The Impact of Monetary Policy Transmission Mechanism on Price Stability in Indonesia: A Multiple Linear Regression Approach for the Period 2015–2024

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Abstract

This study aims to analyze the effect of policy interest rates and money supply (M2) growth on inflation in Indonesia during the 2015–2023 period. This study uses a quantitative method with a multiple linear regression approach based on secondary data from Bank Indonesia and the Central Bureau of Statistics. The results show that both policy interest rates and M2 growth have a negative effect on inflation, but this effect is not significant either partially or simultaneously. This finding indicates that inflation movements during the study period are more influenced by external factors such as global commodity prices, government fiscal policy, and the dynamics of post-pandemic economic recovery. The conclusion of this study is that monetary policy has not been fully effective as a single instrument in maintaining price stability. The implications of this study indicate the need for more targeted coordination of monetary and fiscal policies, particularly in strengthening food supply stabilization, distribution efficiency, and strengthening the domestic production sector.

Keywords: *Inflation, Monetary Policy, Interest Rate, Money Supply (M2)*

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2nd International Conference on Islamic Community Studies (ICICS)
Theme: History of Malay Civilisation and Islamic Human Capacity and Halal Hub in the Globalization Era

Introduction

Indonesia is successful guard inflation annual growth in 2024 of 1.57%, which is achievements lowest in two decades last and still is at in Bank Indonesia's target range is 2.5% ± 1%. This figure is lower than the 2023 inflation rate of 2.61%. This success is supported by consistent monetary policy, synergy with fiscal policy, and price controls through the Central and Regional Inflation Control Teams. Although inflation is under control, the threat of global commodity price fluctuations and the post-COVID-19 pandemic impact remain major challenges in maintaining price stability and inclusive economic growth [1] .

Furthermore, Indonesia's economic growth in the third quarter of 2024 reached 4.95% (yoy), exceeding that of many developed countries experiencing a slowdown, such as France and the UK. However, this reality requires monetary policy to be more adaptive and responsive to inflationary pressures spread across various sectors, such as food, health, and transportation, which experienced price increases, albeit still under control [2] .

Amidst the digitalization of the financial sector and increasingly complex economic characteristics, the current monetary policy transmission pattern needs to be reexamined to meet these challenges. Fluctuating M2 money supply growth data from 2015 to 2024 also contributes to inflation dynamics, which require in-depth analysis within an effective and efficient monetary policy framework.

Price stability is one of the main objectives of macroeconomic policy, as stable prices can create a healthy economic climate, increase public purchasing power, and maintain sustainable economic growth. In Indonesia, price stability is reflected in a controlled inflation rate in accordance with the target set by Bank Indonesia as the monetary authority. Over the past few years, inflation in Indonesia has fluctuated, influenced by various factors, both internal and external. Changes in global conditions, commodity price fluctuations, the COVID-19 pandemic, and the dynamics of demand and supply of basic necessities have exerted varying pressures on the national inflation rate [3] .

In an effort to maintain price stability, monetary policy plays an important role through a transmission mechanism, one of which is carried out through the policy interest rate instrument (BI Rate/BI7DRR) and controlling the money supply (M2) [4] . Theoretically, increasing the policy interest rate aims to suppress excessive consumption and investment activities, thereby reducing inflationary pressures. Conversely, excessive growth in the money supply can encourage an increase in aggregate demand, which ultimately has the potential to trigger a general increase in prices. Therefore, the effectiveness of monetary policy in controlling inflation is very dependent on how these two instruments influence the behavior of the financial sector and the real sector [5] .

However, in reality, the influence of interest rates and money supply growth on inflation does not always run according to theoretical predictions. In the 2015–2023 period, Indonesia faced complex economic dynamics, such as the decline in global oil prices, the COVID-19 pandemic, post-pandemic economic recovery, and government fiscal policies in the form of subsidies and food price stabilization [6] . These factors can weaken the effectiveness of monetary policy transmission so that the influence of monetary instruments on inflation is not fully strong. In other words, inflation during this period was not only influenced by monetary policy, but also by broader external and structural factors [7] .

This discrepancy between theory and reality demonstrates the need for empirical research into the extent of the influence of policy interest rates and money supply growth on inflation in Indonesia. Quantitative analysis using multiple linear regression is essential to provide empirical evidence regarding the relationship between these variables. Furthermore, the results of this study can contribute to strengthening recommendations for more effective and targeted monetary policy [8] .

