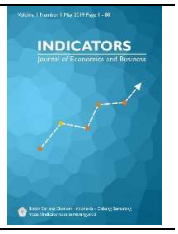
INDICATORS Vol. 5 (2)(2023)

INDICATORS

Journal of Economics and Business

http://indicators.iseisemarang.or.id/index.php/jebis



ANALYSIS OF INVESTMENT FUNCTIONS IN CENTRAL JAVA 1990-2021

Bimo Cendekiarto Anjarbanu[1], Firmansyah[2]

[1,2] Faculty of Economics and Business, Diponegoro University, Indonesia

Article Information

History of Article:
Received September 2023
Accepted September 2023
Published November 2023

Keywords:
Investment, Interest Rate, Inflation, GRDP, Partial Adjustment Model (PAM)

Abstrak

Penelitian ini memiliki tujuan untuk menganalisis faktor-faktor yang mempengaruhi investasi di Jawa Tengah. Faktor-faktor tersebut terdiri dari suku bunga, inflasi, dan PDRB. Penelitian ini menggunakan data time series dari tahun 1990-2021. Sumber data yang digunakan dalam penelitian ini adalah data sekunder. Metode analisis yang digunakan dalam penelitian ini adalah analisis regresi berganda (OLS) dengan metode Partial Adjustment Model (PAM) dan pemrograman yang digunakan dalam menganalisis data pada penelitian ini adalah aplikasi Eviews 10 dan SPSS 21. Hasil didapatkan dari penelitian ini adalah bahwa suku bunga dalam jangka pendek dan jangka panjang berpengaruh negatif dan signifikan terhadap investasi di Jawa Tengah. Inflasi dalam jangka pendek dan jangka panjang berpengaruh positif dan tidak signifikan terhadap investasi di Jawa Tengah. PDRB dalam jangka pendek dan jangka panjang berpengaruh negatif dan signifikan terhadap investasi di Jawa Tengah. Suku bunga, inflasi dan PDRB secara simultan berpengaruh signifikan terhadap investasi di Jawa Tengah.

Abstract

This study aims to analyze the factors that influence investment in Central Java. These factors consist of interest rates, inflation, and GRDP. This study uses time series data from 1990-2021. Source of data used in this research is secondary data. The analytical method used in this study is multiple regression analysis (OLS) with the Partial Adjustment Model (PAM) method and the programming used to analyze the data in this study is the Eviews 10 and SPSS 21 applications. The results obtained from this study are that interest rates in the short term and long term have a negative and significant effect on investment in Central Java. Inflation in the short term and long term has a positive and insignificant effect on investment in Central Java. GRDP in the short and long term has a negative and significant effect on investment in Central Java. Interest rates, inflation and GRDP simultaneously have a significant effect on investment in Central Java.

✉Correspondence:
Departemen Ekonomi Fakultas Ekonomika dan Bisnis, Universitas Diponegoro, Jl. Prof. Soedharto SH., Tembalang, Semarang 50239,
Phone: +622476486851
Email: firmansyah@live.undip.ac.id

INTRODUCTION

Investment is one of the factors that can influence the economy. A high investment value will cause an increase in capital. This additional capital can be used to purchase capital goods for production purposes. Increasing production factors will cause an increase in the availability of goods so that supply will increase. This increase in production activities can create wider employment opportunities which can have an impact on increasing people's income. An increase in people's income can encourage consumption so that demand in society will increase. This increase in demand can be met through an increase in investment.

Increased investment activities will encourage productivity and thus have an impact on economic growth. Economic growth is used to measure changes that occur in the economy in the area where economic growth is influenced by investment value. Sustainable economic growth can be created if the level of investment continues to increase. This sustainable growth is the main capital that will influence economic development.

Efforts to increase investment value which will have an impact on economic growth are not only carried out by the Central Government, but are also carried out by Regional Governments, one of which is Central Java. Central Java is a province with a strategic location because it is in the middle of Java Island. The Central Java Government, through the official Central Java website, stated that Central Java is one of the provinces that is able to attract investors to invest their capital, with several leading sectors such as manufacturing, property, energy and infrastructure.

