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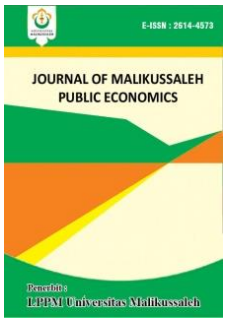
INFLUENCE OF SAVING AND ECONOMIC GROWTH ON INVESTMENT IN INDONESIA THE PERIOD OF 1990-2019



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ARTICLEINFORMATION

Keywords: *Savings, Economic Growth, Investment.*

ABSTRACT

This study aims to analyze the effect of savings and economic growth on investment in Indonesia from 1990 to 2019. The data used in this study are secondary data for the period 1990 - 2019. This research uses the VECM (Vector Error Correction Model) for analyzing the data. The unit root test is carried out with the Augmented dickey fuller (ADF) test where all the variables are stationary on the second different. The results showed that, in short run and in the long run, saving have no effect on investment in Indonesia, meanwhile in the short run economic growth has no effect investment, but in long run economic growth has a positive and significant effect on the invesmant in Indonesia.

I. INTRODUCTION

Indonesia's investment growth fell drastically from 10 percent in 2017 to around 4 percent in 2018. This caused economic growth to slow down. This exists after the MEA was implemented. Investment in Indonesia fell to the most dilemmatic level so that the value for foreigh direct investment fell to a negative number. Data from the Central Statistics Agency (BPS) stated that economic growth during 2018 only reaches 5.17 percent of the 5.4 percent target.

Investment is an asset or item occur wuth the good of generating income. Investment has a very important role in the economy, both domestically and abroad. Investment also has an influence on economic growth in a country. Investment is is used for the purpose of obtaining profits in the future.

Investment is also influenced by savings factors and economic growth, where savings are deposits of third party funds that can be withdrawn according to the agreement between the bank and the customer holding the savings account (Ismail, 2012).

The role of domestic savings as a source of funds for financing development mandatory. Domestic savings are obtained from the government sector and the private sector. Government saving are the difference between domestic revenues and routine expenditures.

The accumulation of savings by the government has a very important role for the formation of domestic capital, especially in developing countries where the mobilization of funds and the process of their allocation through market mechanisms are considered less effective. As one of the policies to accelerate the development process, it is necessary to make efforts to increase government savings. This goal can only be achieved if the rate of increase in government revenue grows faster than the level of routine government expenditure. An increase in savings that occurring during 1990-2017 causes national savings to increase.

Investment growth in Indonesia is urgently needed. Indonesia as one of the developing countries still requires a lot of investment to increase its economy, investment in the economy plays an important role as an economic driver in a country. The growth of investment in Indonesia, will create employment opportunities and increasing people's income as well as community consumption, this is one of the important factors in supporting economic growth.

Savings in 2015 amounted to 99,527,826,087 US$ with an investment of

191,000,000 US$. In 2016 saving increased to 125,670,967,742 US$ while Investment increased to 8,068,800,000 US$. Furthermore, in 2017 savings increased to 126,580,659,460 US$ while investment also increased to 8,819,500,000 US$. This is in accordance with the theory where in theory if savings increase then investment will also increase.

Economic growth in 2015 was 4.88% with an investment of 191,000,000 US$. In 2016 economic growth increases to 5.03 while Investment increased to 8,068,800,000 US$. Furthermore, in 2017 economic growth increased by 5.07 while investment also increased to 8,819,500,000 US$.

Previous researchs studying the impact of saving on invesment has been carried out by Syamsinar (2014). Some researches related to economic growth on investment has been carried out by Sari and Baskara (2018), Ardiyani (2015), Dewi and Cahyono (2016), Astuty (2017), Jamaliah (2018) and Jaeques and Yaya (2010). Previous research used multiple linear regression as the data analysis model were the this research uses a dynamic model to see the relationship between all variables.

2. THEORETICAL STUDY

Investment

According to Tandelilin (2010), Investment is a commitment to a number of funds or other resources carried out, with the aim of obtaining a number of benefits in the future. The definition of investment according to Kamarudin (2004), namely placing money or funds in the hope of obtaining additional benefits on the money.

