

## Analysis of Factors Affecting Inflation in Indonesia 2015 - 2020

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### Abstract

Inflation is the most important indicator of the economy, and the exchange rate always tries to be lower and stay stable. If the levels are going high and become unstable, that will reflect a general and continuous increase in the prices of goods and services, weakening purchasing power of the population and thereby reducing national income. As a result, the inflation rate must be under control, and the recent growth curve is visible. This study aims to analyze the factors that affect inflation in Indonesia for the 2015-2020 period and uses the Engel Granger (ECM) model error correction test to learn about the effect of variables such as currency supply and demand, interest rates and rate of exchange on inflation. The results conclude that it has a positive and significant effect on the inflation rate in Indonesia. At the same time, the Rupiah money supply is positive and insignificant compared to Indonesia's inflation rate.

### Keyword

Inflation, rate of exchange, currency supply and demand, interest rates and rate of exchange on inflation

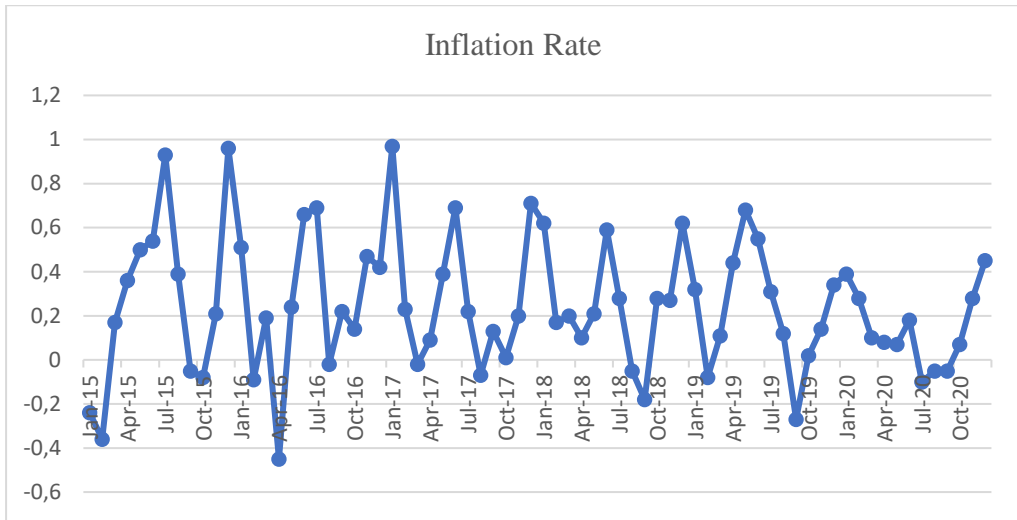
## 1. Introduction

Indonesia belongs to one of the 11 Southeast Asian countries where nature of the country is still said to be a developing country. With its economic structure, which is still agrarian, Indonesia is still prone to the potential collapse of the national economy. The economy is the main factor that must be monitored because if the country's economy is in a state of ups and downs in its graph, it can cause economic problems, for example, low economic development, high unemployment rate and rising inflation rate. Financial stability is measured from where the economic growth factor can occur.

According to Atmadja (1999), inflation is an increase in all goods prevailing in a country. Each country has a plan to always keep the inflation rate at a low and stable level which the central bank manages. This will provide benefits for the country, namely the realization of healthy economic growth, increased employment opportunities, and goods and services that can be fulfilled for the community. In general, inflation can cause the emergence of public responsibility for the social costs borne. Inflation can give a loss to the distribution of income. Every resident with a low or fixed income will feel the burden of inflation, which is so detrimental to both the government and the community itself that people's desire to spend something will decrease.

Meanwhile, people with medium and high incomes tend to have stored valuable assets that can be used as a helper in inflation, such as savings in banks and time deposits. It is useful for maintaining their economy so that their purchasing power remains relatively constant. In addition, other negative impacts of inflation hamper the economic development of the community at large for each country.