Growth in investment value between Indonesia and Central Java moved in parallel during 2017-2021. In 2017-2019 the growth in investment value in Indonesia was smaller than in Central Java. In 2018 there was an increase in investment value in Indonesia by 6.68% and in Central Java the increase in investment value was 7.68%. In 2018, the growth that occurred in Indonesia was smaller than in Central Java, but the investment value in Indonesia was greater, namely Rp. 3,444.31 trillion, while in Central Java the existing investment value is Rp. 285.04 trillion.

In 2019 and 2020 there was a decline in investment value growth in Indonesia and also in Central Java. The decline in investment value in Central Java was greater when compared to the decline in investment growth in Indonesia. This decline was caused by pandemic conditions which caused a decline due to global uncertainty. This uncertainty causes investors to hold back their investments, causing a decline in investment growth. In 2021 there will be an increase in investment value, this is due to the recovery conditions due to the pandemic where the lockdown policy has begun to be relaxed, causing economic activity to start to move.

Changes in investment value that occur in Central Java are influenced by several factors. One thing that influences changes in investment value in Central Java is interest rates. According to Keynes, an investment can be implemented depending on the comparison between the size of the Marginal Efficiency of Capital (MEC) and the interest rate. When the MEC or desired profit is higher than the interest rate, the desired investment can be implemented. The use of MEC theory which explains the relationship between the rate of return on capital and interest rates is supported by data found in Central Java such as in 1990-1994 and 2021.

The next factor that can influence changes in investment value is inflation. According to Sukirno, increasing inflation can reduce investment. Inflation can be explained as an increase in the overall price level or average price. This increase in price levels in society can come from increases in production costs or increases in demand for goods and services. When high inflation occurs, this increase in prices can cause production costs to also increase. A high inflation rate can also mean that economic conditions in the area are out of control. Uncontrolled conditions will reduce the level of investor confidence, so that investors will refrain from investing. The theory regarding the inflation rate explained by Sukirno is supported by data found in Central Java such as in 1992, 1998 and 2018.

The next factor that can influence changes in investment value is Gross Regional Domestic Product. According to Samuelson and Nordhaus, changes that occur in the level of investment will be caused by changes that occur in the level of national income. GRDP is able to describe purchasing power conditions that occur in society. When there is an increase in purchasing power, the demand for goods and services in society will also increase. This increase in demand will cause the possibility of income that investors will receive to also increase. The accelerator theory used explains the changes that occur at the level of investment which will be caused by changes that occur at the level of national income, supported by data found in Central Java, such as in 2016-2019.

Analysis of the existence of research gaps found, such as that interest rates in 2014 increased to 12.36%, in this year the investment value also increased 4.52% more than the previous year. In 2020 there was a decrease in the interest rate to 8.88%, of which the investment value decreased by -6.98%. In 2013, the inflation variable increased, causing investment to increase by 4.39% to Rp. 211.22 trillion. In 2020, there was a decrease in inflation in Central Java, but the investment value in Central Java also decreased to Rp. 278.02 trillion. In the GRDP variable, there was an increase in 2001, which reduced the investment value by -11.49% to Rp. 87.54 trillion. In 2019, there was an increase in the GRDP value of 5.36%, with investment growth decreasing to 4.85% from the previous 7.68%.

These results are supported by research from Faroh & Shen (2015), and Swanitarini (2016) who found that Gross Regional Domestic Product has a positive influence on foreign direct investment in Indonesia. This change is due to the higher GRDP indicating the wider market that can be reached in the region. Subsequent research by Rahayu (2010) found that GRDP has a negative influence on investment. The contributing factor is that the use of foreign capital in investment causes the rupiah to depreciate so that economic activity will decline and then profits will be transferred abroad, causing the funds not to be reused for reinvestment purposes.

Research conducted by Ernita, Amar, & Syofyan (2013), and Sarungu & Endah (2013) found that interest rates have a negative and significant influence on investment in Indonesia. Inflation also has a significant and negative influence on investment in Indonesia. Based on this, when inflation and interest rates increase, the investment value will decrease. This change was caused by an increasing inflation rate indicating instability in prices. The increase in prices due to inflation itself also causes an increase in production costs that must be borne. Regarding interest rates, because interest rates are considered a cost that must be incurred to invest, an increase in interest rates will increase the costs that investors must bear.