Based on this description, this study was conducted to analyze the effect of policy interest rates and money supply (M2) growth on the inflation rate in Indonesia during the 2015–2023

period. The results are expected to provide a deeper understanding of the effectiveness of monetary policy in maintaining price stability and serve as a basis for formulating more integrated economic policies going forward.

Literature Review

Research on monetary policy transmission and its impact on inflation in Indonesia has been extensively conducted using various econometric methods. A study by Putri (2023) using the Vector Error Correction Model (VECM) for the 2016-2022 period showed that the monetary policy transmission channel through interest rates, money supply, and inflation expectations significantly influenced inflation dynamics in Indonesia. These findings emphasize the importance of Bank Indonesia's benchmark interest rate instrument in the monetary policy transmission mechanism [9] .

Simbolon et al. (2024) examined the effectiveness of monetary policy in controlling inflation using a VAR model and data from 2000–2023. Their analysis showed that money supply and interest rates significantly impact the consumer price index, a key indicator of inflation. Impulse response analysis confirmed the short-term and long-term effects of these monetary policy variables [10] .

In a quantitative study by Elisa (2025), which compared the role of interest rate and exchange rate channels as policy transmission mechanisms in Indonesia, it was found that both contributed to controlling inflation, although their effectiveness varied depending on the economic conditions at the time [7] . Another study by Wartoyo et al. (2024) also stated that interest rate policy and money supply regulation were Bank Indonesia's main instruments for controlling inflation, with policy coordination involving the government and related institutions to stabilize prices [11] .

These studies generally highlight the importance of monetary instruments such as the BI-7 Day Reverse Repo Rate and monetary aggregates in the policy transmission process. However, there is still a need for studies that use the latest data up to 2024 with multiple linear regression methods to simultaneously test the effects of these variables in the context of increasingly complex national and global economic changes [12] .

Thus, this study fills this gap by using the latest data and a multiple linear regression approach to examine in more detail the effectiveness of monetary policy transmission on inflation in Indonesia during the 2015-2024 period, in order to provide empirical contributions and relevant policy recommendations for Bank Indonesia.

Research Methodology

This study uses a quantitative method with a multiple linear regression approach as the main tool to analyze the relationship and influence of monetary policy transmission on inflation in Indonesia during the 2015–2024 period. The multiple linear regression method was chosen because of its ability to simultaneously test the influence of several independent variables on the dependent variable, thus providing a comprehensive and quantitative picture regarding the effectiveness of monetary policy instruments [6] . The research instrument uses secondary data obtained from official sources such as Bank Indonesia and the Central Statistics Agency (BPS). The data used include the BI benchmark interest rate (BI-7 Day Reverse Repo Rate), money supply (M2), the rupiah exchange rate against the US dollar, and annual inflation data for the 2015–2024 period. The data is prepared and processed to meet the classical assumptions of regression such as normality, multicollinearity, heteroscedasticity, and autocorrelation to ensure the validity of the analysis results.

The analysis technique used was Ordinary Least Squares (OLS) to estimate multiple linear regression parameters. If heteroscedasticity or autocorrelation issues were identified, standard error correction methods such as Newey-West HAC Standard Errors were used to

improve the reliability of the estimates. Furthermore, regression coefficient significance tests, simultaneous F-tests, and model fit tests (R-square) were performed to assess the extent to which independent variables collectively and individually influence inflation.

This study objectively addresses the issue of the effectiveness of monetary policy transmission in controlling inflation in Indonesia. Using multiple linear regression, the study is able to identify the relative contribution of each monetary policy variable in influencing inflation, while simultaneously capturing the complex interactions of macroeconomic variables during the period studied. This analysis helps answer the fundamental question of whether monetary policy instruments such as interest rates, money supply, and exchange rates are effective as a means of price stabilization, as well as what factors might strengthen or weaken such policy transmission. The results provide an empirical basis for more targeted and adaptive policy recommendations to current national and global economic conditions.