There are many triggers that have the potential to directly change the inflation rate in Indonesia. One of them is the interest rate applied by Bank Indonesia, which is an important instrument in changing the inflation rate in Indonesia. Public savings, credit, and bank deposits are part of the interest rate that can be used as a trigger for inflation. Del Negro et al. (2019) explaining the rise and fall of interest rates can have an effect on macroeconomic variables and then continue to the inflation rate. The change in interest rates is intended to avoid the potential for rising inflation by reducing the pace of community economic activity. When interest rates increase, this is also accompanied by increases in credit and deposits. Interest rates rose due to an increase in deposits. The increase in deposits has an impact on increasing public money in banks because people are more trying to save their money in banks so that people's desire to spend will decrease, and the money supply will also decrease. An increase in interest rates will always have an effect on business actors in doing a business where they deliberately reduce the amount to be invested due to the high cost of capital. In the end, with economic activity that becomes more muted, it will be followed by reduced inflationary pressure. The increase in deposits has an impact on increasing public money in banks because people are more trying to save their money in banks so that people's desire to spend will decrease, and the money supply will also decrease (Bauer & Rudebusch, 2020). An increase in interest rates will always have an effect on business actors in doing a business where they deliberately reduce the amount to be invested due to the high cost of capital. In the end, with economic activity that becomes more muted, it will be followed by reduced inflationary pressure. The increase in deposits has an impact on increasing public money in banks because people are more trying to save their money in banks so that people's desire to spend will decrease, and the money supply will also decrease. An increase in interest rates will always have an effect on business actors in doing a business where they deliberately reduce the amount to be invested due to the high cost of capital. In the end, economic activity that becomes more muted will be followed by reduced inflationary pressure (Engel, 2016).



Source: Indonesian Central Bureau of Statistics (2020a)

**Figure 1.** Graph of Inflation Rate in Indonesia

The results of the above data taken from the Central Statistics Agency for 2015-2020 explain that in January 2017, there was a significant increase, reaching 0.97. This is in contrast to the figure in October 2016, which was at 0.2. The main contributor to this inflation was due to an increase in 4 prices, namely an increase in management costs, adjustment of electricity tariffs, vehicle registration certificates (STNK), and increases in prices for basic commodities such as chicken meat cayenne pepper, eggs and so on.

The government is making efforts to increase the pace of economic development, which is expected to accelerate over time. One of them is by implementing the development of the financial sector, which is expected to grow rapidly (Madura, 2020; Pattawe et al., 2022). However, over time, monetary developments even had the opposite impact, causing the relationship between economic growth, the money supply, and the inflation rate to be shaken, resulting in a monetary crisis and destroying parts of the economy. One of the cases that occurred was in Indonesia, where the economic and political crisis in 1998-1999 resulted in severe economic damage. According to Langi (2014), a prolonged increase in the money supply will have an effect on goods and services, which tend to increase in price.

The high acceleration of growth in the money supply in a country leads to high inflation developments, conversely, the low developments in the money supply will be followed by low inflation rates. According to Dornbusch & Fischer (1993), inflation is considered a phenomenon or event in monetary which will not last long if it is not accompanied by a high rate of development of the money supply. It can be concluded that an increase in the money supply will also result in an increase in inflation. This happens because the relationship between inflation and the money supply is positively correlated.

If when the value of state money is said to be appreciated, the sale of domestic goods and services is high, and the sale of foreign goods and services is low. On the contrary, if the value

of a country's money is depreciating, then the sale of domestic goods and services is low and selling goods and services abroad is high (Mishkin, 2012).

With the value of the country's currency depreciating, which will affect the currencies of other countries, it also causes the cost of importing goods and services to increase, for example, capital goods, raw materials, and consumer goods. The initial step taken to avoid the high cost of imports is to increase the selling price of the goods produced by domestic producers. So that the domestic price level, which is a reflection of the inflation rate, will also increase. In this way, it can be concluded that there is a positive relationship between the exchange rate and the inflation rate. Therefore, this study analyzes the factors that affect inflation in Indonesia for the 2015-2020 period and uses the Engel Granger (ECM) model error correction test to learn about the effect of variables such as currency supply and demand, interest rates and rate of exchange on inflation

## **2. Literature Review**

### **2.1 Inflation Theory**

Economists have found many definitions related to inflation, but until now, they have not obtained a precise definition and are also agreed by many economists around the world. Hansen (2016) defines inflation as "a sustained tendency for a general price." According to this definition, a general increase in prices wherein the increase is only in a single time is not a driver due to the cause of inflation. The definition of inflation includes 3 meanings; 1) the potential for prices to increase with price levels that tend to rise and fall at the actual price level or commonly referred to as Tendency; 2) price increases that are continuous for a long time or commonly referred to as Sustained;

Keynes's theory quoted from Atmadja (1999) said that people who have a strong desire to live beyond the limits of their economic capacity are the cause of inflation. The process of inflation itself can be described as the struggle for a structure that targets a structure that is larger than the available capacity of the community. From this process, an event called the inflationary gap arises, which is an excess of the amount available from the public towards the demand for an item. This aims to make the purchase plan of a request more effective against public funds. If this exceeds the amount of available output from many groups of people, it will have an impact on prices going up (the inflationary gap will increase).

