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ANALYSIS OF THE EFFECT OF BI RATE, EXCHANGE RATE, AND ECONOMIC GROWTH ON INFLATION FOR THE PERIOD 1993-2022

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ABSTRACT

This study is an attempt to understand the impact of three main factors, namely the Bank Indonesia interest rate (BI Rate), currency exchange rate, and economic growth on the inflation rate in Indonesia. Inflation is a crucial indicator in a country's economy, and understanding what influences it is vital for economic policy planning. In order to investigate these factors, this research employs the multiple linear regression analysis method using the Ordinary Least Square (OLS) technique, which is a commonly used statistical method to identify relationships between various variables. The data used in this study are secondary data obtained from various reliable sources, encompassing a series of observations in the form of time series data spanning the period from 1993 to 2022. These data offer a strong insight into the changes and trends that have occurred in the parameters under examination over two decades or more. The findings of this research hold significant implications for understanding the Indonesian economy. First, it is found that the Bank Indonesia interest rate (BI Rate) has a positive impact on inflation. This means that when the BI Rate increases, the inflation rate tends to rise. This indicates that Bank Indonesia's interest rate policy directly influences the dynamics of inflation in the country. Furthermore, economic growth has a significant negative impact on inflation. This implies that when the economy grows, the inflation rate tends to decrease. In this context, stable and robust economic growth can serve as a tool for controlling inflation.

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1. INTRODUCTION

Instability will have an impact on the economy in Indonesia, where one of the components that affect economic growth in developing and developed countries is price stability. [1]. Indonesia has experienced instability problems that arose because the effects of the financial crisis affected the growth of the exchange rate in 1998, the increase in inflation in Indonesia increased to 77.63%. This problem destabilized the economy, so a monetary policy framework was created by the monetary authority or inflation objective framework (ITF) to maintain and achieve low and stable inflation. The economy can be affected by high inflation when people's income is not high. Inflation can reduce welfare, even if it is severe and leads to a decline in economic welfare Ginting (2016).

The movement of inflation during this period began with declining inflation until 1996, then the economic crisis hit Indonesia inflation soared very high in 1998 reaching 77.6%. Inflation fluctuated during the old order period due to the uncontrolled printing of funds, The amount of money in circulation was very large because there were more than three currencies in force in Indonesia. large, which resulted in hyperinflation. The impact of the Indonesian economy was unstable due to increased inflation, the Indonesian currency crisis began with a sharp devaluation of the rupiah compared to foreign currencies due to the domino effect of the devaluation of the Thai currency (bath) which led to an increase in the exchange rate on the price of foreign imported goods to Indonesia, Gonzalez Ariza (2014). Then in 2005 inflation again fluctuated upwards although not as high as in 1997, where inflation in 2005 reached 17.11%. Throughout this period, 2020 reached the lowest inflation of 1.66%, this coincided with the outbreak of the covid 19 virus.

In addition, inflation that is too low does not benefit the economy as it causes trade to slow down. Inflation negatively affects income distribution and high inflation affects economic growth, A. Mahendra (2016). The inflation rate must be monitored to maintain stability as it is very sensitive and influenced by

many factors. Law No. 3 of 2004 explains the amended objective of Bank Indonesia to realize the stability of the rupiah, which indicates the stability of the value of the currency against goods and services, as well as the value of other foreign currencies. Significant exchange rate fluctuations can affect the overall price level Anggraeni & Dwiputri (2022). Fluctuations in the rupiah exchange rate affect investment and capital flows, as well as international trade and the prices of goods traded are also affected by changes in the exchange rate. The price of a country's export goods will fall if the exchange rate increases and the price of imported goods will increase on the other hand, Sonia & Setiawina (2016). Indonesia imports many industrial raw materials, which increases the cost of producing goods and services. This has a major impact on the current exchange rate volatility. In other words, the decline in the value of the rupiah against foreign currencies causes economic instability. If the economy is unstable, inflation will increase so it is necessary to control the exchange rate. To prevent inflation, Bank Indonesia uses the BI rate to control interest rates. Systematically, several macroeconomic variables will be affected by changes in the BI rate, which is then reflected in inflation, Banu Yodiatmaja (2012). Changes in the BI rate depend on the current situation through Bank Indonesia's policies.

