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The Effect of Inflation and Exchange Rates on the BI Rate and Their Impact on Indonesia's Economic Growth

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ABSTRACT: This study aims to analyze the influence of inflation and the USD exchange rate on the BI Rate and their impact on Indonesia's economic growth. The BI Rate, as a monetary policy instrument, plays a crucial role in maintaining economic stability and controlling inflation. This study uses a quantitative approach with multiple linear regression to analyze the influence of inflation and the exchange rate on the BI Rate, and simple linear regression to analyze the impact of the BI Rate on economic growth. The data used are secondary data obtained from the Central Statistics Agency (BPS) and Bank Indonesia (BI) for 15 years, from 2011 to 2025, on a quarterly basis. The results show that inflation has a positive and significant effect on the BI Rate, while the exchange rate has no effect. Simultaneously, inflation and the exchange rate have a significant effect on the BI Rate. Furthermore, the BI Rate has a positive and significant effect on economic growth. These results indicate that the BI Rate acts as a variable transmitting the influence of inflation and the exchange rate on economic growth. However, the coefficient of determination indicates that other factors outside the model influence the BI Rate and economic growth. This study implies that inflation control is a key factor in BI Rate setting policy and contributes to Indonesia's economic stability and growth.

KEYWORDS: Inflation, Exchange Rate, BI Rate, Economic Growth, Monetary Policy

INTRODUCTION

The Indonesian economy, as a developing country, faces complex challenges in managing inflation, exchange rates, interest rates, and economic growth. Uncontrolled inflation can disrupt economic stability, affect people's purchasing power, and impact overall economic growth (Warjiyo and Juhro, 2017). Maintaining inflation and the exchange rate by controlling interest rates (the BI rate) is a monetary policy frequently adopted by Bank Indonesia to maintain sustainable economic growth in Indonesia.

Changes in interest rates imposed by Bank Indonesia not only affect inflation but also the exchange rate and economic growth. Fuddin (2014) states that monetary policy transmission is key in explaining how changes in interest rates can influence economic growth through credit and exchange rate channels. This relationship demonstrates the importance of understanding the short- and long-term effects of implemented monetary policy. Furthermore, Hajdukovic (2022) argues that the monetary policy transmission mechanism must consider the differential impact of interest rates, reflecting the complexity of managing inflation and exchange rates in developing countries.

Furthermore, research by Ulfatul (2018) shows that the influence of inflation expectations in response to monetary policy indicates the need to adjust public expectations to changes in interest rates and exchange rates. This study also underscores the importance of analyzing the impact of foreign policy, including evaluating the advantages of unconventional monetary policies in developed countries, as described by Ntshangase et al., 2023. This research is not only relevant to Indonesia but also provides a broader perspective on how developing economies interact with global policies.

Overall, the research problem formulation in this study focuses on how changes in the interest rate (BI rate) set by Bank Indonesia, taking inflation and the USD exchange rate into account, maintain economic growth. This research will be useful in providing insights for policymakers in formulating more effective policies to achieve the goals of controlled inflation and sustainable economic growth, as well as in understanding the complex interactions between macroeconomic variables.

LITERATURE REVIEW

The Bank Indonesia benchmark interest rate (BI Rate) is a monetary policy used by the central bank (Bank Indonesia) to control inflation, regulate the amount of money circulating in the community, and maintain the rupiah exchange rate (Bank Indonesia, 2024). The BI Rate also serves as a guideline for banks in Indonesia in determining loan and deposit interest rates. If inflation increases, Bank Indonesia will raise the BI Rate, thereby increasing deposit interest rates and bank loan installments. People are more inclined to choose to save, thus reducing money circulation and slowly decreasing inflation. Conversely, if the BI Rate is lowered, loan and deposit interest rates will decrease, making it easier for people to borrow money for business capital, thus increasing business activity and economic growth.

