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The Role of Monetary Policy on Economic Growth: Evidence from Indonesia

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ABSTRACT

The main determinant of a country's economic condition is economic growth. The analysis used in this study is Ordinary Least Square (OLS) regression analysis and aims to determine how the influence of the money supply (JUB), inflation (INF), and interest rates (BIRATE) on Indonesia's economic growth for the period 2002 to 2021. Inflation, the money supply, and interest rates are independent variables in this study, while economic growth is the dependent variable. The results showed that inflation had no effect on economic growth. The money supply variable has a positive effect on economic growth while the interest rate has a negative effect on economic growth.

Keywords: Economic Growth, OLS, Monetary Policy

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INTRODUCTION

Economic growth is the main factor that can reflect the economic condition of a country (Dogan & Inglesi-Lotz, 2020). A country that has a healthy economy can be interpreted that the country's economic condition is in good condition and an unhealthy economy can be interpreted that the country's economic condition is in a bad condition. Economic conditions in a country can be seen from GDP (Gross Domestic Product) (Warkawani et al., 2020). Gross Domestic Product is the total amount of merchandise and services with a predetermined time in a country (Salim, 2018).

Economic growth in a country is often associated with policies that have been set by the government in overcoming economic problems. To overcome economic problems, strategic and structured policies are needed in the form of monetary policy (Opriyanti & Wilantari, 2017). The purpose of monetary policy is to achieve and maintain the stability of the rupiah value, especially the stability of costs (inflation) and the rupiah exchange rate (Atmojo, 2018).

Meanwhile, according to Soebagiyo (2016) in his research stated that the implementation of monetary policy by the government regulates interest rates and the money supply. Both of these things must be regulated so that their movements do not affect economic growth. Monetary policy is applied to influence monetary indicators such as the money supply, inflation, and interest rates to be able to achieve the objectives.

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The following is data on Indonesia's economic growth according to prices that occurred in the period 2002-2021.

Table 1. Economic Growth Data for 2002-2021

No	Year	Economic growth (in percent)
1	2002	4,50
2	2003	4,78
3	2004	5,03
4	2005	5,69
5	2006	5,50
6	2007	6,35
7	2008	6,01
8	2009	4,63
9	2010	6,22
10	2011	6,17
11	2012	6,03
12	2013	5,56
13	2014	5,01
14	2015	4,88
15	2016	5,03
16	2017	5,07
17	2018	5,17
18	2019	5,02
19	2020	2,97
20	2021	5,02

Source: BPS, Data Processed (2022)

From the data on economic growth in Indonesia for the period 2002-2021, it shows that the data is fluctuating. Economic growth in Indonesia for the year 2002 was very low at 2.97 %. This is due to the Covid-19 outbreak that hit the whole world, including Indonesia, so that for 2020 Indonesia's economic growth will show a significant decline. Meanwhile, for the period 2010-2017 economic growth that occurred in Indonesia showed a continuous decline. These conditions require good management and policies to increase economic growth. By using monetary policy, it can be used to get an increase in economic growth and make economic growth stable in a country.

But according to Winarto et al., (2021), stating monetary policy is an important part of an economy, and economic growth will be difficult to understand if there is no monetary policy in it. Meanwhile (Dewi & Abdullah, 2018) explains that monetary policy is intended to help achieve macroeconomic goals, particularly rapid economic growth, stable prices, balance of development, and balance of payments equality.

Inflation, money supply, and interest rates are indicators of monetary policy in Indonesia that have an impact on economic growth. If the policy is able to keep the inflation rate very low, it will have a significant impact on economic activity. According to (Asnawi & Fitria, 2018) ideally the inflation rate to stimulate economic activity is less than 5%.

Bank Indonesia has a policy of increasing the BI Rate to reduce inflation (Mulyani, 2020). Savings is a function of interest rates . The motivation to save and invest in securities increases depending on the interest rate situation, which means that the increase in interest rates increases the chance that people will choose to save or invest in securities rather than consuming an item or product and are more concerned with saving their assets because they can outperform interest rates. high in terms of profitability (Sari & Ratno, 2020). A country's economic growth will increase when the SBI interest rate is low (Pratiwi et al., 2015) .