Anggraeni & Dwiputri (2022) Since people's income affects the inflation rate, GDP is one of the causes of inflation. Inflation control is very important as high and unstable inflation affects the social and economic situation of society. 1) An increase in inflation will reduce people's real income. which in turn will make everyone worse off, especially the poor. 2) For economic agents, uncertainty will arise due to unstable inflation. 3) Domestic interest rates will rise if domestic inflation is higher than inflation in neighboring countries. (Bank Indonesia 2023). Research conducted by Siti Marliah (2014), inflation is influenced by variables of government spending, SBI, JUB, exchange rate, GDP growth, and GDP. This shows that JUB and GDP variables have a major influence on short-term inflation, while inflation in the long term is strongly influenced by SBI variables. Research Wahyudi (2014) inflation is influenced by interest rates, GDP, JUB, exchange rates, and foreign debt are all factors that affect inflation. Obtained significant results on BI rate, GDP, and JUB variables. Research Senen et al (2020) inflation is influenced by exchange rates, interest rates and foreign exchange reserves. Obtained results that only interest rates had a significant effect. Research by Sipayung & Budhi (2012) inflation is influenced by GDP, Exchange Rate, and JUB. Obtained the result that the exchange rate has a significant influence.

According to Makhrus (2022), Countries with developing economies will try to keep the inflation rate below the ideal level through the authority of the Central Bank and government fiscal policy. Inflation is a rise in the prices of goods and services that is usually continuous over some time. A. Mahendra (2016). According to Boediono in Senen et al. (2018), inflation does not occur when the price of one or two goods rises separately instead, inflation occurs when this increase extends or triggers an increase in the price of the majority of other goods. According to Keynesian in Aghisna (2017), Inflation arises because people tend to want to live more than what they can pay, which can lead to an inflationary gap. According to Structural theory, inflation is not only a financial problem but also a structural problem or cost-push inflation. According to Nopirin in Wahyudi (2014) in general, the inflation rate is at a rate of progress depending on 1) demand, expressed as an inflation gap or, recession gap, 2) estimated cost increases, 3) various external impacts especially on the supply side.

One of the causes of inflation in Indonesia is the determination of the benchmark interest rate set by Bank Indonesia. According to Agustin (2020), the purpose of setting the benchmark interest rate is to improve the overall efficiency of monetary policy implementation. In the research of Langi et al. (2014), Kalalo et al. (2016), and Senen et al. (2020) said that inflation is strongly influenced by the BI Rate. Interest rates can influence a person's decision whether to spend money or save money for savings. Public savings are influenced by interest rates, according to classical theory. The higher the interest rate, the more people want to save. According to Wahyudi (2014) raising the BI rate is one way to lower the inflation rate in a situation where inflation is high. This is because an increase in the BI rate will have an impact on reducing the inflation rate.

Aghisna (2017) states that the Rupiah exchange rate or Rupiah exchange rate, is the price or value of the Rupiah currency compared to international currencies. Price parity theory, also known as exchange rates, was developed by a Swedish economist named Gustav Cassel. Wahyudi (2014) states that exchange rates have a positive impact on inflation. This can be because imported inflation causes inflation. The price of imported goods will increase if the Rupiah exchange rate falls against the US dollar, which means it can push up the price of domestic goods. According to A. Mahendra (2016) as inflation increases, the value of the country's currency falls.

Economic growth is a way to assess the economic performance of countries and regions. According to Makhrus & Priyadi (2022), GDP is an important measure of a country's economy and is the best tool for

measuring the level of public happiness. Because GDP can calculate two things at once: the total income of the country and the total costs provided by the government to purchase goods and services. According to Sipayung & Budhi (2013), an increase in income levels during a rapidly growing economy leads to inflation. This excessive spending exceeds the financial capacity to purchase goods and services. The research of Siti Marliah (2014) and Makhrus (2022) said that GDP has a significant negative effect on inflation. Naseem (2018) the impact of inflation on economic growth is inconsistent and differs from country to country.