According to Simamora (2000), investment is an asset used by a company to increase or grow its wealth through the distribution of investment results such as interest income, royalties, dividends, and other rental income. Meanwhile, according to Rasyid and Hamdi (2013) stated that investment is linking sources in the long term to get future profits..

Savings

According to Simurangkir (2004) savings are deposits of third parties whose withdrawals can only be made according to the conditions specified between the bank and the customer, while according to Kunarjo (2002) savings are the amount set aside by an individual from his income for investment purposes. According to Ismail (2012) savings are deposits of third party funds that can be withdrawn according to the agreement between the bank and the customer who holds the savings account.

Economic growth

Economic growth shows the extent to which economic activity will generate additional income for the community in a certain period. Basically economic activity is a process of using production factors to produce output, this process in turn will result in a flow of remuneration for production factors owned by the community.

According to Todaro (2006), economic growth is an increase in the long-term capacity of the country concerned to provide various economic goods to its population. According to Ma'aruf and Wihastuti (2013), economic growth is an effort to increase production capacity to achieve additional output, which is measured by using Gross Domestic Product (GDP) and Gross Regional Domestic Product (GRDP) in a region. While Adisasmita (2013), states that economic growth is the process of increasing output per capita in the long term.

Conceptual framework

The conceptual framework in this research are:

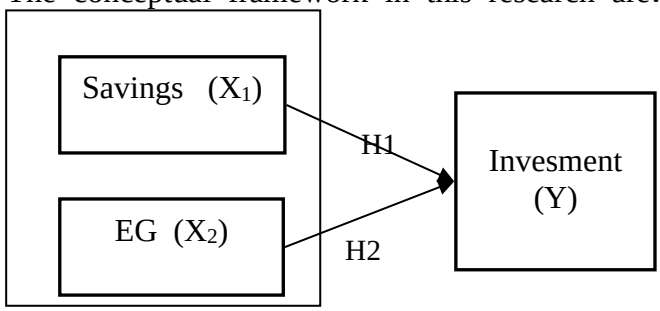

Figure 1. Conceptual Framework

Based on the conceptual framework above, the independent variables are saving variables (X1) and economic growth (X2), while the dependent variable is investment (Y). In the conceptual framework above, the influence of each independent variable, namely savings and economic growth on the dependent variable of investment, will be tested by using the VECM method.

Hypothesis

According to (Erlina and Mulyani, 2007) the hypothesis is the proportion that is formulated with the intention of being tested empirically. Based on the formulation of the problem and the conceptual level, the hypotheses in this study are:.

H1: It is suspected that saving has a positive and significant effect on investment in Indonesia.
H2: It is suspected that economic growth has a positive and significant effect on investment in Indonesia.

3. RESEARCH METHODS

Data and Source of Data

This study uses secondary data for the period 1999-2019. the data it obtained from BPS 2020.

Definition of Operational Variable

1. Investment (Y)

The investment in this research is investment made in Indonesia. Investment in this study is measured in US$.

2. Savings (X1)

Savings in this study are deposits from the public made at banking institutions. Savings in this study are measured uses US$.

3. Economic Growth (X2)

Economic growth in this study is the ability to increase production produced by people in Indonesia. Economic growth in this study is measured by using the unit of percent.

This study uses saving, economic growth and Indonesia invesment data from 1990-2019.

Data analysis method

The data analysis method used is the Vector Error Correction Model (VECM). Vector Error Correction Model (VECM) is one of the time series methods used in research, especially in the field of economics. The VECM model is an econometric model building with the consideration of minimizing the theoretical approach with the aim of being able to capture economic phenomena well.

Stationerity Test

Stationarity test is very important in time series analysis. Stationarity testing is done by testing unit roots to test whether the time series data is stationary or not. Stationary data is time series data that does not contain unit roots, on the other hand, non-stationary data if the mean, variance, and covariance of the data are constant over time. Prawoto and Basuki, (2016).