### **2.2 The Money Supply Theory**

According to Perlambang (2017), The Central Bank of the United States fully controls the money supply in the world, either increasing or decreasing the money supply through the open market. Central bank policy does not only determine the money supply but also controls the amount of money, both between households holding money and banks holding money. The forms of money circulating in the community include foreign currency and deposits resulting from household transactions at existing banks. This can be concluded in a formula where M is the money supply equal to the sum of foreign exchange as C and demand deposits as D. This can be written in the following formula:

$$\mathbf{M = C + D}$$

### **2.3 Interest Rate Theory**

According to the elaboration of Bank Indonesia (BI), the interest rate is defined as a tool that has been determined at the Board of Governors meeting once every three months (quarterly). The interest rate is a reference for monetary control in which banks keep the average 1-month SBI at the level that should be at the open market auction results. This is intended so that fellow banks equally affect each other's interest rates and for a longer time. The determination of the 1-month SBI is carried out continuously and gradually. By setting the interest rate, the governor has thought about two things. First, the policy reaction function regulates the recommended interest rate with the economic model in achieving inflation on target. Second, a collection of useful economic information such as the results of economic research, expert opinions, economic surveys, macroeconomic indicators, and so on.

Until now, the central bank has used the interest rate (BI rate) to control the inflation rate. In the event of an increase in inflation, Bank Indonesia took action by increasing the interest rate in the hope that the inflation rate would decrease. The changes in interest rates have an impact on financial markets and capital markets. An increase in interest rates will result in an increase in interest expense. This will have a very heavy impact on companies that have a fairly high average. In addition, stock prices will also be affected because this increase has the potential to reduce the company's profitability (Mishkin, 2012).

### **2.4 Exchange Rate Theory**

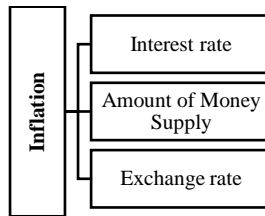
According to Hamdy (2008), the exchange rate is considered as a reference price of one particular currency against other currencies covering the whole world. For example, the value of the rupiah will be exchanged against the value of US USD. The exchange rate is an important indicator to be able to influence economic activities, both from the stock market and the money market, with investors as actors. To start investing, investors have the attitude to always be careful in choosing the company to invest in. This is deliberately done in order to avoid fatal mistakes that can be detrimental to both investors and the company itself. According to Fahlevi (2019), the decline in the rupiah exchange rate can trigger a negative impact on both the economy and the capital market. The Indonesian economy has strong pressure on the exchange rate. This is further strengthened by increasing economic activity since the crisis in 1998-1999, with as much as 75 per cent of the depreciation of the exchange rate from year to year.

### **2.5 Framework**

Macroeconomists have put forward a theory in which inflation is indicated by the level of prices for goods and services that goes up continuously over a long period of time. According to Langi (2014), there are two parts that can affect inflation: demand-pull inflation and cost-push inflation. The Inflation Targeting Framework (ITF) is the process of creating a monetary authority with a monetary policy system that aims to avoid inflation changes, both from the supply and demand sides, by setting interest rates.

Inflation begins when the central bank increases the volume of money in order to keep economic activities such as buying and selling transactions going. This is reasonable so that economic growth will also continue to increase in relation to the determination of Indonesia's interest rates. On the supply side, the increase in the price of goods and services is a factor in the

emergence of pressure on production costs which then encourages inflation which causes producers to spend more money to buy certain types of goods so that they must be exchanged from rupiah to dollars as a transaction tool. The imbalance between the rupiah and the dollar and even the depreciation of the rupiah will increase inflation in Indonesia. An increase in the price of goods and services is a factor that causes pressure on production costs which then encourages inflation which causes producers to spend more money to buy certain kinds of goods so that they must be exchanged from rupiah to dollars as a transaction tool.



**Figure 2.** Thinking Framework

### 3. Research Method

#### 3.1 Types of Data and Sources

This study uses monthly data with an observation period of 5 years in the form of time series data. The five-year observation period starts from January 2015 - December 2020 and is quantitative data. The data in this study uses the inflation rate (INF) as the independent variable, while the dependent variable consists of the money supply (M2), an exchange rate (EXCHANGE), and interest rates (BIR). The purpose of the method used is to determine whether the three variables directly influence the inflation rate in Indonesia. From each of these variables, this data is secondary data, which can be obtained from the Indonesian Statistics Agency, Bank Indonesia (BI) website, and other reference journals. The data used has a function as a reference object for each variable.

#### 3.2 Variable Research

The types of variables used are dependent and independent variables. A dependent variable is a variable that is influenced by the independent variable. The dependent variable, the inflation rate, is a measuring tool in a country's economy. The data used is on Indonesia's inflation rate from 2015 – 2020. The independent variables are variables that make a change or the emergence of dependent variables. The independent variables are the money supply, interest rates, and exchange rate in Indonesia from 2015 – 2020.

