.
The research on economic growth is surely beneficial for the government to keep improving the factors that affect the economic growth. Invesment needs to be encouraged since it gives multiplier impact to the economy.

Recommendation

In order to enhance the level of investment in Indonesia, the government is expected to be able to revise licensing procedures and to improve facilities and infrastructure which support the entry of investors, and to provide the infrastructure establishment cost. It is strongly recommended to undertake labour intensive investment as due to large Indonesian population the economic growth will result in high employment and subsequently will increase public welfare. The government is also expected to open investment market in the eastern region of Indonesia, as for the time being the foreign investment and domestic investment are still concentrated in Java. Afterall, the government is expected to improve the coordination and synergy amongst stake holders.

References

Attanasio. Orazio P., Lucio Picci, & Antonello E. Scorcu. (2000). Saving, Growth, and Investment: A Macroeconomic Analysis Using a Panel of Countries. *The Review of Economics and Statistics, 82*(2), 182-211, The MIT Press.

Acemoglu, D. (2007). Introduction to Modern Economic Growth: Parts 1-5. *Department of Economics, Massachusetts Institute of Technology*.

Barro, Robert J. & Xavier Sala-i-Martin. (2004). *Economic Growth*. Massachusetts, Cambridge: The MIT Press.

Chaudhary, M. Aslam & Ashfaq A. Qaisrani. (2002). Trade Instability, Investment, and Economic Growth in Pakistan. *Pakistan Economic and Social Review, 40* (1), 57-73.

Chow, Gregory C. & Kui-Wai Li. (2002). China's Economic Growth: 1952-2010. *Economic Development and Cultural Change, 51* (1), 247-256.

Gujarati, Damodar N. (2008). *Basic Econometrics* 4th Ed. New York: Mc. Graw Hill.

Human Development Report. (2004). *Cultural Liberty in Today's Diverse World*. UNDP.

Inklaar, Robert, Juan Fernández de Guevara & Joaquín Maudos. (2012). The Impact of The Financial Crisis on Financial Integration, Growth, and Investment. *National Institute Economic Review*. No. 220, R29-R35.

Insukindro. (2011). *Econometrics, Timing Modeling & Analysis*. Presented at Penataran FEB UGM. (*Translated from Indonesian).*

Mahmood, T., & Ahmad, E. (2014). Output growth and investment dynamics in Finland: a panel data analysis. *Empirica, 41*(4), 777-801.

Moutinho, R. F. (2016). Absorptive capacity and business model innovation as rapid development strategies for regional growth. *Investigación económica, 75*(295), 157-202.

Pelkmans, Jacques. (2016). *The Asean Economic Community: A Conceptual Approach*. (vol. 11) United Kingdom: Cambrige University Press

Romer, David. (2012). *Advance Macroeconomics*. USA, California: McGraw-Hill.

Wooldridge, Jeffrey M. (2013). *Introductory Econometrics: A Modern Approach*. USA, Michigan State University: South Western Cengage Learning.