A study by Novitasari & Aji (2023) shows that inflation, exchange rates, and non-oil and gas exports are interconnected and collectively influence Indonesia's economic growth. This study identifies a long-term relationship between these variables, suggesting that monetary policy

and external factors can significantly impact economic growth. Understanding this interaction is crucial for formulating effective economic policies. Furthermore, Setiartiti & Hapsari (2019) examined several variables that potentially influence inflation in Indonesia, including the money supply, exchange rates, and interest rates. Their results indicate that inflation is significantly influenced by interest rates and exchange rates, providing implications for the central bank in planning monetary policy.

In a broader context, research by Wulandari (2019) compared monetary policy in Indonesia and Malaysia, highlighting how the two countries adopted different approaches to interest rate management and price stability. The findings concluded that Indonesia tends to be more affected by global interest rate fluctuations, while Malaysia relies on more flexible direct lending methods. This analysis is relevant in understanding how different monetary policies can affect macroeconomic variables such as inflation and growth.

Following the perspective on the impact of monetary policy, research by Hariyanti & Soeharjoto (2022) examined the impact of Indonesia's monetary policy on economic growth, before and during the COVID-19 pandemic. This research highlights that shifts in monetary policy during the crisis had a significant impact on economic growth. Furthermore, other factors such as inflation and the exchange rate also showed significant influence in determining economic growth in Indonesia. Meanwhile, in their analysis of inflation dynamics and investment attractiveness, Aprilia et al. (2024) found a two-way causal relationship between inflation and economic growth, in line with the findings of Sudrajad et al. (2023) who stated that exchange rate fluctuations affect inflation, which in turn impacts economic growth. The research results of Ntshangase et al. (2023) also showed how monetary policy in developed countries can impact developing countries.

In a macroeconomic context, Kurniadi et al. (2019) investigated the influence of economic openness and the strength of the real exchange rate in Indonesia. This study emphasized how inflationary pressures can affect the attractiveness of capital in global markets and demonstrated the importance of exchange rate stability in ensuring healthy economic growth. They found that the exchange rate has a positive effect on economic growth, but a negative role in dealing with inflation. Pasaribu et al. (2023) analyzed the effectiveness of monetary policy in Indonesia, emphasizing that the policy not only affects inflation but also has a clear impact on economic growth through the money supply and exchange rate channels. This study found a significant relationship between interest rates, inflation, and economic growth, both in the short and long term.

Overall, the existing literature indicates a strong and complex relationship between inflation, exchange rates, interest rates, and economic growth in Indonesia. Through the use of various empirical models and analytical approaches, these studies provide insights necessary for formulating economic policies that can support macroeconomic stability and sustainable economic growth.

CONCEPTUAL FRAMEWORK

From the description of the literature review above, a conceptual framework was compiled as presented in Figure 1.

