
INVESTMENT CREDIT ANALYSIS BY ECONOMIC SECTOR IN INDONESIA

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ABSTRAC

The purpose of this study is to analyze investment credit by economic sector in Indonesia through a simple linear regression model through the Least Squares (NLS and ARMA) approach. The findings show that the effect of interest rates on investment credit is not significant 0.334 with a R^2 value of 1.06%. Meanwhile, the effect of inflation on investment credit is very significant 0.0021 with R^2 of 10.31 %. Then for the effect of investment credit on economic growth is not significant 0.654 or with an R^2 value of 0.0023. Meanwhile, the effect of investment credit on formal employment is very significant 0.0033 with a R^2 value of 9.5%. The results of the research findings recommend an evaluation of monetary policy carried out by the government, especially the stability of interest rates on investment credit and economic growth in Indonesia.

Keywords: *Investment credit, interest rate, inflation, economic growth and formal employment*

PRELIMINARY

Investment is the placement of a number of funds in the hope of maintaining, increasing value, or providing a positive return Sutha, (2000). Investment is the investment of money in the hope of getting results and added value. According to Lypsey (1997), investment is the expenditure of goods that are not consumed at this time where based on the time period, investment is divided into three, namely short-term investment, medium-term investment, and long-term investment. Investment is a commitment of a number of funds in a period to get the expected income in the future as a unit of compensation. According to Sumanto (2006), investment is a commitment to a certain amount of funds in a period to get the expected income in the future as compensation for the unit invested. Meanwhile, the source of investment funds has a very strong relationship with capital credit through banks. Where investment credit is an amount of funds channeled by commercial banks to the public for investment purposes which are stated in rupiah units.

Meanwhile, Rahmawati research (2015) reveals that the banking sector plays an important role in increasing the economic growth of a country, through various forms of financial products owned, especially in the form of credit. One of the banking products that can be used as an alternative for financing by the business world is investment credit. Credit for investment purposes is very important for people to invest or carry out productive business activities which in turn will be useful for encouraging economic growth and in turn, it is hoped that it will improve the welfare of the community. Banks in channeling are very much determined by the demand for credit from the public (entrepreneurs). The growth in demand for investment credit is largely determined by several variables that are thought to affect the interest of the public (entrepreneurs) in submitting requests for investment credit, namely investment credit interest rates, inflation and GDP.

Similar to Nurjannah research, (2017) that the effect of investment credit has a significant effect on economic growth. In contrast to Gusnimar's research, (2019) that investment credit is influenced by inflation and interest rates for Regional Government Banks in Indonesia. Tahang, (2017) shows that the effect of investment credit on economic growth is not significant, while sectorally, investment credit has a significant effect on economic growth. Then the research of Kalesar, (2014) states that together the PDRB variable, the SBK investment rate, and the inflation have a real and significant effect on the variable demand for investment credit at commercial banks.

Ramli research, (2019) describes efforts to identify, trace, analyze demand for investment credit with monetary policy interactions. Where an increase in interest rates will reduce investment interest and reduce economic activity so that economic growth will contract. Meanwhile, Rachman, (2009) research analyzes the effect of working capital credit, investment credit, consumption credit activities on the level of economic growth, so it is concluded that the aforementioned variables partially affect economic growth and have an impact on increasing people's income. Furthermore, Budiyanthi research, (2018) empirically shows that there is a significant relationship between working capital loans and GRDP, but the effect is still very small. This shows that working capital loans have not been used optimally, while productive businesses are able to boost the economy.

Various theoretical phenomena and the results of the above studies, it can be concluded that the title of this research is investment credit analysis according to the economic sector in Indonesia so that it is of deep interest for the author to analyze the effect of interest rates on

investment credit, and how the effect of investment credit on inflation and economic growth and employment in Indonesia during the 2016-2020 period.

RESEARCH METHODOLOGY

Types and Sources of Data

The type of data used in this study is investment credit data for the economic sector, interest rates, inflation, economic growth and formal employment in Indonesia for the 2016-2020 period using panel data on 18 economic sectors in Indonesia. Meanwhile, data sources were obtained through scientific publications and BPS reports in the figures of the Republic of Indonesia.