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Economic development is also influenced by the money supply. The increase in the money supply will lead to higher economic growth. As a result, people will use some of their money for consumption, so the demand for production increases, which in turn affects per capita income and economic growth (Asnawi & Fitria, 2018)The economic downturn will be caused by the low money supply. The welfare of society as a whole will also decline if this trend continues. As a result, money supply management must be carried out carefully and take into account the consequences (Hendayanti & Nurhidayati, 2017).

Based on the theory of monetarism put forward by Milton Friedman, said that the quantity theory of money briefly explains monetarism showing that, in the long run and long term, prices are influenced by the growth rate of money but have no effect on real growth. If the growth in the amount of money in circulation is greater than the rate of economic growth, this will affect inflation (Simanungkalit, 2020). This study also utilizes Schumpeter's theory to emphasize the importance of the role of entrepreneurship in achieving economic growth. The idea behind this theory is that entrepreneurs are a group of people who will continuously update or innovate economic activities. These innovations include introducing new products, making production processes more effective, expanding the goods market to new markets, finding new sources of raw materials , and restructuring the organization with the aim of making business operations run more smoothly.

According to the explanation above, monetary policy can be handled optimally to support economic growth in Indonesia. In accordance with the desired results, this policy seeks to encourage future domestic economic growth. The author tries to examine the extent to which monetary policy affects economic growth in Indonesia based on the problems and written conditions that motivate the author to carry out the research "Analysis of the Effect of Monetary Policy on Economic Growth in Indonesia in 2002-2021".

The purpose of this study is to determine the effect of inflation, the money supply on economic growth in Indonesia for the period 2002-2021. This research is expected to contribute to the government as a reference on how important it is to maintain the money supply and inflation rate in Indonesia so that the government can make more strategic policies in increasing economic growth. Contributions for further researchers that can be used as reference material for information for the coming year with the same variables.

METHODS

This type of research data uses secondary data in the form of time series data or time series in a 20-year time series starting from the 2002-2021 period. The data used in this study were sourced from the Ministry of Finance, the Central Statistics Agency (BPS), and Bank Indonesia. Secondary data is data that is not taken directly, which means that data is taken based on previous research or published libraries.

The purpose of this study is to find the effect of inflation, money supply, and interest rates on economic growth that occurred in Indonesia for the period 2002-2021. The analytical tool used for this research is Ordinary Least Square (OLS) regression analysis. In this study, the dependent variable, namely economic growth, is expressed in percent (%). While inflation, money supply and interest rates are independent variables in this study.

The econometric model of this research is a form of replication of the article (Budiyanto & Wibowo, 2021). The regression equation in this study is as follows:

$$GROWT_t = \beta_0 + \beta_1 INF_t + \beta_2 logJUB_t + \beta_3 BIRATE_t + \varepsilon_t$$

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GROWTH = Economic Growth (expressed in percent)
INF = Inflation (expressed in percent)
JUB = Money supply (expressed in billion rupiah)
BIRATE = Interest Rate (expressed in percent)
ε = Error Term (error factor)
$\beta 0$ = Constant
$\beta 1 \cdots \beta 3$ = Independent variable regression coefficient
log = Natural logarithm operator
t = Year to t

This study uses several stages of the classical assumption test econometric model estimation which includes multicollinearity test, residual normality test, autocorrelation test, heteroscedasticity test, and model specification test (Paramita et al., 2021).