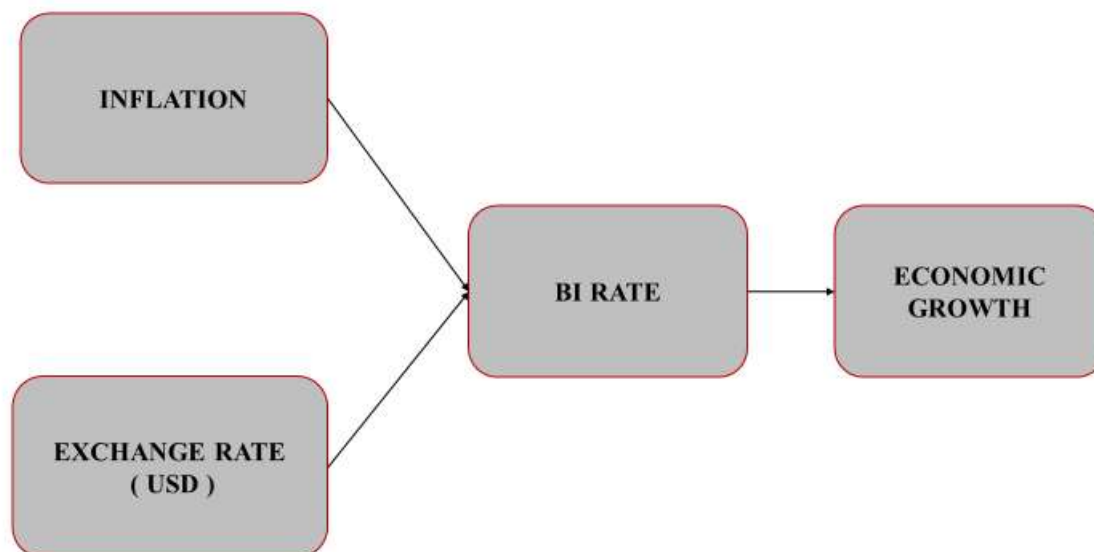


Figure 1. Conceptual Framework
Source: Literature Review Results

Regression Formula

From the literature review and conceptual framework above, a regression formulation model was created as follows:

Equation I

$$\text{BI RATE} = \alpha + \beta_1 \text{INFLATION} + \beta_2 \text{EXCHANGE RATES (USD)} + \epsilon_i$$

Equation II

$$\text{ECONOMIC GROWTH} = \alpha + \beta \text{BI RATE} + \epsilon_i$$

Research Hypothesis

Based on the literature review and the conceptual framework above, the researcher tries to draw temporary conclusions through the following hypotheses:

H1: Inflation has an affect on the BI Rate

H2: The exchange rate (USD) has an effect on the BI Rate

H3: BI rate has an effect on economic growth

Research methods

This research method is designed to analyze the influence of inflation and the exchange rate (USD) on the BI Rate and its impact on economic growth in Indonesia. The research design used is quantitative with regression analysis, focusing on secondary data for 15 years covering the period 2011 to 2025 on a quarterly basis. The sample in this study consists of macroeconomic data covering inflation, the USD exchange rate, the BI Rate, and economic growth. This data was obtained from official sources such as the Central Statistics Agency (BPS) and Bank Indonesia, which guarantee the validity and reliability of the data used.

The data collection procedure was carried out by accessing quarterly data from the institution's official reports and processing the data using SPSS statistical software (Ghozali, 2018) to ensure accurate analysis results. The results of the analysis are expected to provide deeper insights into the dynamics of the Indonesian economy and provide recommendations for policymakers in formulating effective strategies to control inflation and increase economic growth in the future (Fadilah & Kusumastuti (2024), Fuddin, 2014; , Hajdukovic, 2022; , Ulfatul, 2018; , Ntshangase et al., 2023).

RESULTS AND DISCUSSION

Research Data Description

The macroeconomic data used in this study includes inflation, the USD exchange rate, and the BI Rate in the context of economic growth in Indonesia. Data were taken from the Central Statistics Agency (BPS) and Bank Indonesia for the period 2011 to 2025. The average inflation rate during this period was recorded at 3.94% per year, with significant fluctuations due to changes in monetary policy, as shown in Table 1.

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Standard Deviation
ECONOMIC GROWTH	60	-5.32	7.07	4.6852	2.20816
INFLATION	60	1.03	8.40	3.9417	1.87344
BI RATE	60	3.50	7.75	5.5833	1.23822
USD EXCHANGE	60	8705.00	16710.00	13456.20	2255.49817
Valid N (listwise)	60				

Source: SPSS results

The rupiah exchange rate against the US dollar shows a depreciating trend, peaking at Rp16,710 per dollar in 2025. The benchmark interest rate set by Bank Indonesia (BI rate) has undergone several changes, ranging from 3.50% to 7.75% during the study period. Furthermore, Indonesia's economic growth, measured by real GDP, experienced a sharp decline, even reaching negative levels, in 2020 due to the impact of the Covid-19 pandemic.