Stationarity test or unit root test is performed to determine whether a variable is stationary or not. The data is said to be stationary if the data is close to the average. The form of the stationary test equation is uses ADF (Augemented Dickey Fuller) analysis. If this test shows the statistical ADF value is greater than the Mackinnon Critical Value then the data is stationary, and it exist a problem if the statistical ADF value is less than the Mackinnon Critical Value then the data is not stationary .

Optimal Lag Determination

The lag is used to determine the optimal lag length that will be used in the next analysis and will determine the parameter estimation for the VAR model. This is because the estimation of causality and the VAR model is very sensitive to lag length, so it is necessary to look at the data and then determine the accuracy of the lag length used that is stated by Widarjono, (2017).

Cointegration Test

Cointegration testing can be done with the Engle-Granger Test, CRDW Test, or the Johansen Cointegration Test. The EG-Test cointegration test is based on the existence of a stationary long-term equation residual, while the CRDW Test compares the Durbin Watson value in the long-term equation against the statistical value of Sargan Bhargawa's CRDW. Jhonson's cointegration approach is based on maximum probability which provides eign value and trace statistics to determine the number of cointegration vectors in an equation (Masta, 2014).

Granger Causality Test

In the analysis of economic data using econometric methods, it is often found that there is a dependency condition between one variable and one or several other variables in the equation model used. It can be said that there is a possible causal relationship between variables in the model. This problem underlies the need to test the causality relationship between variables in the model, which is called the Granger causality test. Suppose there are two variables, namely X and Y, the question that often arises is whether the variable X causes Y, or vice versa Y causes X. To answer this problem, a Granger causality test is carried out to see the relationship between the two variables based on time series data in model estimation. By using this test, the estimation results will show the possibilities, namely (Gujarati, 2003).

1. One-way causality relationship from Yt to Xt, which is referred to as unidirectional causality from Yt to Xt

2. One-way causality relationship from Xt to Yt, which is referred to as unidirectional causality from Xt to Yt.
3. Two-way causality or mutual influence (bidirectional causallity).
4. There is no interdependence relationship (no causality).

Decision making in the causality test can be done by comparing the t-statistic value of the estimation results with the t-table value or by looking at the probability value of the F-statistics. If the estimated t-statistic value is greater than the t-table value or the F-statistical probability value < 5%, then H0 is rejected, meaning that there is an influence between the two variables being tested, and vice versa

3. RESEARCH RESULTS AND DISCUSSION

Stationerity Test Result

The unit root test based on the Augmented Dickey Fuller (ADF) method can be seen in the following table

Tabel 1
Unit Root Test Augmented Dickey Fuller (ADF) Test Result

Variable	Unit Root	Adf	Critical Value 5%	Prob ADF	Information
Saving	Level	0.517987	2.967767	0.8737	Not Stationery
	First Diff	4.294641	2.971853	0.0023	Stationery
	Second Diff	6.016521	2.981038	0.0000	Stationery
Economic Growth	Level	3.847395	2.967767	0.0067	Stationery
	First Diff	2.222470	3.004861	0.2044	Not Stationery
	Second Diff	4.667384	2.991878	0.0012	Stationery
Invesment	Level	1.005710	2.967767	0.7377	Not Stationery
	First Diff	6.419586	2.971853	0.0000	Stationer
	Second Diff	6.671474	2.986225	0.0000	Stationery

Source: Data processed, 2020.

Based on the table above, it can be explained that the unit root test results at the level of economic growth and investment variables have an Augmented Dickey Fuller probability of less than 0.05 and while savings have an Augmented Dickey Fuller greater than 0.05, therefore, the saving variable is not stationary at level. Whereas in the first different the savings and investment variables have an Augmented Dickey Fuller probability value smaller than the 5% alpha testing level, but economic growth has an Augmented Dickey Fuller probability value greater than the 5% alpha testing level. In the second different variables savings, economic growth and investment have the Augmented Dickey Fuller probability value smaller than the 5% alpha test level.

Optimal Lag Determination

The criteria of the LR (Sequential Modifie LR test statistic), FPE (Final Prediction Error), Akaike Information Creterion (AIC), (SC) Schwarz information criterion and Hannan-Quin Information Creterion (HQ) are located at lag 1. Thus in this study The optimal lag length to be used is 1. After accumulating, the widely number of stars lies in lag 1.