RESULTS AND DISCUSSION

The following are the estimation results of the econometric model and its complementary tests which are presented in Table 2

Table 2. Econometric Model Estimation Results

$GROWTH_t$= 725,163 + 0.049 INF_t+ 4,327 $logJUB_t$– 53,563$BIRATE_t$
(0, 372) (0.046) ** (0.043) **
R2 = 0 · 335 ; DW-Stats. = 1,771 ; *F* = 2.696 ; Prob. *F* = 0.0 80
Diagnostic test
(1) Multicollinearity (VIF)
INF = 1.666; *logJUB* = 82,047; *BIRATE* = 83,992
(2) Residual Normality (Jarque Bera)
JB(2) = 1.458; *Prob. JB(2)* = 0.482
(3) Autocorrelation (Breusch Godfrey)
$\chi^2(3)$ = 0.716; Prob. $\chi^2(3)$ = 0.869
(4) Heteroscedasticity (White)
$\chi^2(7)$ = 10,654; Prob. $\chi^2(7)$ = 0.154
(5) Linearity (Ramsey Reset)
F (2.14) = 0.305; Prob. *F* (2.14) = 0.741

Note: *Significant at = 0.01; **Significant at = 0.05; ***Significant at = 0.10. The number in brackets is the empirical probability (p value) t-statistic
Source: Data Processed (2022)

The results of the diagnostic test showed that the empirical probability values for the Residual Normality, Autocorrelation, Heteroscedasticity, and Linearity tests were 0.482 (>0.10), 0.869 (>0.10), 0.154 (> 0.10) and 0.741 (> 0.10). This shows that the estimated model has a normal residual distribution, free from autocorrelation and heteroscedasticity. However, the estimated model has multicollinearity problems because the money supply and interest rate variables have a VIF value greater than 10. The following is table 3 which shows the value of the VIF test.

Table 3. VIF Test Results

Variable	VIF	Criteria	Conclusion
INF	1,666	< 10	Does not cause multicollinearity
logJUB	82,047	>10	Cause multicollinearity
BIRATE	83,992	> 10	Cause multicollinearity

Source: Data Processed (2022)

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The goodness of fit statistic proves that if the model exists, it can be shown in the empirical probability statistic F, the value is 0.080 (<0.10), with R^2 or moderate predictive power of 0.335. Means, 33.57 % of the variation of the variable Economic Growth (GROWTH) can be explained by the variables of Inflation (INF), Interest Rates (BIRATE), and the Money Supply (JUB).

Separately, economic growth is influenced by the money supply and interest rate variables, each of which has an empirical probability value t of 0.046 (< 0.05) and 0.043 (< 0.05). Economic growth is not influenced by the inflation variable because the empirical probability is 0.372 (> 0.10).

Table 4. Validity Test Results Influence of Independent Variables

Variable	Sig. t	Criteria	Conclusion
INF	0.372	>0.10	No significant effect
logJUB	0.046	0.05	There is a significant effect = 0.05
BIRATE	0.043	0.05	There is a significant effect = 0.05

Source: Data Processed (2022)

The Money Supply and Interest Rates are independent variables that have an effect on the Economic Growth variable, as shown by the effect validity test. Economic growth is not significantly influenced by the inflation variable.

The regression coefficient for the variable amount of money supply is 4.327. The Variable Amount of Money Supply and Economic Growth has a linear-logarithmic (lin-log) relationship pattern, so that an increase of 1% in the Amount of Money Supply variable will result in an increase in Economic Growth of 43.27%. On the other hand, economic growth will decrease by 43.27% if the money supply decreases by 1%.

The regression coefficient for the Interest Rate variable is -53.563. The variable interest rate and economic growth have a linear relationship pattern, so an increase in interest rates of 1% will result in a decrease in economic growth of -53.563 percent. On the other hand, economic growth will increase by -53.563% if interest rates fall by 1%.

Discussion of Economic Interpretation

The Effect of Inflation on Economic Growth

This study states that the inflation variable has no effect on the economic growth variable. The research hypothesis that inflation has an impact on economic growth is not supported by the results of this study. The theory that inflation has a broad impact on a country's economy is also challenged by the study. This is due to the fact that inflation in Indonesia, including in equilibrium, can be controlled and consolidated by the government.