The Influence of Inflation and Exchange Rates (USD) on the BI Rate

The results of the study show that inflation has a positive and significant influence on the BI Rate with a coefficient value of 0.420 and a significance level of $0.000 < 0.05$. This means that when inflation rises, Bank Indonesia tends to raise the BI Rate to control inflation. This is consistent with monetary policy theory. It suggests that rising inflation will drive up the BI Rate as part of monetary policy to maintain price stability. This finding is in line with Ulfatul's research (2018), which shows that inflation expectations can influence interest rate decisions taken by Bank Indonesia, while the USD exchange rate does not have much influence against the BI Rate with a significance value of $0.916 > 0.05$, this because the depreciation is still within tolerance, as presented in table 2.

Table 2. Effect of Inflation and Exchange Rate on BI Rate

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4,723	7,637		.618	.539
	INFLATION	.420	.077	.635	5,421	.000
	USD EXCHANGE RATE	-.193	1,814	-.012	-.106	.916

Source: SPSS results

Based on the Unstandardized Coefficients (B) value, the regression equation is obtained:

$$\text{BI RATE} = 4.723 + 0.420(\text{INFLATION}) - 0.193(\text{USD EXCHANGE RATE}) + e$$

If inflation and the USD exchange rate are zero, then the BI Rate is estimated at 4.723% and every 1% increase in inflation, the BI Rate will increase by 0.420%, assuming other variables are constant, while every 1 unit increase in the USD exchange rate, the BI Rate will decrease by 0.193%, but it is necessary to see its significance.

Although the USD exchange rate does not directly affect the BI rate, analysis shows that exchange rate depreciation contributes to increased inflation. Every 1% exchange rate depreciation results in a 0.8% increase in inflation, which aligns with findings by Warjiyo and Sadli (2022). These results provide empirical evidence that the exchange rate is a key variable in analyzing inflation in Indonesia. With changing global

conditions and exchange rate fluctuations, Bank Indonesia needs to monitor and regulate interest rates (the BI rate) to control inflation. This is in line with the view expressed by Zulfa and Suseno (2019), who argued that monetary policy transmission channels must consider the impact of the exchange rate in determining appropriate policy. This research reinforces the importance of the exchange rate within the monetary policy framework.

Table 3. Results of the F Test (Anova)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	37,224	2	18,612	19,928	.000
	Residual	53,234	57	.934		
	Total	90,458	59			

Source: SPSS results

The results of the F test (Anova) show that the F value is 19.923 with a significance level of $0.000 < 0.005$. This means that inflation and the exchange rate (USD exchange rate) jointly influence the BI rate. This indicates that the BI Rate, as a monetary policy instrument, is influenced by macroeconomic conditions, particularly inflation and the exchange rate. Although only inflation is significant partially, both variables simultaneously influence the BI Rate. The calculated F-value of 19.928 indicates good model fit, meaning the regression model is suitable for explaining the relationship between inflation and the USD exchange rate and the BI Rate. (Table 3), with R Square of 0.412 or 41.20% and Adjusted R Square of 0.391 or 39.10% (Table 4)

Table 4. Results of the Determination Coefficient Test

R	R Square	Adjusted R Square	Standard Error of the Estimate
.641	.412	.391	.96640

Source: SPSS results

Adjusted R Square is only 39.10%, this means that only 39.10% of the BI rate can be explained or influenced by the variables studied, namely inflation and exchange rates (USD exchange rates), while the remaining 60.90% is explained by other variables that are not studied, including global interest rates (The Fed), money supply, economic stability and other monetary policies.

The Influence of the BI Rate on Economic Growth

The results of the study indicate that the BI Rate has a positive and significant effect on economic growth with a significance of $0.003 < 0.05$. This indicates that changes in the BI Rate have a significant impact on economic growth. In certain contexts, an increase in the BI Rate can reflect stable and controlled economic conditions, thus being associated with increased economic growth (Table 5). BI is very careful in its monetary policy, especially in raising and lowering the BI Rate, and has proven capable of maintaining Indonesia's economic growth at an average of 4.69%. High interest rate increases (BI Rate) are certainly not good for the economy. Fuddin (2014) stated that the responsive nature of the economy to interest rate policies greatly affects investment and consumption. High interest rate policies can hinder investment because they increase borrowing costs, so it is important for Bank Indonesia to balance inflation control, the BI Rate, and economic growth. The implications of these results indicate that monetary policy must be able to facilitate growth without causing excessive inflation.