2. METHOD

In this study, there are 4 variables where there is a dependent variable, namely Inflation and 3 independent variables, namely the Bank Indonesia interest rate (BI Rate), exchange rate (Kurs), and economic growth. Using secondary data sourced from Central Bureau of Statistics reports, Bank Indonesia reports, Indonesian Economic and Financial Statistics (SEKI), and World Bank. With quantitative research, time series data for the period 1993-2022 using Eviews 13 software. The regression equation is:

$$\mathbf{YINF = \alpha + \beta_1 SBI_1 + \beta_2 KURS_2 + \beta_3 PE_3 + e}$$

Where:
YINF = Inflation
SBI = Bank Indonesia Interest Rate (BI Rate)
COURSE = Exchange Rate (Kurs)
PE = Economic Growth
α = Constant/Intercept
β = Regression Coefficient
e = Standard Error

This study includes a classic assumption test: 1) multicollinearity, 2) normality, 3) autocorrelation and 4) heteroscedasticity. Simultaneous testing (f-test), individual testing (t-test) and testing the accuracy of estimates (R2).

3. RESULT AND DISCUSSION

Classical Assumption Test

1. Multicollinearity Test
   Multicollinearity test results by looking at the Variance Inflation Factor (VIF) is a condition that indicates that there is a strong relationship or relationship between two or more independent variables in multiple linear regression models. Using Eviews 13, the VIF value of the SBI variable, exchange rate, and economic growth each has a value of 3,681, 2,242 and 2,986 which means <10, it can be concluded that the multicollinearity assumption has been fulfilled or passes the multicollinearity test.
2. Normality Test
   The results of the normality test using Jarque-Bera testing, it is known that the data is normally distributed or the data has passed the test. As shown by the probability value of Jarquebera = 0.059 which means> from the value of 0.05 the SBI, exchange rate and economic growth variables are normally distributed.
3. Autocorrelation Test
   The results of the autocorrelation test using the LM (Lagrange Multiplier) method can be identified from the Obs * R-Square value with probability = 0.117> from 0.05, so the model does not have autocorrelation.
4. Heteroscedasticity Test
   The results of the heteroscedasticity test using the Harvey method show that the Obs * R-square value has a probability of 0.163 which is> from 0.05, so there are no symptoms of heteroscedasticity or it has been fulfilled and passed the heteroscedasticity test.

Research Model Estimation

Table 1 Regression Equation Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-4.339082	7.734584	-0.560997	0.5796
BIRATE	1.463198	0.278605	5.251866	0.0000
COURSE	0.000345	0.000378	0.911061	0.3706
PE	-1.047171	0.440775	-2.375752	0.0252
R squared	0.861873	Mean dependent var		8.972333

Adjusted R-squared	0.845935	S.D. dependent var	13.47166
S.E. of regression	5.287774	Akaike info criterion	6.292238
Sum squared resid	726.9744	Schwarz criterion	6.479064
Log likelihood	-90.38356	Hannan-Quinn criter.	6.352005
F-statistic	54.07752	Durbin-Watson stat	1.993681
ProbF-statistic)	0.000000		

Source: Research Findings

The following multiple linear regression equations were obtained as a result of data processing:
YINF= -4.339 + 1.463 SBI + -0.000 EXCHANGE RATE + -1.047 PE

Based on the results of the t-statistic test, the SBI variable has a t-statistic of 5.251 with a prob (significance) of o.ooo (<0.05) so it is said that changes in interest rates have a significant effect. While the exchange rate has no effect and the Economic Growth variable has a significant negative effect. For simultaneous testing (F test) the independent variable has a simultaneous effect on the dependent variable. The known Adjusted R Square value = 0.840, concluding that the contribution of independent variables contributes to the inflation variable simultaneously = 84%. While the remaining 16% is influenced by external variables not included in the model.