#### 3.3 Analysis Model

The model used by the researcher is by using the Error Correction Model (ECM) analysis calculation tool with the application tool, namely Eviews. With this model, it is expected to be able to see whether there is a relationship between the short and long term for each of the variables to be studied. Testing the data using the stationarity test and the integrity test with the unit root in order to see if the data used is stationary or not. The results of the stationarity test were carried

out by comparing the Augmented Dickey-Fuller (ADF) statistic with the McKenon critical value. The integrity test tests whether the regression residual is stationary or not. The model used is as follows:

$$\mathbf{INF_t = 0 + 1JUB_t + 2NT_t + 3BIR_t + E_t}$$

Where:

INF = Inflation Rate

JUB = Total Money Supply (Billion Rupiah)

NT = Exchange Rate

BIR = interest rate (%)

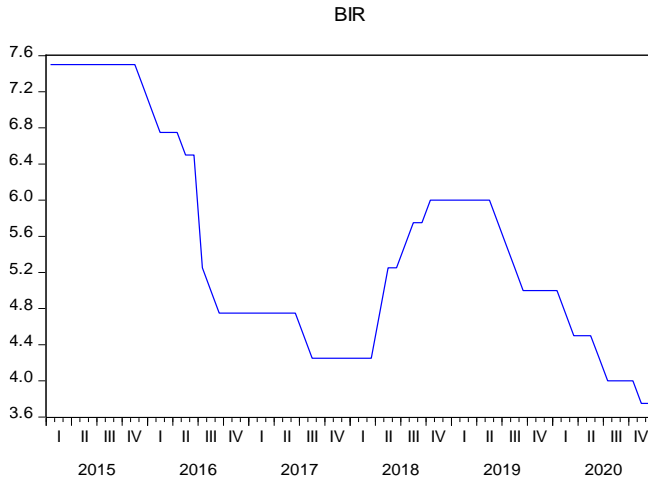
e = error

Researchers used monthly data starting from 2015 M1 to 2020 M12. If the estimation results show that the value is smaller than the probability value, the less likely the hypothesis is to reject  $H_0$ , or it can be interpreted that the hypothesis is close to justification and vice versa if the number shows greater than the probability, the more likely the hypothesis is to reject  $H_0$ , or it can be interpreted the hypothesis evades justification. In practice, the first thing to do is to determine the arbitrator who is between 1%, 5% and 10%.

## **4. Result**

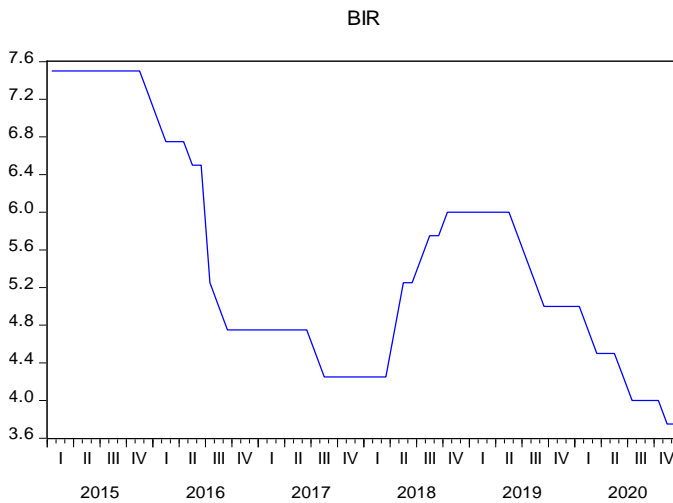
### **4.1 Explanation**

Figure 3 is explained that Indonesia's interest rate fell significantly in 2016. There are 4 reasons why the central bank cut its benchmark interest rate. First, from 2017 until the middle of the year, inflation was at a lower level than previously estimated, reaching 4%. This has already been calculated on the impact of the tariff increase on electricity costs. By lowering the benchmark interest rate, the inflation rate in Indonesia can be controlled and kept low. Second is the controlled level of the current account deficit (CAD) at a stage of up to 2 per cent of gross domestic product (GDP). Third, the factor in external risk where the policies implemented by the US Federal Bank began to subside.



