THE EFFECT OF INTEREST RATES, ECONOMIC GROWTH, AND INFLATION ON THE MONEY SUPPLY

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Abstract

Money plays a strategic role in economics and was often initially interpreted as a widely accepted means of payment, especially due to its primary function as a medium of transaction. The purpose of this study is to analyze the effects of interest rates, economic growth and inflation on the money supply. The variables observed in this study are the floating money in circulation (M1) as the dependent variable and interest rates, economic growth and inflation as the independent variables. The study uses secondary data from his 2013 to his 2022 from the Central Bureau of Statistics. This study uses multiple regression analysis with the SPSS program. The results of this study demonstrate that the independent variables (interest rates, GDP, and inflation) simultaneously affect the dependent variable (money supply). On the other hand, only interest rate variables affect the money supply, while GDP and inflation variables do not.

Keywords: ***Interest Rate, Economic Growth, Inflation, Money Supply.***

1. INTRODUCTION

The role of money in economics is highly strategic, and especially given that its primary function is as a means of transaction and exchange, money has always been initially interpreted as a universally accepted means of payment. As economic development progressed, the function of money, originally just a means of payment, evolved into a unit of account and a means of storing wealth. According to Iskandar Putong (2013), the money supply is the amount of currency duly issued by the central bank in the form of cash or site deposits and quasi-currencies issued by commercial banks.

The amount of money available is called the money supply. Mankiw (2007) argues that in an economy that uses commodity money, the money supply is the quantity of that commodity. In a fiat currency economy, the government controls the money supply. Legal regulations give states the exclusive right to print money.

Sukirno (2013) divides money into two meanings he has. The first is in a limited sense (M1): cash in circulation and site deposits held by individuals, businesses, and government agencies. His two broad senses of money in circulation (M2) include cash in circulation, site deposits, and quasi-money.

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The money supply is often associated with interest rates, economic growth and inflation. Too much money can drive up the price of commodities and cause inflation in general. If there is not enough money in circulation, economic activity will stagnate, businesses will decline more and more, and the unemployment rate will worsen. Based on this, the money supply should be adjusted to the performance of the economy.

Following are the developments in the money supply (M1), interest rates, economic growth, and inflation in Indonesia in the last ten years (2013-2022).

Year	Amount of Money in Circulation (M1) in Society (Y) – in billions of Rp	Interest Rate (X1) – in %	Economic Growth (X2) – in %	Inflation Rate (X3) – in %
2013	10.115.204,98	6,48	5,56	8,38
2014	10.865.293,85	7,54	5,01	8,36
2015	12.047.525,90	7,52	4,88	3,35
2016	13.508.108,49	6,00	5,03	3,02
2017	15.394.188,67	4,56	5,07	3,61
2018	16.721.124,39	5,10	5,17	3,13
2019	17.816.507,00	5,62	5,02	2,72
2020	20.166.847,99	4,25	2,07	1,68
2021	23.310.939,79	3,52	3,69	1,87
2022	28.081.236,52	4,00	3,70	5,51

Source: Data processed, 2023

Evolution of the four variables discussed above continues to drive change. Besides the money supply, other variables also fluctuate depending on the state of the economy. When Covid-19 hit the economy in 2020, very big changes happened. This was explained by Phytianti (2023) that many economic players were forced to survive due to restrictions on community activities due to the pandemic. The purpose of this study is to analyze the effects of interest rates, economic growth and inflation on the money supply. The variables observed in this study are the floating money in circulation (M1) as the dependent variable and interest rates, economic growth and inflation as the independent variables. The study uses secondary data from the Central Bureau of Statistics for 2013-2022.

2. LITERATURE REVIEW AND HYPOTHESIS

a. Effects of Interest Rates on the Money Supply

Maria (2017) argues that, in general, an increase in interest rates causes a decrease in the bank money supply, and conversely, a decrease in bank interest rates increases the

money supply. The prevailing interest rate is irrelevant for the money supply, as the demand for the product is closely related to the urgency of the money supply.

A previous study by Maria (2017) examining the impact of interest rates on money circulation in Timor-Leste described interest rates as having a significant negative impact on money circulation. This can be interpreted to mean that central banks can raise interest rates and government fiscal policy if they want to cut the money supply.