Subsequent research conducted by Messakh and Amtiran (2019) found that inflation has a positive influence on investment. The increasing inflation rate still makes investors invest because the inflation rate that occurs is still acceptable and stable so that rising inflation is not considered a problem by investors. Subsequent research by Ojo (2014) found that interest rates have a positive influence on investment because an increase in interest rates is assumed to increase savings. This increase in the amount of savings will then further increase investment. The increase in interest rates is also still lower than the level of profit that will be obtained so that even though there is an increase in interest rates, investment will still increase.

LITERATURE REVIEW

Interest Rate

Interest rates can be interpreted as the price of a loan. Interest is defined as the cost of the resources that the creditor provides to the debtor and is obliged to pay back. The rate of return on capital obtained through investment activities carried out in an economy can be explained through the Marginal Efficiency of Capital (Sukirno, 2019: 86). Investors will decide to invest depending on the relationship between MEC and interest rates. When the MEC value is higher than the interest rate, investors decide to invest in their project, but when the MEC is lower than the interest rate, investors give up their intention to invest in their project. If the MEC value and interest rate

are the same, the investor has the right to decide whether to invest his capital or cancel the investment plan. MEC will depend on prospective returns on capital, and not just on current returns. When someone decides to invest, he buys the right to a series of prospective returns that will be obtained from the sale of his output after deducting operational costs and over the life of the asset (Keynes, 2002: 69).

Inflation

Inflation is explained as a situation when the overall price of goods in the economy increases or it could be said that the average price of goods increases. Some prices may rise and others may fall, but when the average price rises this can be said to be inflation. This increase in prices could have an impact on worsening economic conditions on the trade side. Inflation will cause the costs of production to increase. When production costs increase, additional capital is needed to carry out production activities. Traded goods will also have difficulty competing due to the cost of imported goods which will be relatively cheaper compared to domestic production when there is high inflation. Inflation rates that vary and tend to be high will increase unstable conditions in society. Uncertainty for creditors and debtors will make them save themselves from situations that might cause their companies to go bankrupt (Mankiw, 2022:337).

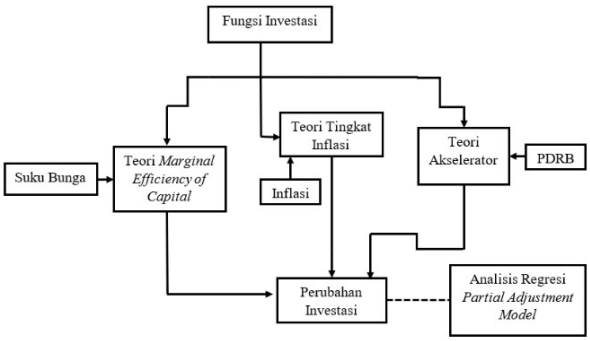
Gross Regional Domestic Product

GRDP is defined as the total value added of goods and services in a certain year or period from all economic activities produced throughout the region. The relationship between investment and national income can be explained by accelerator theory. Accelerator theory is a theory that explains how an increase in national income will encourage investment levels. An increase in national income means an increase in the supply and demand sides in the area. This increase means an increase in the profits obtained. This increase in profits will cause more investment projects to be carried out due to increased profit expectations and increased investor confidence. Based on this theory, rapid economic growth will stimulate investment and this will continue to happen until the point of a slowdown in economic growth (Samuelson and Nordhaus, 2009: 448).

Figure 1. Research Model

RESEARCH METHOD

This research uses 32 time series data and comes from 1990-2021. Time series data is a collection of data that is sorted according to the desired time range. There are two variables used in this research, namely the dependent



variable and the independent variable. The dependent variable used is investment and the independent variables used are interest rates, inflation and GRDP. In this research, data sources were used through secondary data. The source of the overall data in this research comes from the publication Jawa Tengah Dalam Angka, as well as several other sources through Lembaga Badan Pusat Statistik and Bank Indonesia. The method for collecting various data needed in research uses the library study method.