Data analysis method

The data analysis method used is in accordance with the research objectives, namely the contraction model and simple linear regression through the Least Squares (NLS and ARMA) approach so that the model is transformed into variables as follows:

$$a = \frac{(\sum y) (\sum x^2) - (\sum x) (\sum xy)}{n(\sum x^2) - (\sum x)^2}$$

$$b = \frac{n(\sum xy) - (\sum x) (\sum y)}{n(\sum x^2) - (\sum x)^2}$$

ditransformasikan: $Y = \alpha + \beta X$

$$Y_{it} = \alpha_i + \beta_1 X'_{it} + \varepsilon_{it} \text{ or } Y_{it_SBR} = \alpha_i + \beta_1 X'_{it_KI} + \varepsilon_{it}$$

$$Y_{it} = \alpha_i + \beta_1 X'_{it} + \varepsilon_{it} \text{ or } Y_{it_INF} = \alpha_i + \beta_1 X'_{it_KI} + \varepsilon_{it}$$

$$Y_{it} = \alpha_i + \beta_1 X'_{it} + \varepsilon_{it} \text{ or } Y_{it_KI} = \alpha_i + \beta_1 X'_{it_PE} + \varepsilon_{it}$$

$$Y_{it} = \alpha_i + \beta_1 X'_{it} + \varepsilon_{it} \text{ or } Y_{it_KI} = \alpha_i + \beta_1 X'_{it_PTKF} + \varepsilon_{it}$$

keterangan:

Y_{it_SBR} = Interest Rate

Y_{it_INF} = Inflation

Y_{it_KI} = Credit Investation

α = Constant

β = Variable Coefficient

ε_1 = Disturbance or schochastic disorders

X'_{it_KI} = Credit Investation

X'_{it_PE} = Economic Growth

X'_{it_PTKF} = Formal Labor Absorption

RESULTS AND DISCUSSION

1. Effect of interest rates on investment credit

Following are the results of calculating the effect of interest rates on investment credit using a simple linear regression model through the Least Squares (NLS and ARMA) approach in the following table:

TABLE 1
Calculation Results of the Effect of Interest Rates on Investment Credit

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.257808	0.099145	53.03168	0.0000
X1	-2.91E-11	3.00E-11	-0.972462	0.3335
R-squared	0.010632	Mean dependent var		5.200000
Adjusted R-squared	-0.000611	S.D. dependent var		0.752524
S.E. of regression	0.752754	Akaike info criterion		2.291814
Sum squared resid	49.86414	Schwarz criterion		2.347365
Log likelihood	-101.1316	Hannan-Quinn criter.		2.314216
F-statistic	0.945683	Durbin-Watson stat		2.663672
Prob(F-statistic)	0.333486			

$$Y = 5.257808 - 2.91_{KI}$$

Signifikan (0,34)*

t-hitung (-0,97)**

R²: 0,010632

The results of simple linear regression calculations with the Least Squares (NLS and ARMA) approach to model the effect of interest rates on investment credit in Indonesia found a constant value of -2.91, meaning that if the interest rate increases by 1%, the value of investment credit decreases by 2.91. %. Meanwhile, interest rates do not have a significant effect on investment credit in the economic sector during the 2016-2020 period in Indonesia. The same is evident from the results of the probability test with an alpha value above 10% or 0.334. This means that the interest rate can determine the fluctuation in the value of investment credit in Indonesia, this is in line with the coefficient and probability test results through the R² test, which is only 1.06%. Meanwhile, the view of Keynes in Iswandono, (1990) emphasizes that the interest rate is not a critical variable in determining investment demand. However, according to Keynes, the critical variable is the variable that determines the expected profit or what is called the Marginal Efficiency of Investment.

Keynes argues that investment demand is inelastic to the interest rate. This means that changes in the interest rate lead to small changes in investment demand. The premise is that the expected return on investment will decline rapidly as the interest rate increases. However,

investment demand is expected to change if factors other than the interest rate change. The Keynesian flow opinion regarding the interest rate is explained through a theory known as the liquidity preferences theory. This theory explains that the interest rate determines whether or not there will be a lot of demand for liquid funds in the community. The demand for money has a negative relationship with the interest rate. The higher the interest rate, the lower the amount of real money balances demanded.