Contrary to the above explanation, a study conducted by Abdulkheir (2013) using his VECM states that interest rates in Saudi Arabia are positive in the long run and negative in the short run. Interest rate variables have a relationship that contradicts the hypothesis that rising interest rates actually increase the demand for money, and conversely, falling interest rates decrease the demand for money. This condition can occur because interest rates are less sensitive to the demand for money.

b. Effects of Inflation on the Money Supply

Moderate inflation can lead to an improvement in the economy, especially through higher national incomes, so people are keen on both saving and investing activities. During hyperinflation, the economy deteriorates and weakens, people are no longer willing to work, earn money, produce and invest.

Mankiw (2007) explains that the cost of inflation is divided into two parts: the cost of expected inflation and the cost of unexpected inflation. The cost of this unanticipated inflation is more damaging than the cost of expected inflation, leading to an indiscriminate redistribution of wealth among individuals.

Based on previous research results by Khairiati & Sari (2019) using the ARDL model, inflation has a significant positive impact on the Indonesian money supply. In contrast to Maria (2017), East Timor does not yet have its own currency, uses the freely circulating US dollar, and cannot control inflation, so the results of the inflation survey have had a significant negative impact on East Timor's money supply.

c. The Effect of Gross Domestic Product on the Money Supply

Of all the much-discussed economic theories, it seems that this discussion of national income is the most interesting part to discuss because it is a benchmark for a nation's economy. Rosyidi (2012) states that there is no country in the world that does not attach importance to the issue of national income, national income is considered the main pillar of economic political support. This means that in the direction of increasing national income, almost all policies in the economic sector are focused.

To appreciate the importance of GDP according to Mankiw (2007) one only needs to glance at international data, when compared to poorer countries which means lower GDP, countries with high GDP have everything, from better nutrition, access to entertainment such

as availability of TV per household, etc. A large GDP does not guarantee the happiness of all residents of a country, but is the best recipe for happiness offered by macroeconomists

Nurhasan et al (2023) also stated that the level of economic growth is an indicator of the success of a country in managing all available resources and the welfare of society and its success in development.

In general, there is a positive correlation between the number and quality of production factors and GDP Suparmoko (2000). The more capital instruments, labor force, natural resources, advanced technology and social conditions that support economic growth are introduced, the more the country's GDP, or national income, increases. And there is a positive relationship between economic growth and the money supply.

A study by Tussolih (2022) found that the higher the income of people, the more money was in circulation because they made larger transactions. In this study, non-cash transaction variables are used as moderator variables that can strengthen the relationship between GDP and money supply. A study by Martins and Pedro (2013) shows that real GDP has a clear positive impact on money demand in the long run and a negative impact in the short run. Real GDP tends to be the most important determinant of currency demand (m1) in Nigeria, according to the results of the research conducted. The results also show that Nigeria is not immune to external shocks from capital flight in the short term, as indicated by the real exchange rate coefficient. Nigeria's capital demand (m1) is said to be stable during the study period.
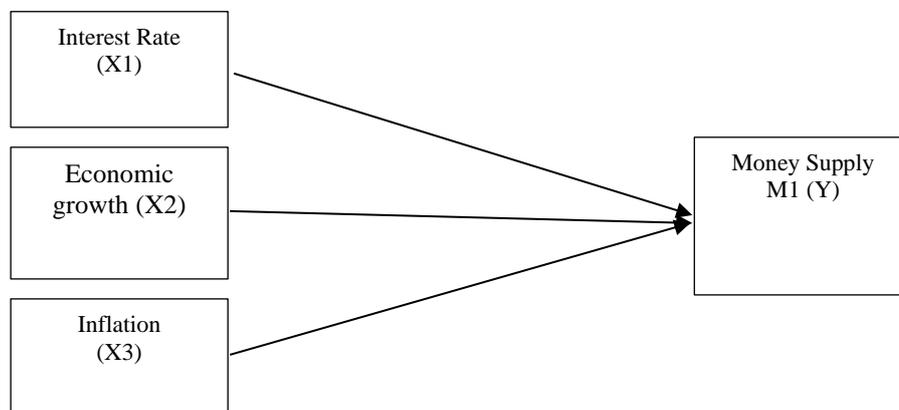
Conceptual frame work