The method for analyzing this research uses quantitative descriptive analysis with multiple regression (OLS) via the Partial Adjustment Model (PAM). Multiple linear regression aims to test the influence of several independent variables on one dependent variable. The programming used to analyze the data in this research is the Eviews 10 and SPSS 21 applications. The model used in this research using the PAM method can be written as:

$$LnINV_t = \beta_0 + \beta_1 i_t + \beta_2 INF_t + \beta_3 LnPDRB_t + \beta_4 LnINV_{t-1} + e_t \quad (1.1)$$

Note:

INV_t	= Investment
i_t	= Interest Rate
INF_t	= Inflation
$PDRB_t$	= Gross Regional Domestic Product
β_0	= Constant
$\beta_1, \beta_2, \beta_3$	= Regression coefficient
e_t	= Error terms
Ln	= Natural logarithm
INV_{t-1}	= Investment in the previous year

RESULT AND DISCUSSION

In OLS multiple linear regression, before analyzing data using regression, classical assumption detection analysis is carried out. In this test, if the classic assumptions in this regression can be met then the estimation carried out will meet the BLUE (Best Linear Unbiased Estimator) criteria, which means the results of the test carried out are unbiased and the best. In a study, there are several classical assumption detection tests such as: Normality Test, Heteroscedasticity Test, Autocorrelation Test, and Multicollinearity Test.

Normality Test

The normality detection test uses the One-Sample Kolmogorov-Smirnov (K-S) test as a method for testing data normality. The Kolmogorov-Smirnov test is a test used to test the residual values in the model used. The results of the normality test using the Kolmogorov-Smirnov test obtained a probability value of 0.395, which is a value greater than 0.05 or 0.395 > 0.05, thus accepting H_0, in other words, in the research carried out the data was normally distributed.

Heteroscedasticity Test

Heteroscedasticity detection test uses the Breusch-Pagan-Godfrey test. The test carried out in this section is by looking at the comparison between the Obs*R-square probability and the significance used. The results of heteroscedasticity testing using the Breusch-Pagan-Godfrey method showed that the Obs*R-square probability value was 0.9818, which was greater than 0.05 or 0.9818 > 0.05, thus accepting H_0, which means that in the research carried out there is no heteroscedasticity problem.

Autocorrelation Test

The autocorrelation detection test used is the LM (Langrange Multiplier) test which is commonly known as the Breusch-Godfrey test. This test will focus on the Obs*R-squared probability value and will be compared at an alpha level of 0.05. Testing using the Breusch-Godfrey method shows that the Obs*R-square probability value is 0.6161, which is greater than the alpha level of 0.05 or 0.6161 > 0.05 so that H_0 is accepted, which means that in the research carried out there is no has an autocorrelation problem.

Multicollinearity Test

The multicollinearity detection test used is Auxiliary Regressions with Klein' rule of thumb. Auxiliary Regressions is a test by performing regression on each independent variable with the remaining independent variables. The results of multicollinearity testing using the Auxiliary Regressions and Klein' rule of thumb method show that the R^2 value from the regression results of investment variables with interest rate, inflation, GRDP and LnINV(-1) variables is 0.985415, which is the value that will be used as a reference. according to Klein's rule of thumb. The R^2 value from the regression results between the interest rate variable and the inflation, GRDP and LnINV(-1) variables is 0.827819, this value is smaller than the R^2 value in the reference or main regression. The R^2 value from the regression results between the inflation variable and the GRDP variable, and LnINV(-1) is 0.188038. This value is smaller than the R^2 value in the reference or main regression. The R^2 value from the regression results between the GRDP variable and the LnINV(-1) variable is 0.845794, this value is smaller than the R^2 value in the reference or main regression. Based on these results, it can be concluded that the overall R^2 results from the Auxiliary Regressions test are not greater than the R^2 value in the regression between the dependent

and independent variables, which means that there are no multicollinearity problems in the selected research.

Data Analysis

Based on Table 1 which contains the regression results using the PAM method, the following equation is obtained:

LnINV = 6,814043* – 0,038983i* + 0,000640INF – 0,182381LnPDRB* + 0,864749LnINV(-1)*

The coefficient value obtained in this model shows that the constant value obtained is 6.814043, meaning that if all independent variables are assumed to be constant, there will be an increase in investment value of 6.814043 percent. The interest rate shows a coefficient value of -0.038983, which means that if the interest rate increases by 1 percent, this will reduce the investment value by 0.038983 percent. For inflation, the results obtained show a coefficient value of 0.000640. The GRDP variable shows a coefficient value of -0.182381, which means that when GRDP increases by 1 percent, this will reduce the investment value by 0.182381 percent.