The inflation rate in the 2002-2021 period moved up and down due to the government's strategy to increase fuel prices and an unexpected increase in imported products, resulting in inflation not having a direct impact on economic growth due to decreased purchasing power so that the economy could not run well. Increased production costs can slow down economic growth. As a result, the population reduces the demand for goods and services. So therefore, even if inflation falls over a period of time (quarters) it will not have a direct negative impact on economic growth. (Silvia et al., 2013) .

Basically inflation is not all inflation will have an impact on the economy. Especially if the inflation is mild whose value is below 10%. Mild inflation causes high economic growth. This is because inflation can inspire business actors to increase production even more. Entrepreneurs want to expand their production because higher prices lead to higher profits. The availability of new jobs is another positive effect of increasing production. If the value increases by more than 10%, inflation will have

a negative effect (Simanungkalit, 2020). According to research (Sari & Ratno, 2020) inflation has no effect on economic growth.

The Effect of the Money Supply on Economic Growth

This study states that the money supply has a positive effect on economic growth, meaning that economic growth will increase simultaneously with an increase in the money supply. The hypothesis which states that economic growth is influenced by the money supply is in line with the results of this study. The need for money will increase along with economic growth and increased economic activity. Because the money supply must be proportional to the ability of the economy, an increase in the money supply needs to be considered in this context (Warkawani et al., 2020).

Therefore, this study is compatible with research conducted by (Asnawi & Fitria, 2018) , stating that the money supply variable has a positive impact on economic growth in Indonesia. So the results of the description in this study prove that the increase in the money supply causes an increase in economic growth. This situation is related to the fact that when the money supply increases, people are willing to save a certain amount of money for consumption, consequently encouraging producers to produce very high quantities of goods and increase factors of production. Consumption, entrepreneurial productivity, and per capita income will all increase as a result encourage increased economic growth. Therefore, investment will increase as a result of an increase in the money supply, which will affect economic growth.

The Effect of Interest Rates on Economic Growth

This study found that interest rates have a positive effect on economic growth in Indonesia, meaning that the higher the interest rate , the lower the economic growth in Indonesia. Economic growth is influenced by interest rates as evidenced by the significant effect of interest rates on economic growth. This condition is in accordance with the fact that when interest rates are low, there is a demand for investment funds that is greater than the money supply (Ms). The expected return on capital expenditure, also known as the Marginal Efficiency of Investment or MEI which is another important factor that has a significant impact on investment. The MEI curve, which is negatively sloped and reflects the demand schedule for relevant investments across the economy.

This agrees with hypothesis which states that interest rates affect economic growth. So it can be concluded that providing evidence affects interest rates. This is because the interest rate is a cost of investment (cost of funds) and an increase will result in a decrease in investment. High investment as a result of low interest rates and will eventually result in increased economic growth. This is in accordance with the theory which shows that low interest rates can advance the rate of investment that can encourage economic growth, while continuously increasing interest rates can cause a decrease in the rate of investment which further slows economic growth. Investors lose interest in investing as a result of high interest rates due to higher fees. So it can be proven that interest rates have an effect on economic growth, both negative and positive effects. This problem is similar to research Fahrika (2016) which finds that the interest rate variable has a negative effect on economic growth.

CONCLUSION

Based on the research described above, it can be concluded that there is an influence between the money supply and interest rates on economic growth in Indonesia for the period 2002-2021. Inflation variable has no effect on economic growth. The money supply variable has a positive effect on economic growth while the Interest Rate variable has a negative effect on economic growth. Therefore, there are several suggestions that are expected to be a reference for the Indonesian government on how important it is to maintain the money supply and inflation rate so that the government can take more strategic economic growth policies. The government strengthens

supervision of money circulation through fiscal policy and Bank Indonesia strengthens supervision of money circulation through monetary policy. The government also needs to manage interest rates to anticipate exchange rate depreciation, not necessarily to anticipate inflation or price increases. This study is expected to help understand the monetary policy set by the central bank to maintain internal and external economic balance in order to achieve better economic growth. Contributions that can be a source of information for the next year's data on the same variable and given to additional researchers.

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