Based on the conceptual framework above, the variables observed in this study are the variable amount of money in circulation (M1) as the dependent variable, then interest rates, economic growth, and inflation as independent variables. Partially, each of them will be tested using the t test, while simultaneously the F test will be used.

hypothesis

1. It is suspected that the interest rate has a negative and significant effect on the money supply.
2. It is suspected that GDP has a positive and significant effect on the money supply.
3. It is suspected that inflation has a positive and significant effect on the money supply.

3. RESEARCH METHODS

a. Data Types and Sources

The type of data used in this study is time series data including data on the amount of money in circulation (M1), interest rates, economic growth, and inflation from 2013 to 2022. The data sources in this study were taken from several sources including the Central Bureau of Statistics (BPS) and other sites related to this research.

b. Analysis Method

The analytical method in this study uses multiple linear regression methods, by showing the relationship of the independent variables, namely interest rates, economic growth, and inflation with the dependent variable, namely the amount of money in circulation (M1). The Reduce form in this analysis is as follows:

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + e$$

β_0: Intercept
β_1: Regression coefficient of the interest rate variable
β_2: The regression coefficient of the GDP variable
β_3: Inflation variable regression coefficient
e: Error term (interfering variable)
Y: The money supply

4. RESULTS AND DISCUSSION

1. Hypothesis test

Variabel	Coefficient	Std. Error	T-Statistic	Prob.
C	38.601.591,52	5.435.821,60	7,101	0,000
Interest Rate	- 2.982.761,28	1.088.303,68	- 2,741	0,034
Growth	- 1.413.275,38	1.393.177,92	- 1,014	0,350
Inflasi	209.465,47	565.828,08	0,370	0,724
R-Squared				0,762
Adjusted R-Squared				0,642
F-Statistic				6,391
Prob. (F-Statistic)				0,027

Source: Data processed, 2023

2. Decision Analysis (R2)

Based on the table above, the R2 value is 0.762 or 76.2%. This shows that the expression of the influence of the independent variables (interest rate, GDP, inflation) on the dependent variable (money supply) is 76.2%. On the other hand, 23.8% are influenced by other variables not considered in this research model.

3. Simultaneous regression coefficient test (Test F)

Using the ANOVA table in the Appendix, we can conclude that H0 is rejected and H1 is accepted. This can be seen from the Fcount value of 6.39. The significance value is 0.027, but less than 0.05. Therefore, the independent variables (interest rate, GDP, inflation) affect the dependent variable (money supply).

4. Partial regression coefficient test (t-test)

Using the table of coefficients in the appendix, we can conclude that H0 is rejected and H1 is accepted. This can be seen from the Tcount value of -2.74. The significance value is 0.034, but less than 0.05. Therefore, if the other independent variables are fixed and the interest rate increases by 1%, the money supply will decrease by IDR 2,982,761.28.

5. Relationship between GDP and money supply

Using the table of coefficients in the appendix, you can decide if H0 is accepted and H1 is rejected. This can be seen from the Tcount value of -1.01. The significance value is 0.350, which is greater than 0.05. Therefore, there is no partial effect of GDP on money supply.

6. Money supply inflation

Using the table of coefficients in the appendix, you can decide if H0 is accepted and H1 is rejected. This can be seen from the Tcount value of 0.37. The significance value is 0.720, which is greater than 0.05. Therefore, there is no partial effect of inflation on the money supply.

5. CONCLUSION

Based on our research on the impact of interest rates, GDP and inflation on the Indonesian money supply (M1), we can draw the following conclusions.

1. In Indonesia, the independent variables (interest rate, GDP, inflation) affect the dependent variable (money supply) simultaneously.
2. There is a partial negative impact between the independent variable (interest rate) and the dependent variable (money supply) in Indonesia.
3. In some cases, there is no significant effect between the GDP variable and the dependent variable (money supply).

4. There may be no partial effect of inflation on the money supply.

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