This study found that SBI has a significant positive effect. This is because there are certain situations where a reduction in interest rates might increase inflation or at least help maintain high inflation. Examples are very drastic interest rate cuts or if interest rates were already very low before. In addition, other external factors can also lead to higher inflation. This research is in line with the classical idea that people's savings are correlated with the interest rate, which indicates people's willingness to save. When interest rates are raised, it makes borrowing more expensive for individuals and firms. In addition, the attractiveness of investment is also reduced which results in economic sluggishness thus increasing inflation. Research [2] and [3] obtained the result that inflation is significantly influenced by the yield of interest rates.

From this study it is found that the exchange rate does not have a significant effect, this contradicts the previous idea, that the country's inflation rate does not increase if the country's currency exchange rate increases thus the depreciated exchange rate does not always affect or cause inflation automatically. Thus the depreciated exchange rate can be controlled through monetary policy through currency intervention with central bank intervention helping to strengthen the currency so that the exchange rate can be stable and does not affect inflation. This is in line with Senen et. al (2020), who found that the rupiah exchange rate does not have a significant impact. The effect of this exchange rate depends on the economic conditions of a country. On the other hand, the fall of the domestic currency will only cause temporary inflation. And research Kalalo et. al (2016) said inflation in this country is not affected by changes in the value of the Rupiah compared to the US Dollar. The government can anticipate changes in the exchange rate of the Rupiah against the US Dollar by disbursing foreign exchange reserves.

The results of this study prove that the results of economic growth have a significant negative impact. This research is in line with Makhrus and Priyadi (2020), and Jacobus et al. (2015) according to the theory, GDP hurts inflation, because the economy will be able to meet increased demand if its production capacity is sufficient, an increase in economic growth may not have an immediate impact on inflation. Central banks and governments can use monetary and fiscal policies to control inflation. For example, if rapid economic growth is perceived as potentially leading to high inflation, the central bank may increase interest rates to reduce demand and control inflation. Conversely, the government can use fiscal policy that changes spending to control inflationary pressures. Inflation can be affected by other external factors. According to Setiartiti & Hapsari (2019), GDP is not able to affect inflation because the increase in GDP is not taken into account or ignored by the high and low inflation that can be regulated or controlled through policy. Inflation is influenced by other factors such as rising fuel prices which increase production costs thereby reducing the supply side and then having an impact on general price increases. This analysis is not in line with Nugroho & Basuki (2012). Farizqiyah & Yuliana's (2022) GDP variable has a positive and significant effect.

4. CONCLUSION

Based on the comprehensive analysis conducted in this study, several key conclusions can be drawn regarding the factors influencing inflation in Indonesia. Firstly, it is evident that the Bank Indonesia interest rate (BI Rate) exerts a significant impact on inflation. When the BI Rate is adjusted upwards, it leads to an increase in the inflation rate. This underscores the importance of monetary policy and the need for careful consideration when setting interest rates, as they can directly influence the

overall price levels in the country. Conversely, the study has revealed that economic growth has a substantial negative effect on inflation. This implies that as the economy grows and prospers, inflationary pressures tend to ease. A robust and stable economic environment can, therefore, be a powerful tool for curbing inflation. Policymakers should focus on nurturing a conducive economic climate that encourages growth as part of their strategy to control inflation. Furthermore, the research found that the exchange rate does not have a significant impact on inflation. This suggests that in the Indonesian context, fluctuations in the exchange rate may not be a primary driver of inflation. It's essential to understand this nuance and consider other factors when formulating economic policies. In light of these findings, it is crucial for monetary authorities, particularly Bank Indonesia, to maintain low and stable interest rates. This will be instrumental in achieving the objective of controlling inflation effectively. It may necessitate a fine-tuning of the existing policies and the development of new strategies to ensure that inflation remains within desirable limits.

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