Source: Indonesian Central Bureau of Statistics (2020b)

Figure 3. BI Rate in Indonesia

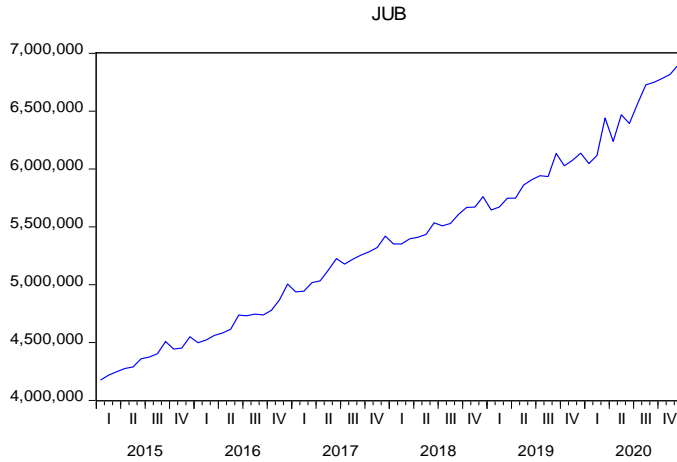


Source: Indonesian Central Bureau of Statistics (2020b)

Figure 3. BI Rate in Indonesia

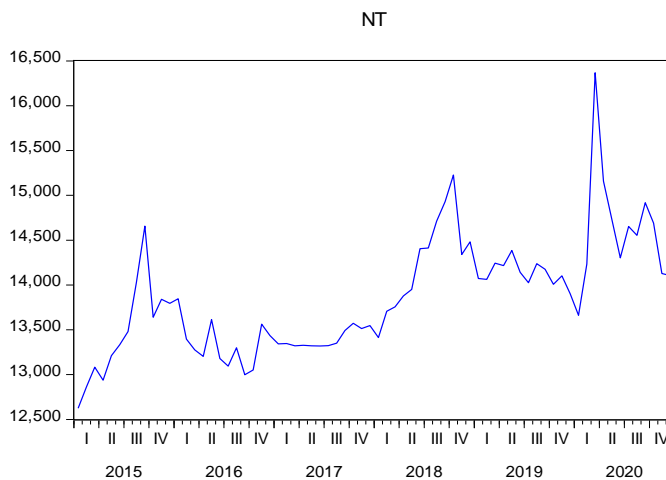
Although the level of money supply in Indonesia has experienced instability from year to year, based on Figure 2, the graph has a trend which shows an increase from year to year. If the money supply increases, it can trigger inflation in the country. Bank Indonesia released the amount of money in circulation (M2) in August 2015 grew 13.3 per cent on an annual basis after growing 12.5 per cent in the previous months. M2 is the accumulation of currency, quasi-money, and securities resulting from issuance to the private domestic sector within a period of one year by the monetary system.

According to BI, the acceleration of bank lending grew at a higher rate than before, resulting in increased M2 growth in Indonesia. This slowdown began in September 2013.



Source: Indonesian Central Bureau of Statistics (2020c)

**Figure 4.** The Level of Money Supply in Indonesia



**Figure 5.** Exchange Rates in Indonesia

As described above, the Indonesian exchange rate against the dollar is increasingly difficult to control. In 2020, it was at its maximum peak value of IDR 16,500. It was the lowest decline in the exchange rate since 1998. Then the following month, the exchange rate strengthened significantly, reaching a value of IDR 14,000. The reason is that investors and market participants sell assets in USD in a compact manner. This has led to an increase in the USD exchange rate, both in national and global markets. In addition, the Covid-19 virus pandemic that is still ongoing in countries currently has contributed to the volatility of the exchange rate in Indonesia. BI is making strong efforts to continue to keep the exchange rate in Indonesia at a low value during the Covid-19 pandemic.

### 4.2 Unit Root Test

The first step before estimating the Error Correction Models (ECM) analysis is to perform a unit root test. This is done with the aim of whether each variable has a stationary nature at the same level or not. If the four variables are both stationary at the same level, then these variables can be estimated for the next stage. To test the stationarity of the data on each variable is done using the EViews calculation with the Dickey Fuller method and the Augmented Dicky Fuller Test. The calculation results can be displayed in Table 1.

**Table 1.** Unit Root Test

| Variable  | Critical Value | Level      |         | 1st Difference |         | Information |
|-----------|----------------|------------|---------|----------------|---------|-------------|
|           |                | stats. ADF | p value | stats. ADF     | p value |             |
| Inflation | 5%             | -3.52852   | 0.0000  | -3.5332        | 0.0000  | Stationary  |
|           |                | -2.9042    |         | -2.90621       |         |             |
| BEER      | 5%             | -3.52705   | 0.61    | -3.52705       | 0       | Stationary  |
|           |                | -2.90357   |         | -2.90357       |         |             |
| JUB       | 5%             | -3.52852   | 0.9998  | -3.52705       | 0.0001  | Stationary  |
|           |                | -2.9042    |         | -2.90357       |         |             |
| NT        | 5%             | -3.52562   | 0.0272  | -3.52705       | 0       | Stationary  |
|           |                | -2.90295   |         | -2.90357       |         |             |

Source: Results of Data Processing EViews

The estimation results in the table above show that the four variables, including the inflation rate, interest rate (BIR), money supply (JUB), and exchange rate (NT), previously showed that the data on the unit root calculation was not stationary at the level stage. This means that the p value of the ADF statistic for each variable is greater than = 5%, meaning that the hypothesis accepts H0. For this reason, the derivative of the unit root calculation is carried out in the 1st difference stage. It can be seen that each variable has a statistical p value of ADF smaller than = 5%, meaning that the hypothesis rejects H0, and it can be said that the data is stationary. It can be concluded that the variables of inflation, interest rates (BIR), money supply (JUB), and exchange rates (NT) can be tested in the next stage.