Table 5. Effect of BI Rate on Economic Growth

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.943	1,240		.760	.450
	BI_RATE	.670	.217	.376	3,089	.003

Source: SPSS results

Based on the Unstandardized Coefficients (B) value, the regression equation is obtained:

$$\text{Economic Growth} = 0.943 + 0.670 (\text{BI_RATE}) + e$$

If the BI Rate is zero, then economic growth is estimated at 0.943%. For every 1% increase in the BI Rate, economic growth will increase by 0.670%, assuming other variables are constant, meaning that the relationship between the BI Rate and economic growth is positive. reflects stable and controlled economic conditions, thus being associated with increasing economic growth.

F Test Results (Anova) obtained F count = 9.543 and Sig = $0.003 < 0.05$, this means that the regression model is significant and the BI Rate simultaneously has a significant effect on economic growth and the regression model is suitable for use.

Table 6. F Test Results (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	40,646	1	40,646	9,543	.003
	Residual	247,035	58	4,259		
	Total	287,681	59			

Source: SPSS results

The results of the Determination Coefficient Test obtained an R Square of 0.141 or 14.10% and an Adjusted R Square of 0.126 or 12.60% (Table 7)

Table 7. Results of the Determination Coefficient Test

Model	R	R Square	Adjusted R Square	Standard Error of the Estimate
1	.376	.141	.126	2.06379

Source: SPSS results

Adjusted R Square is only 12.60%. This shows that only 12.60% of economic growth can be explained or influenced by the variables studied, namely the BI rate, while the remaining 87.40% is explained by other variables not studied, such as inflation, consumption, government spending, exports and imports, geopolitics and global economic stability.

Significance of Research Results

This research provides important insights into the interactions between macroeconomic variables in Indonesia. The significance of the research findings lies in strengthening the impact of interest rate and exchange rate policies on inflation and economic growth, which have far-reaching consequences for monetary policy formulation. From a practical perspective, policies that fail to consider these relationships can lead to economic instability. Thus, this research demonstrates the need for a more in-depth analysis of these complex relationships to improve the effectiveness of monetary policy.

Policy Implications

The findings of this study provide important indications for policymakers that strategic interest rate and exchange rate management is essential to control inflation and stimulate economic growth. Monetary policy responsive to inflation and exchange rate dynamics is crucial for maintaining sustainable economic growth. This underscores the importance of flexibility in responding to rapid global economic changes.

CONCLUSION

The conclusion of this study confirms a significant relationship between inflation, exchange rates, interest rates (BI rate), and economic growth in Indonesia. The main finding indicates that inflation has a positive effect on interest rate regulation (BI rate), where each increase in inflation is followed by an increase in interest rates as a strategy by Bank Indonesia to control inflation and maintain economic growth. This study strengthens the argument that monetary policy must be combined with a strategy to maintain a stable exchange rate, in order to create a conducive environment for economic growth. Thus, these findings provide a significant contribution to the understanding of macroeconomic dynamics in Indonesia, as well as being an important source of information for policymakers in formulating policies oriented towards economic stability.

The reasoning from the analysis indicates that a more comprehensive approach is needed to understand the interactions between these variables. The findings, which indicate a causal relationship between inflation and interest rates, align with previous research by Ulfatul (2018), which explained the dynamics of inflation expectations in relation to monetary policy decisions. Research by Fuddin (2014) also found that the interest rate and exchange rate channels interact to influence economic growth. This suggests that central banks must consider all these aspects when formulating policy. This research certainly has broad implications for the existing literature and paves the way for future studies to explore more deeply how external factors and international policies can influence the domestic economy.

RECOMMENDATIONS FOR FURTHER RESEARCH

For future research, it is recommended that researchers consider other variables that may influence the identified relationships such as global trade war components, geopolitics, the impact of various fiscal policies, and other international factors that play a role in determining exchange rates and inflation and their influence on interest rates and economic growth.

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