2. The effect of inflation on investment credit

Following are the results of calculating the effect of inflation on investment credit using a simple linear regression model through the Least Squares (NLS and ARMA) approach in the following table:

TABLE 2
Result of Calculation of Inflation Effect on Investment Credit

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.152340	0.080549	39.13551	0.0000
X1	-7.67E-11	2.42E-11	-3.163764	0.0021
R-squared	0.103180	Mean dependent var		3.000000
Adjusted R-squared	0.092871	S.D. dependent var		0.639602
S.E. of regression	0.609178	Akaike info criterion		1.868804
Sum squared resid	32.28553	Schwarz criterion		1.924728
Log likelihood	-81.16176	Hannan-Quinn criter.		1.891345
F-statistic	10.00940	Durbin-Watson stat		1.974179
Prob(F-statistic)	0.002146			

$$Y = 3.152340 - 7.67K_I$$

Signifikan (0,0021)*

t-hitung (-3,164)**

R²: 0,103180

The results of simple linear regression calculations with the Least Squares (NLS and ARMA) approach to model the influence of inflation on investment credit in Indonesia, it is found that a constant value of -7.67 means that if inflation increases by 1%, the value of investment credit falls by -7.67%. Then inflation has a significant effect on investment credit in the economic sector during the 2016-2020 period in Indonesia. This is evidenced by the results of the probability test with an alpha value below 5% or 0.0021. This means that if inflation increases, it will have an impact on decreasing investment credit in Indonesia, this is in line with the results of the coefficient and probability test through the R² test, the results are found to be 10.31%. Meanwhile, according to Mankiw view, (2003) states that the interest rate paid by banks is the nominal interest rate which is the sum of the real interest rate plus inflation.

Any increase or decrease in inflation will have an impact on the increase or decrease in the loan interest rate.

Interest rates and inflation are two important factors that influence lending activities. Both of them not only boosted lending rates but also made the risk of bad credit even greater and under these conditions bank credit activity must continue. On the other hand, BI's control over inflation is also very limited, because inflation is influenced by many factors. Therefore, BI always makes estimates on economic developments, particularly on the possibility of inflationary pressure. The decline in inflation during the 2000s provided room for movement and market expectations to lower SBI rates. The decline in SBI interest rates is expected to further stimulate economic activity by lowering bank lending rates, particularly investment credit. However, due to various causes of the rate cut has not been fully transmitted into the reduction in credit interest rates, which is expected to stimulate investment in the real sector.

3. The effect of investment credit on economic growth

Following are the results of calculating the effect of investment credit on economic growth using a simple linear regression model through the Least Squares (NLS and ARMA) approach in the following table:

TABLE 3
Results of Calculation of the Effect of Investment Credit on Economic Growth

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.82E+09	4.59E+08	3.964176	0.0001
X1	45367556	1.01E+08	0.450354	0.6536
R-squared	0.002299	Mean dependent var		1.98E+09
Adjusted R-squared	-0.009038	S.D. dependent var		2.66E+09
S.E. of regression	2.68E+09	Akaike info criterion		46.27496
Sum squared resid	6.30E+20	Schwarz criterion		46.33051
Log likelihood	-2080.373	Hannan-Quinn criter.		46.29736
F-statistic	0.202819	Durbin-Watson stat		1.503023
Prob(F-statistic)	0.653563			

$$Y = 1.82 + 453PE$$

Signifikan (0,654)*

t-hitung (0,450)**

R²: 0,002299

The results of simple linear regression calculations using the Least Squares (NLS and ARMA) approach to model the effect of investment credit on economic growth in Indonesia, found a constant value of 454 and did not have a significant effect on economic growth during the 2016-2020 period in Indonesia. The same is evident from the results of the probability test with an alpha value above 10% or 0.654. This means that during the 2016-2020 period,

investment credit does not affect economic growth in Indonesia, this is in line with the results of the coefficient and probability test through the R2 test, which is 0.0023%. Meanwhile, according to Kasmir, (2014) revealed that the function of credit for the community is to expand employment and increase community working capital. Investment credit has a positive relationship with economic development, this reciprocal relationship occurs because the higher the demand for credit will spur economic growth. To obtain a stable economy requires sufficiently high funds, with the existence of investment credit it can encourage capital demand to increase income and develop a company and will ultimately affect economic growth.