Cointegration Test

Jhonson's cointegration approach is based on maximum likelihood which provides eignvalue and trace statistics to determine the number of cointegration vectors in an equation Masta, (2014). Cointegration results can be seen in the following table:

Table 2 Cointegration Test Results

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.181102	36.15323	29.79707	0.0015
At most 1	0.077836	4.764861	15.49471	0.8333
At most 2	0.002558	0.146007	3.841466	0.7024
Hypothesized		**Max-Eigen**	**0.05**	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None	0.181102	21.38836	21.13162	0.0496
At most 1	0.077836	4.618854	14.26460	0.7890
At most 2	0.002558	0.146007	3.841466	0.7024

Source: Data processed,2020.

Based on the results above, it shows the trace statistic value is bigger than critical value and max-eigen is bigger than critical value which means that cointegration does not occur. Thus, the cointegration test results indicate that between the movement of savings, economic growth and investment there is no a relationship between stability and unsimilarity of movement in the long term. In other words, in each short term period, all variables do not tend to adjust to each other, to achieve long-term equilibrium.

Causality Test

From the Granger test, it is known that the causality relationship is as follows:

1. The Savings variable does not statistically and significantly affect Investment and vice versa, the Investment variable does not statistically and significantly affect the saving variable as evidenced by the Prob value of each being greater than 0.05, namely 0.298 and 0.883, so it can be concluded that there is no causality whatsoever for both saving and investment variables
2. The variable of economic growth does not statistically and significantly affect investment and vice versa, the variable of investment does not statistically significantly affect the variable of economic growth as provide by the value of Prob which is greater than 0.05, namely 0.906 and 0.774, so it can be concluded that there is no causality. whatever for both economic growth and investment variables
3. The variable of economic growth does not statistically and significantly affect savings and vice versa, the variable of savings statistically does not significantly affect the variable of economic growth as evidenced by the value of Prob which is greater than 0.05, namely 0.854 and 0.610, so that it can be concluded that there is no causality. between economic growth and saving.

VECM Results

As previously explained, the variables of savings, investment and economic growth are stationary at the second difference. Furthermore, the VECM estimation will be continued at the First difference.

Table 3. VECM

Error Correction:	D(Y)	D(X1)	D(X2)
CointEq1	0.000628	0.009179	-1.88E-11
	(0.00222)	(0.01951)	(4.7E-12)
	[0.28328]	[0.47045]	[-3.98549]
D(Y(-1))	-0.008983	-0.120512	7.17E-11
	(0.15089)	(1.32776)	(3.2E-10)
	[-0.05954]	[-0.09076]	[0.22400]
D(X1(-1))	-0.003337	-0.045090	3.26E-11
	(0.01851)	(0.16288)	(3.9E-11)
	[-0.18028]	[-0.27684]	[0.82981]
D(X2(-1))	-1776024.	-32704304	0.176174
	(6.5E+07)	(5.7E+08)	(0.13793)
	[-0.02732]	[-0.05717]	[1.27729]
C	1.51E+08	1.97E+09	-0.095562
	(1.8E+08)	(1.6E+09)	(0.37827)
	[0.84962]	[1.25633]	[-0.25263]

Source: Data processed, 2020.

Based on the short-term estimation results, it can be interpreted as follows:

$Y = 1{,}51 - 0{,}008y(-1) - 0.003X_{1(-1)} - 1776024\ X_{2(-1)}$

Based on the table above, it can be explained that:

1. Constanta of 1.51, meaning that if the variables of savings, economic growth and investment are constant, the investment has a value of 1.51 Us$.
2. The investment coefficient for the previous year was negative 0.008, meaning that if the investment in the previous year increased by 1 US$, it would reduce the current investment by 0.008 US$.
3. The savings coefficient is negative at 0.003, meaning that if the savings in the previous year increased by 1 US$, it will reduce the current investment by 0.003 US$.
4. The coefficient of economic growth is negative namely 1776024, meaning that if economic growth in the previous year increased by 1%, it will reduce investment at this time by 1776024 US$

The results of the VECM estimation to analyze the impact in long-term can be seen in Table 4 below:

Table 4

VECM Results (Long-Term)

Standard errors in ( ) & t-statistics in	
Cointegrating Eq:	CointEq1
Y(-1)	1.000000
X1(-1)	-0.128466
	(0.38103)
	[-0.33716]
X2(-1)	2.45E+10
	(5.1E+09)
	[4.77153]
C	-1.16E+11

Source: Data processed, 2020.