The investment variable in the previous year showed a coefficient value of 0.864749, which is the coefficient used for calculations in the long-term model. The investment variable in the previous year also has a probability value of 0.0000. This value is smaller than 0.05 or 0.0000 < 0.05, so the investment variable in the previous year is significant. The coefficient value for this variable is 0.8647, which is between 0 and 1 or 0 < 0.8647 < 1 and is positive so this model is appropriate according to Tri (2014:30) regarding the criteria that must be met in the PAM method.

Based on Table 1, it can be seen that the F-statistic has a value of 439.1515, which is a value greater than the F table value, namely 2.95 or 439.1515 > 2.9466. The F-statistic value is much better than the F table, it can be concluded that in this study the influence of the independent variables selected together is statistically significant on the dependent variable or the hypothesis H_0 is rejected and H_1 is accepted.

Table.1 Regression

Variabel	Coefficient	t Hitung
C	6,814043	5,839932*
I	-0,038983	-6,248894*
INF	0,000640	0,594166
LnPDRB	-0,182381	-2,161659*
LnINV (-1)	0,864749	13,71284*
R-squared	0,985415	
F Hitung	439,1515	

Source: Output Eviews, processed (2023)
Note: *= Significant at 0,05

The t-statistic value for interest rates is -6.248894 with the value from the t table used being 1.70113, so the calculated t value is much better than the t table value or 6.248894 > 1.70113. Based on this value, it can be concluded that partial or individual interest rates have a significant and negative influence in the t test. The t-statistic value for inflation is 0.594166 with the value from the t table used being 1.70113, so the calculated t value is less than the t table value or 0.594166 < 1.70113. Based on these values, it can be concluded that partial or individual inflation does not have a significant influence in the t test. The t-statistic value for the GRDP variable is -2.161659 with the value from the t table used being 1.70113, so the t-statistic value is greater than the t table value or 2.161659 > 1.70113. Based on these values, it can be concluded that partial or individual GRDP has a significant and negative influence in the t test.

The results of the regression analysis using the PAM method in the short term have obtained a lag coefficient value for the investment variable in the previous year of 0.864749 and through the cointegration test using the AEG method it has shown that there is a long-term relationship in the model where the residual value used is significant at 0, 0475 with an alpha of 0.05 at level level. Based on this, to obtain the coefficient value in the long term, calculations are then carried out using Microsoft Excel software in the following way:

$C_0 = \beta_0/(1- \beta_4)$ is the result of a constant long-term coefficient

$C_1 = \beta_1/(1- \beta_4)$ is the result of the long-term interest rate coefficient

$C_2 = \beta_2/(1- \beta_4)$ is the result of the long-term inflation coefficient

$C_3 = \beta_3/(1- \beta_4)$ is the result of the long-term GRDP coefficient

This calculation produces a coefficient

value in the long term which can be written as:

LnInv = 50,380722* - 0,288227i* + 0,004731INF - 1,348463LnPDRB*

The estimated value in the long term shows a constant value of 50.380722, meaning that if all independent variables are assumed to be constant, then there will be an increase in investment value of 50.380722 percent. The interest rate shows a coefficient value of -0.288227, which means that if the interest rate increases by 1 percent, this reduces the investment value by 0.288227 percent. For the inflation variable, the results obtained show a coefficient value of 0.004731. The GRDP variable shows a coefficient value of -1.348463, which means that when GRDP increases by 1 percent, this reduces the investment value by 1.348463 percent.

The Effect of Interest Rates on Investment

The results obtained are in accordance with the hypothesis formed that interest rates have a significant and negative influence on investment in Central Java. The interest rate can be interpreted as the price of the loan or as the cost of the resources that the creditor provides to the debtor and is obliged to pay back. When loan interest rates are high, the costs that must be incurred by debtors will increase, thereby increasing the burden that must be borne by investors.

Changes in interest rates in Central Java are shown in a decreasing graphic image. This decrease shows the government's desire to increase investment as the main cause of economic growth. The country's economy, which is primarily a developing country, still requires the role of other funding sources, both through PMA and PMDN. Interest rates that decrease or tend to be low will encourage increased distribution of capital to the community so that investment will increase. With the addition of these capital goods, it will encourage other economic activities so that it can trigger increased economic growth.