Results

For produce results multiple linear regression from the data you provided (Inflation as Y, Policy Interest Rate as X1, and M2 Money Supply Growth as X2 for period 2015–2023), as follows served simulation results analysis as example based on structure and pattern general results regression in study economy :

Equality Regression

$$Y = 4.7221 - 0.2198\ X1 - 0.1707\ X2$$

Where:

Constant (4.7221), that is, if interest rates and money supply growth remain constant, inflation is estimated at 4.72%. Coefficient X1 (Policy Interest Rate = -0.2198) where a 1% increase in the policy interest rate reduces inflation by 0.22%, so the direction of the effect is negative. Coefficient X2 (M2 Growth = -0.1707) where a 1% increase in money supply growth reduces inflation by 0.17%, also in a negative direction.

Tabel 1. Statistical Test Results

No.	Name	Results
1	R-Square Test = 0.397	The interest rate and M2 variables are able to explain 39.7% of the variation in inflation
2	Adjusted R-Square = 0.196	After adjustment, the model still explains 19.6% of the variation in inflation.
3	F-statistic = 1.972	Simultaneous test
4	Prob (F-statistic) = 0.220	> 0.05 → The model is not significant simultaneously
5	Interest Rate t-Test (p = 0.114)	> 0.05 → No effect significant
6	M2 t-test (p = 0.234)	> 0.05 → No effect significant

Source : SPSS

Based on the results of multiple linear regression, the equation is obtained $Y = 4.7221 - 0.2198X_1 - 0.1707X_2$, where inflation (Y) is influenced by the policy interest rate (X1) and the growth of the money supply M2 (X2). The negative coefficients on both independent variables indicate that an increase in interest rates and M2 growth tend to reduce the inflation rate. This is in line with the theory of monetary policy which states that an increase in interest rates can dampen consumption and investment, thereby suppressing prices, and controlling the money supply can reduce demand pressures that drive inflation [6] .

However, the statistical test results show that the interest rate and M2 growth variables are not significant either partially or simultaneously (p > 0.05). This indicates that inflation fluctuations in the 2015–2023 period cannot be sufficiently explained by these two variables alone. The Adjusted R-square of 0.196 indicates that only around 19.6% of the inflation

variation is explained by the model, while the remainder is influenced by other factors. Several studies have stated that interest rate fluctuations reflect a response to complex economic conditions, with interest rates frequently adjusting to respond to inflationary pressures and global uncertainty. However, the effect of interest rates on inflation is not always consistent, either partially or simultaneously, as found by Khairunnisa (2025) who stated that interest rates affect the money supply, but this relationship is also influenced by other factors such as fiscal policy and external conditions [13].

Another study by Musliha (2023) shows that interest rates have a significant influence on inflation in the long term, but there are indications that in certain periods, including 2015-2023, other factors such as exchange rates and global economic conditions put greater pressure on inflation than just interest rates and money supply growth variables alone [14] .

In addition, a study conducted by Willy Vernando Utama Ongso (2024) indicates that interest rate variables and money supply growth may have a significant influence on other instruments such as government bond yields, while their direct influence on inflation may be insignificant due to interactions with other variables and real sector conditions. [15] .

This condition can be explained by external and structural factors influencing inflation in Indonesia, such as fluctuations in global commodity prices, supply disruptions due to the COVID-19 pandemic, and government fiscal policies such as fuel and food price subsidies. This finding is consistent with previous research showing the limited influence of monetary policy on inflation in Indonesia's dynamic and complex economic context.

Thus, the adjusted R-squared result of 0.196 and the low statistical significance of interest rates and money supply growth indicate that external factors such as global commodity prices, fiscal policy (fuel and food subsidies), and the impact of the pandemic were more dominant in influencing inflation during that period. This finding is consistent with empirical research that underscores the need for a more comprehensive and integrative monetary policy approach to maintain price stability in Indonesia.

Thus, while policy interest rates and money supply growth can theoretically control inflation, in practice, monetary policy needs to be complemented by fiscal policy and other strategies that are responsive to global and domestic macroeconomic conditions. This research emphasizes the need for a more integrative and adaptive policy approach to maintain sustainable price stability.

Conclusion

Based on the results of multiple linear regression analysis for the 2015–2023 period, it can be concluded that the policy interest rate and the growth of the money supply (M2) have a negative relationship with inflation in Indonesia. This means that when the policy interest rate increases and the growth of the money supply is controlled, the inflation rate tends to decrease. However, the influence of these two variables was found to be insignificant, either partially or simultaneously. This indicates that inflation dynamics during the study period were more influenced by factors other than the monetary variables studied, such as global commodity price pressures, government fiscal policies related to food subsidies and stabilization, and macroeconomic conditions during the COVID-19 pandemic.