### 4.3 Johansen Cointegration Test

After carrying out the same data values in the unit root test at the same stage, namely the 1st difference stage, then the results of the calculation of the cointegration test for lag 2 (significant lag which has been determined from the start based on the VAR procedure) of the variable inflation rate, interest rate, amount of money are carried out outstanding, and the exchange rate is seen through whether the variable has a long-term relationship, the probability value is less than = 5%, and the ADF t-statistic value is greater than the critical value with a significance level of 1%, 5%, and 10%. In this way, the data has passed the Johansen cointegration test stage, and the next calculation test can be carried out.

**Table 2.** Cointegration Test

| Variable | ADF t-stat | Critical Value |         |         | Prob. | Information   |
|----------|------------|----------------|---------|---------|-------|---------------|
|          |            | 1%             | 5%      | 10%     |       |               |
| ECT      | -7.7862    | -3.5285        | -2.9042 | -2.5896 | 0.000 | Cointegration |

Source: Results of Data Processing Eviews

In the calculations in Table 2, the results of the cointegration estimate show that the residual variable is cointegrated or has a long-term relationship because it has an ADF t-statistic value of -7.7862 where the value of the Critical Value at significance levels of 1%, 5%, and 10% shows greater, and the probability value is less than 0.05.

#### 4.4 Long-term Estimation Results

After the cointegration test is carried out where the results obtained are long-term relationships, then the next step is to estimate the equation. It aims to determine whether the independent variables have a direct effect on the dependent variable. The following are the results of the long-term estimation test.

**Table 3.** Long-term Estimation Results

| Variable             | Coefficient | Std. Error | t-Statistics | Prob.  |
|----------------------|-------------|------------|--------------|--------|
| C                    | -0.003906   | 0.046419   | -0.084151    | 0.9332 |
| BI Rate              | 0.158625    | 0.190625   | 0.832129     | 0.4083 |
| JUB                  | 6.32E-07    | 6.01E-07   | 1.051519     | 0.2968 |
| Exchange rate        | -0.000109   | 0.000114   | -0.955237    | 0.3429 |
| R-squared            | 0.028249    |            |              |        |
| F-statistics         | 0.649245    |            |              |        |
| Prob. (F-statistics) | 0.586183    |            |              |        |

Source: Results of Data Processing Eviews Eviews

From the long-term estimation results in table 3 above, it can be obtained the long-term equation as follows:

$$Y_t = -0.003906 + 0.158625X_{1t} + 6.32E-07X_{2t} - 0.000109X_{3t} + e$$

Table 3 shows the prob value based on the long-term estimation results. F-statistic 0.586183. This means that the three variables simultaneously have no effect on the rate of inflation. This is because the results of the R-squared show a value of 0.028249, which means that 3% of inflation in this model can be explained by the variables of interest rates, money supply, and exchange rates, while the remaining 97% can be redefined by other variables outside the model.

#### 4.5 Error Correction Model (ECM) Estimation Results

The results of the calculation using the ECM method in table 4 above can be seen that the F-statistic ECT probability value (-1) has a value of 0.0000, meaning that the value is significant at = 5%, indicating that the ECM model from the data used above is valid data (Table 4). For the ECT coefficient value (-1) of -0.647505, This means that inflation is an adjustment in both the short-term and long-term models. For the results of the above Prob. (F-statistic) shows a value of 0.000015, meaning that simultaneously the three have an influence on the inflation rate in Indonesia in the 2015 – 2020 time period. For the results of the R-squared value, it shows the 0.337532 it means that 34% of the model can be explained by variables of interest rates, money

supply, and exchange rates, while the remaining 66% can be explained by variables outside the model.