Looking at the reciprocal relationship between credit demand and economic development, the monetary policy taken is expansionary monetary policy because expansion policy must refer to the actual conditions of the economy, this policy increases the money supply, thereby overcoming unemployment and increasing people's purchasing power when the economy is weakening. However, if there is an increase in inflation, the monetary policy that will be taken is contractionary monetary policy, this policy is to suppress the economic rate. According to Schumpeter's theory in Sadono, (2013) emphasizes the importance of the role of entrepreneurs in realizing economic growth. In this theory, it is intended that entrepreneurs are a group that will continue to make reforms or innovations in economic activity.

4. The effect of investment credit on the absorption of formal labor

Following are the results of calculating the effect of investment credit on formal employment using a simple linear regression model through the Least Squares (NLS and ARMA) approach in the following table:

TABLE 4
Results of Calculation of the Effect of Investment Credit on Formal Labor Absorption

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.35E+10	8.45E+09	-2.783641	0.0066
X1	6.13E+08	2.03E+08	3.022818	0.0033
R-squared	0.095045	Mean dependent var		2.01E+09
Adjusted R-squared	0.084644	S.D. dependent var		2.67E+09
S.E. of regression	2.56E+09	Akaike info criterion		46.18273
Sum squared resid	5.68E+20	Schwarz criterion		46.23866
Log likelihood	-2053.132	Hannan-Quinn criter.		46.20528
F-statistic	9.137430	Durbin-Watson stat		1.522074
Prob(F-statistic)	0.003290			

$$Y = -2.35 + 6,13 PTKF$$

Signifikan (0,0033)*

t-hitung (3,023)**

R²: 0,095

The results of simple linear regression calculations with the Least Squares (NLS and ARMA) approach to model the effect of investment credit on the absorption of formal labor in Indonesia found a constant value of 6.13, meaning that if investment credit increases by 1%, formal employment will increase by 6.13 %. Then investment credit has a significant influence on the absorption of formal labor during the 2016-2020 period in Indonesia. This is evidenced by the results of the probability test with an alpha value above 5% or 0.0033. This means that during the 2016-2020 period, investment credit is very influential on the absorption of formal labor in Indonesia in line with the results of the coefficient and probability test through the R2 test, which is 0.095 or 9.5%. While the view according to Dornbush et al. (2008) in Samuelson and Nordhaus, (2001) reveals that labor absorption does not only occur due to investment, but also a derivative of the amount of output. Okun has stated that the relationship between unemployment and output is negative. A 2% reduction in output will increase unemployment by 1%. This statement can be reversed that an increase in output by 2% will increase labor absorption by 1%. When output increases, people's income increases, the demand for goods and services increases which results in entrepreneurs starting to add labor to increase production. When the output condition decreases, employers reduce the use of labor for efficiency.

CONCLUSION

The results of calculations with a simple linear regression model through the Least Squares (NLS and ARMA) approach, where the interest rate does not have a significant effect on investment credit in the economic sector during the 2016-2020 period in Indonesia as evidenced by the results of the probability test above 10% alpha or equal to 0.334 and in line with the results of the coefficient test through the R2 test, which is only 1.06%. Meanwhile, inflation has a significant effect on investment credit in the economic sector as evidenced by the results of the probability test with an alpha value below 5% or 0.0021. This means that if inflation increases, investment credit will decrease in Indonesia, this is evidenced by the R2 coefficient test, which is 10.31%. Then investment credit does not have a significant effect on economic growth during the 2016-2020 period in Indonesia. This is evidenced by the results of the probability test with an alpha value above 10% or 0.654 and in line with the results of the R2 coefficient test, which is 0.0023%. Furthermore, investment credit has a significant influence on the absorption of formal labor in Indonesia. This is evidenced by the results of the probability test with an alpha value above 5% or 0.0033. This means that investment credit is

very influential on the absorption of formal labor in Indonesia as evidenced by the results of the R2 test coefficient, which is 0.095 or 9.5%.

Suggestion

According to the investment credit analysis according to the economic sector in Indonesia during the 2016-2020 period, the interest rate is not significant for investment credit so that it can reduce the investment value itself and the government needs to evaluate monetary policy in maintaining the stability of the interest rate. Meanwhile, inflation is very significant for investment credit, while economic growth is not significant in line with the absorption of formal labor. This means that inflation and employment are considered by the government in formulating policies. Because the ultimate goal of economic development is to improve people's welfare. Jhingan (2014).

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