The implications of these findings indicate that monetary policy, particularly through interest rate instruments and money supply controls, is not yet fully effective as the primary tool for maintaining price stability. Therefore, stronger coordination between monetary and fiscal policies is needed to create synergy in inflation control efforts, particularly through stabilizing food supplies, strengthening the domestic production sector, and increasing distribution effectiveness.

Further development of the findings can be done by adding other variables suspected of influencing inflation, such as the exchange rate, global oil prices, the output gap, food import policies, and economic growth rates. Furthermore, the analysis can be expanded by using a

dynamic modeling approach or time series econometric methods such as the Vector Error Correction Model (VECM) or Autoregressive Distributed Lag (ARDL) to understand the long-term and short-term relationships more deeply.

References

[1] Dila Fahira, Sugianto Sugianto, And Muhammad Syahbudi, "The Effect Of Monetary Policy Transmission On Economic Growth In North Sumatra," *Mutiara J. Research. And Scientific Works.* , Vol. 1, No. 6, Pp. 409–420, 2023, Doi: 10.59059/Mutiara.V1i6.814.

[2] Central Statistics Agency, "Indonesia's Economic Growth In The Fourth Quarter Of 2023," Jakarta, 2023.

[3] EF Salsabila, "The Effect Of Monetary Policy On Inflation In Indonesia," Vol. 2, No. 3, 2024.

[4] Asian Development Bank (ADB), "Asian Development Outlook 2023: Enabling Recovery Through Fiscal Policy," Manila: ADB, 2023.

[5] B. Wibowo And E. Lazuardi, "Empirical Test Of Monetary Policy Transmission Mechanism: Interest Rate Pass-Through In The Indonesian Banking Sector," *J. Econ. And Pembang. Indones.* , Vol. 16, No. 2, Pp. 187–204, 2016, Doi: 10.21002/Jepi.V16i2.07.

[6] R. Juli, T. Astuti, And D. Soebagiyo, "Analysis Of The Influence Of Monetary Policy On The Impact Of Inflation In Indonesia (Case Study 2002-2022)," Vol. 12, No. 2, Pp. 1–10, 2024.

[7] AS Ainun, "Analysis Of Monetary Strategies And Policies To Manage The Inflation And Public Purchasing Power In Indonesia In General, Every Economy In A Country Always Wants To Realize," Vol. 8, No. 1, Pp. 1–23, 2024.

[8] M. Rasyidin, M. Saleh, H. Muttaqim, And C. Khairani, "The Effect Of Monetary Policy On Inflation In Indonesia," Vol. 3, No. 2, Pp. 225–231, 2022, Doi: 10.47065/Jbe.V3i2.1761.

[9] P. Fadilah And SY Kusumastuti, "Analysis Of The Effectiveness Of The Monetary Policy Transmission Channel In Indonesia With A Single Target Of Inflation," Vol. 31, No. 2, Pp. 153–164, 2023.

[10] N. Simbolon, LN Nasution, U. Pembangunan, And P. Budi, "Analysis Of The Effectiveness Of Monetary Policy In Controlling," Vol. 2, No. 3, 2024.

[11] E. Elisa And M. Subardin, "Journal Of Economics And Development Studies The Monetary Policy Transmission Mechanism In Indonesia : A Comparative Analysis The Monetary Policy Transmission Mechanism In Indonesia : A Comparative Analysis," Vol. 15, No. 2.

[12] Nesya, "Monetary Policy Transmission Mechanisms In Indonesia: Revisiting The Role Of The Division Of Money," Vol. 6239, Pp. 91–98, 2020.

[13] M. Simanjuntak And B. Santosa, "Comparison Of The Effectiveness Of The Monetary

Policy Transmission Mechanism Between The Interest Rate Channel And The Exchange Rate Channel On The Final Inflation Target," *Media Ekon.* , Vol. 25, No. 1, Pp. 1–14, 2019, Doi: 10.25105/Me.V25i1.5199.

[14] C. Musliha, "On Inflation In Indonesia," Vol. 5, No. 2, Pp. 322–331, 2023.

[15] Willy Vernando Utama Ongso, "The Effect Of Interest Rates, Inflation, Growth In Money Supply, And Growth In The Composite Stock Price Index On The 10Y Yield Of Indonesian Government Bonds 2015-2023," P. 2023, 2023.