**Table 4.** ECM Estimation Results

| Variable             | Coefficient | Std. Error | t-Statistics | Prob.  |
|----------------------|-------------|------------|--------------|--------|
| C                    | 0.001213    | 0.038627   | 0.031415     | 0.9750 |
| BI Rate              | -0.037849   | 0.162483   | -0.232943    | 0.8165 |
| JUB                  | 1.40E-07    | 5.08E-07   | 0.275876     | 0.7835 |
| Exchange rate        | -5.62E-05   | 9.51E-05   | -0.59168     | 0.5561 |
| ECT (-1)             | -0.647505   | 0.116648   | -5.550951    | 0.0000 |
| R-squared            | 0.337532    |            |              |        |
| F-statistics         | 8.406869    |            |              |        |
| Prob. (F-statistics) | 0.000015    |            |              |        |

Source: Results of Data Processing EVIEWS

## 5. Discussion

### 5.1 The Effect of Interest Rates on Inflation in Indonesia in 2015 – 2020

The calculation results show the long-term results if the probability value is 0.4083, while for the short-term results (ECM), the probability value is 0.8165 with a coefficient of -0.037849. This means that partially the interest rate variable has no direct effect on inflation in Indonesia in 2015-2020 in the long-term category. This means that these variables can be used as a benchmark in controlling inflation in Indonesia. The results of the short-term calculation show that the interest rate has a negative nature and is not significant to the inflation rate in Indonesia in 2015-2020.

The coefficient value shows a figure of -0.037849, meaning that a 1% increase in interest rates can reduce inflation by 0.037849% with the assumption that other variables are constant. The results of this calculation are in line with the theory, which states that the lower the interest rate, the higher the inflation rate in Indonesia. This is also reinforced by the government’s policy of continuously cutting Indonesia’s interest rates. The BI said that BI was aggressively lowering the BI interest rate to 3.5% (bisnis.com. This is done during the pandemic, and the central bank can continue to strive to use all its policies in terms of recovering the national economy. With the decline in Indonesia’s reference interest rate, the level of public consumption will also decrease because people prefer to save their assets rather than spend their money.

The central bank can continue to strive to use all of its policies in terms of recovering the national economy. With the decline in Indonesia’s reference interest rate, the level of public consumption will also decrease because people prefer to save their assets rather than spend their money. The central bank can continue to strive to use all of its policies in terms of recovering the national economy. With the decline in Indonesia’s reference interest rate, the level of public consumption will also decrease because people prefer to save their assets rather than spend their money (Bordo & Levin, 2017).

### 5.2 The Effect of the Level of the Money Supply on Inflation in Indonesia in 2015 – 2020

The calculation shows the long-term results of the probability value of 6.32E-07, while for the short-term results (ECM), the probability value is 0.7835. with a coefficient of 1.40E-07. This means that partially the money supply variable in the long term has no effect on inflation in

Indonesia in 2015-2020. The short term shows a negative and insignificant relationship. This means that for every 1% increase, inflation will increase by %1.40E-07. The results of these calculations are in line with those carried out by Rahmawati & Riyanto (2017) related to their research which says the rise and fall of the M2 variable in the short term cannot be addressed directly to the public quickly. For example, changes in consumption cause inflation. The Quantity of Money Theory quoted from the website [simulationkredit.com](http://simulationkredit.com) also explains although the previous theory mentioned an increase in M2 even though it can directly cause inflation,

This is also triggered by Covid-19, which causes people to tend to choose to save their wealth rather than spend their money. In this way, the amount of money in the hands of the public continues to increase. Otherwise, the national income will tend to decrease. It is because the level of public consumption has decreased continuously.

### **5.3 The Effect of the Exchange Rate on Inflation in Indonesia in 2015 – 2020**

From the calculation results, the probability value for long-term results is 0.3429, while for short-term results (ECM), the probability value is 0.5561 with a coefficient of -5.62E-05. This means that in the long term, this variable had no effect on inflation in Indonesia from 2015-2020. In the short term, it also shows a positive but not significant effect on inflation in Indonesia. This means that for every 1% increase in the exchange rate, inflation will decrease by %5.62E-05. This is not in line with the purchasing power parity (PPP) theory quoted by Barro (1997), which says that differences in inflation rates between countries are the main factors that cause exchange rate movements. Silitonga et al. (2019) said that if inflation increases due to rising prices of goods, it also causes a decrease in the production of goods due to rising production costs because workers always demand higher wages too. If this continues for a long time, it will cause the number of exports to fall and the country's desire to import goods to increase.

This theory is getting stronger because it is supported by the Covid-19 virus disease quoted by [yoursays.id](http://yoursays.id). The website explains that Covid-19 has caused food prices to rise, which includes the price of cooking oil, red chillies, shallots, sugar and so on. These prices are still said to be inconsistent with the proper retail prices that have been set by the government. The increase was caused by the depletion of the supply of goods to be sold to the public. This can result in farmers not wanting to plant these foodstuffs because the planting seeds are getting higher. Airlangga Hartarto, as the Coordinating Minister for Economic Affairs, has agreed that the lockdown system from other countries causes the sugar import process to be disrupted and hampered.