Investors will consider interest rates as a consideration for assessing the level of return on capital for the investment project they will undertake. Investors will compare the Marginal Efficiency of Capital value with interest rates. When the interest rate is lower than the MEC value, investors will invest their capital, but when the interest rate is higher than the MEC, investors will not invest their capital because it is considered unprofitable.

The results found in this research are supported by research from Sarungu and Endah (2013) who found that in the short and long term, credit interest rates have a significant and negative influence on the amount of investment. An increase in interest rates causes investors to allocate more funds to savings rather than capital and this increase reduces the profits they will receive because they are used to pay rising borrowing costs.

The Effect of Inflation on Investment

There is a discrepancy between the results and the hypothesis formed that inflation has a significant and negative influence on investment in Central Java. The results obtained are that in the short term and long term the influence of inflation is partially insignificant on investment in Central Java. Inflation can reduce the real income of people on fixed incomes because inflation usually occurs faster than wages themselves increase. Inflation can also cause production costs to increase. When there is an increase in production costs, supply will decrease.

In the Central Java region, the inflation that occurs has a positive impact on investment, although not significant, which means that increasing inflation causes investment to increase, however, this does not have a direct influence on investors. Rising prices generally cause increased production costs that investors must bear. The increase in production costs that occurred in Central Java was also accompanied by an increase in the prices of finished goods in the community. The increase in the price of finished goods is greater than the increase in production costs so that investors still gain profits.

The results found in this research are supported by research from Messakh and Amtiran (2019) which found that inflation has an insignificant and positive effect on investment. This means that changes in inflation do not have a direct effect on investors' decisions to invest. This result is because the inflation rate is relatively low and acceptable, so this does not have a direct effect on investors.

The Effect of GRDP on Investment

There is a discrepancy with the hypothesis formed that GRDP has a significant and positive influence on investment in Central Java. GRDP is interpreted as the total of all added value of goods and services in a certain year or period from all economic activities produced in all regions. In Central Java, investment responds negatively to an increase in GRDP, which means that an increase in

GRDP will reduce the value of investment. The proportion forming the GRDP value in Central Java is dominated by the manufacturing sector, whose proportion value to GRDP is above 30%. This high value shows the large influence and investment opportunities in the manufacturing sector as one of the leading sectors, however, the large influence of the manufacturing sector in Central Java is not supported by the easy availability of raw materials to carry out the production process.

In carrying out its production activities, the manufacturing sector must meet its raw material needs through imports from abroad. As can be seen in Central Java's trade balance, where there has been a trade deficit for years. The high level of imports in the raw material category shows that the existing sectors are still not optimal in meeting the needs for industrial raw materials. Apart from that, the high level of imports in the raw material category causes the domestic industrial sector to be dependent on global economic conditions. When the global economy is not in good condition or when there is a crisis, there will be an increase in raw material prices. This price increase will have an impact on production costs, most of which are still met through foreign imports, this condition will cause investors to reduce their investment due to reduced profits they will receive due to the increase in raw materials.

The relatively high use of foreign capital in Central Java also means that there is still a relatively large amount of foreign currency coming in. The relatively large influx of foreign currency will have an impact on the economic sector where the influx of foreign currency will reduce the exchange rate. This weakening exchange rate will cause production costs that still depend on imports to rise, thereby increasing the costs that must be incurred. Lagging factors in terms of human resource skills and technology are also other causes of declining investment despite an increase in GRDP.

The results found in this research are supported by research from Rahayu (2010) which found that GRDP has a negative and significant influence in the short term on investment. This means that changes in GRDP will directly influence investor decisions and every increase in GRDP will reduce investment. The contributing factor is that the use of foreign capital in investment causes the rupiah to depreciate so that economic activity will decline. The resulting profits are in the form of funds transferred from within the country to abroad, which then results in the funds not being able to be reused for reinvestment purposes.

CONCLUSION

Conclusions that can be drawn from research conducted regarding the influence of loan interest rates, inflation rates, and GRDP on investment in the Central Java region between 1990-2021:

1. Interest rates and GRDP in the short term and long term have a negative and significant influence on investment in Central Java.
2. Inflation in the short term and long term has an insignificant and positive influence on investment in Central Java.
3. Interest rates, inflation and GRDP simultaneously have a significant influence on investment in the Central Java region.