Based on the table 4 above, in the long term, the interpretation results can be explained as follows:

$Y = -1.16 - 0.12\ X1 + 2.45\ X2$

1. Negative constant of -1.16, meaning that if the variable of saving and economic growth is constant then investment has a negative value of 1.16 US$.

2. The regression coefficient of savings has a negative value of 0.12, if savings increase by 1 US$, investment will decrease by 0.12 US$.
3. The coefficient of economic growth has a value of 2.45, meaning that if economic growth increases by 1%, investment will increase by 2.45 US$.

Hypothesis test Result

Short-term Result

The short term shows that whether the independent variable affects the dependent variable or not. The following is an interpretation of the results of the VECM model in the short term:

1. In the short term, saving has no effect on investment, as evidenced by the comparison of t count < t table, -0.180 < 1.672. The results of research conducted by Jaeques and Yaya (2010) using the VECM data analysis method prove that there is no relationship between savings and investment in the short term. Meanwhile, the results of Jensen's (1998) research using the VECM model data analysis method prove that saving has no effect on investment in the short term.
2. In the short term, economic growth has no effect on investment, it can be seen from the comparison of t count < t table, namely -0.027 < 1.672.

Long-term

The results of research in the long term are as follows:

1. In the long term, saving has no effect on investment, this is evidenced by the comparison of t count < t table, namely -0.337 < 1.672.
2. In the long term, economic growth has a positive and significant effect on investment where the comparison value of t count > t table is 4.771 > 1.672.

DISCUSSION

Relationship between Savings and Investment

Based on the results of the VECM regression, it can be seen that in the long term and short term savings have no effect on investment, the absence of a relationship between saving and investment proves that the results of this study present no evidence of classical or neo classical theory it proved by, weak evidence of the relationship between savings and investment in Indonesia. Lack of capital to invest is one of the main problems of economic development in developing countries. This lack of capital occurs because of the low income of the community which has an impact on the low ability to save, resulting in very limited funds to invest. Basically, in the process of implementing the economic development of third world countries, the accumulation of external debt is a common symptom that is reasonable, because low domestic savings do not allow adequate investment so that governments of developing countries have to withdraw loan funds. and investment from abroad (Todaro, 2011).

The results of research conducted by Jaeques and Yaya (2010) using the VECM data analysis method prove that there is no relationship between savings and investment in the short term. Meanwhile, the results of Jensen's (1998)the research using the VECM model data analysis method proves that saving has an effect on investment in the short term.

Relationship between Economic Growth and Investment

Economic growth in a country can be caused by many factors. For developed countries, they can rely on the production of their goods and services, but it is also possible for them to borrow and invest. But for developing countries, of course it will be difficult or it can be said that it is not easy if relying only on domestic factors of production of goods and services, therefore other factors are very decisive, such as loans and investment.

Increased investment will increase production capacity which will eventually lead to the creation of new jobs, which in the next stage will encourage economic growth (Adrian Sutawijaya, 2010).

The results of research conducted by Sari and Baskara prove that economic growth has an effect on investment by using multiple linear regression analysis. The results of Ardiyani's research (2015) also conclude that economic growth has a positive and significant effect on investment. Meanwhile, the results of research conducted by Dewi and Cahyono (2016) stated that economic growth had an indirect effect on investment.

Conclusion

Based on the results of research and discussion, the researchers put forward the following conclusions:

1. In the short term and long term savings have no effect on investment in Indonesia.
2. In the long term, economic growth has a positive and significant effect on investment, while in the short term economic growth has no effect on investment in Indonesia.

Suggestion

The suggestions that can be given by researchers in this study are as follows:

1. For the Government, it is hoped that the government can increase investment in Indonesia so that it will trigger an increase in Indonesia's economic growth.

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