## **5. Conclusion**

Simultaneously, the three variables, namely interest rates, money supply, and exchange rates, give the result that these three variables have no effect on inflation in Indonesia. In the short term, the relationship between the interest rate variable and inflation is positive and not significant, while in the long term, it had no effect on inflation in Indonesia from 2015-2020. In the short and long term, the relationship between the money supply variable and inflation is negative and not significant from 2015-2020. In the short term, the relationship between the exchange rate variable and inflation is positive and insignificant, while in the long term, it had no effect on inflation in Indonesia from 2015-2020.

## 6. Suggestion

In setting and keeping inflation at a low and stable level, there are many other factors that have a more direct influence on the inflation rate in Indonesia. Especially in the Covid-19 pandemic, which is still continuing, the process of community activities is limited. With the pandemic, people feel disadvantaged due to limited economic activities such as buying and selling in markets and other places, and the government also feels the loss because income continues to decline. The government always strives to maintain the stability of the process of economic activity so that the government's income will continue. However, with people who are increasingly depleting the amount of money they have, the desire of people to shop continues to decline.

Maintaining inflation cannot be realized if only monetary policy is determined, but the government must look at the side of fiscal policy, the real sector, and the prevailing economic policy that can be used as a benchmark and focused by the government. Therefore, coordination from the government, especially Bank Indonesia, is needed to always target, monitor, and control inflation. In addition to reducing the money supply, the government must also be able to control lending to entrepreneurs and investors. In addition, an increase in exports and imports can also be a contributor to suppressing the inflation rate in Indonesia.

## References

- Atmadja, A. S. (1999). Inflasi di Indonesia: Sumber-sumber penyebab dan pengendaliannya. *Jurnal Akuntansi dan Keuangan*, 1(1), 54-67.
- Barro, R. J. (1997). *Macroeconomics*. MIT Press.
- Bauer, M. D., & Rudebusch, G. D. (2020). Interest rates under falling stars. *American Economic Review*, 110(5), 1316-54.
- Bisnis.com (2020), "BI Cuts Benchmark Interest Rates to the Lowest Level in History"
- Del Negro, M., Giannone, D., Giannoni, M. P., & Tambalotti, A. (2019). Global trends in interest rates. *Journal of International Economics*, 118, 248-262.
- Dornbusch, R., & Fischer, S. (1993). Moderate inflation. *The World Bank Economic Review*, 7(1), 1-44.
- Engel, C. (2016). Exchange rates, interest rates, and the risk premium. *American Economic Review*, 106(2), 436-74.
- Fahlevi, M. (2019, August). The influence of exchange rate, interest rate and inflation on stock price of LQ45 index in Indonesia. In *First International Conference on Administration Science (ICAS 2019)* (pp. 157-163). Atlantis Press.
- Hansen, B. (2016). *A Study in the Theory of Inflation*. Routledge.
- Indonesian Central Bureau of Statistics. (2020a). *Indonesia's Annual Inflation Statistics 2015-2020*. Jakarta: Central Bureau of Statistics
- Indonesian Central Bureau of Statistics. (2020b). *Indonesia Annual Interest Rate Statistics 2015-2020*. Jakarta: Central Bureau of Statistics
- Indonesian Central Bureau of Statistics. (2020c). *Statistics on the Annual Money Supply 2015-2020*. Jakarta: Central Bureau of Statistics

- Langi, T. M. (2014). Analisis pengaruh suku bunga bi, jumlah uang beredar, dan tingkat kurs terhadap tingkat inflasi di Indonesia. *Jurnal Berkala Ilmiah Efisiensi*, 14(2).
- Madura, J. (2020). *International financial management*. Cengage Learning.
- Mishkin, F. S. (2012). *The Economics of Money, Banking and Financial Markets (The Pearson Series in Economics)*. Pearson Education.
- Pattawe, A., Abdullah, M. I., Karim, F., Kahar, A., Din, M., Zahra, F., ... & Dharma, D. M. A. (2022). Improving Regional Financial Management through Administration of Regional Property and Financial Reporting on Regional Assets. *Research Horizon*, 2(1), 283-294.
- Perlambang, H. (2017). Analisis pengaruh jumlah uang beredar, suku bunga sbi, nilai tukar terhadap tingkat inflasi. *Media Ekonomi*, 18(2), 49-68.
- Rahmawati, D. D., & Riyanto, W. H. (2017). Analisis Pengaruh Suku Bunga Sertifikat Bank Indonesia dan Jumlah Uang Beredar Terhadap Tingkat Inflasi di Indonesia Periode 2006.1-2015.12 (Pendekatan Error Correction Model). *Jurnal Ilmu Ekonomi JIE*, 1(1), 60-74.
- Silitonga, R. B., Ishak, Z., & Mukhlis, M. (2017). Pengaruh ekspor, impor, dan inflasi terhadap nilai tukar rupiah di Indonesia. *Jurnal Ekonomi Pembangunan*, 15(1), 53-59.