Based on research findings regarding the analysis of the influence of loan interest rates, inflation rates and GRDP on investment in Central Java in 1990-2021, suggestions or input regarding to the research results are proposed:

1. If the government wants to increase investment in Central Java, it is hoped that the government will be able to maintain more stable economic conditions. The government must also maintain loan interest rates at a relatively low level and adjust them to economic conditions so that capital distribution to the public can increase. The government as the policy holder must also maintain the inflation rate so that it is more stable.
2. The increase in GRDP value that occurred caused a decrease in the value of investment in Central Java, this change was caused by the suboptimal industrial sector in Central Java. The government must start preparing domestic industry so that raw materials for production activities can be fulfilled by themselves so that optimization occurs in the industrial sector. The government can also reduce the proportion of foreign capital used and increase investment with domestic capital to maintain the rupiah

exchange rate. The government must also develop capacity training for the community so that current developments are accompanied by qualified human resource skills.

3. In future research, we can increase the amount of data used and also include other additional factors such as exchange rates and workers' wages which are not part of this research. Future researchers can also use other dynamic models so that in subsequent research the results obtained can complement research that has been carried out previously.

REFERENCES

Badan Pusat Statistik. Berbagai Edisi dari Tahun 1990-2021. Jawa Tengah Dalam Angka. BPS Jawa Tengah. https://jateng.bps.go.id/publication/

Badan Pusat Statistik. Berbagai Edisi dari Tahun 1990-2021. IHK dan Inflasi Jawa Tengah. BPS Jawa Tengah. https://jateng.bps.go.id/indicator/3/56/1/ihk-dan-inflasi-35-kab-kota-jawa-tengah.html

Bank Indonesia. Berbagai Edisi Penerbitan. Suku Bunga Pinjaman Rupiah Yang Diberikan Menurut Kelompok Bank dan Jenis Pengeluaran. https://www.bi.go.id/seki/

Ernita, D., Amar, S., & Syofyan, E. (2013). Analisis Pertumbuhan Ekonomi Investasi, dan Konsumsi di Indonesia. Jurnal Kajian Ekonomi. Vol. I No. 2. https://ejournal.unp.ac.id/index.php/ekonomi/

Faroh, A., & Shen, H. (2015). Impact of Interest Rates on Foreign Direct Investment: Case Study Sierra Leone Economy. International Journal of Business Management and Economic Research. Vol. 6 (1), 124-132.

Gujarati, D. N., & Dawn C.P. (2009). Basic Econometrics 5th ed. New York: The McGraw-Hill Companies Inc.

Keynes, J.M. (2002). The General Theory of Employment, Interest and Money. America: Macmillan Cambridge University Press. https://www.marxists.org/reference/subject/economics/keynes/general-theory/

Mankiw, G. (2022). Macroeconomics 11th ed. New York: Worth Publishers.

Messakh, S.R., & Amtiran, P.Y. (2019). Pengaruh Inflasi dan Suku Bunga Terhadap Investasi Dalam Negeri di Indonesia. Journal of Management (SME's) Vol. 8 No.1, 1-15.

Ojo, A.S. (2014). Interest Rate Policy and Private Domestic Investment in Nigeria. The Business & Management Review. Vol. 5 No. 1, 250-254.

Samuelson, P.A., & Nordhaus, W.D. (2009). Economics 19th ed. New York: The McGraw-Hill Companies Inc.

Sarungu, J.J., & Endah, M. (2013). Analisis Faktor Yang Mempengaruhi Investasi di Indonesia Tahun 1990-2010: Metode ECM. Jurnal Ekonomi Kuantitatif Terapan Vol. 6 No. 2, 112-117

Sukirno, S. (2019). Makroekonomi Teori Pengantar Edisi Ketiga. Depok: Rajawali Pers.

Swanitarini, A. (2016). Jurnal Analisis Faktor-Faktor Yang Mempengaruhi Investasi Asing Langsung di Indonesia Tahun 2011- 2014. Jurnal Pendidikan dan Ekonomi. Vol. 5 No. 5, 365-372.

Tri, A. B. (2014). Regresi Model PAM, ECM dan Data Panel Dengan Eviews 7. Yogyakarta: KDT.

Rahayu, T. (2010). Analisis Faktor-Faktor Yang Mempengaruhi Penanaman Modal Asing di Indonesia 1994-2008. (Skripsi Sarjana, Universitas Sebelas Maret). http://digilib.uns.ac.id