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Analysis of the Effect of Inflation and Interest Rates on the Rupiah Exchange Rate Over the US Dollar

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ABSTRACT: This study analyses the effect of inflation and interest rates on the Rupiah exchange rate over the period Q1 2013 to Q4 2023. Using the Vector Error Correction Model (VECM) method, this study shows that in the short-term US inflation has a significant effect on the Rupiah exchange rate over the US dollar with a statistical value of t [-2.17833], while Indonesian inflation, BI rate, and Fed rate have no significant effect on the Rupiah exchange rate over the US dollar. Meanwhile, in the long term, US inflation and BI rate have a significant effect on the Rupiah exchange rate against the US dollar with a statistical value of t [-3.99210] and [-3.49936], while Indonesian inflation and the Fed rate have no significant effect on the Rupiah exchange rate on the US dollar. Therefore, BI needs to consider the Fed Rate, Indonesian inflation and US inflation in setting its monetary policy.

KEYWORDS: Inflation, Interest Rate, Rupiah Exchange Rate, Vector Error Correction Model (VECM)

I. INTRODUCTION

Currency exchange rates are an important indicator in a country's economy, especially in the context of international trade and macroeconomic stability (Manihuruk et al., 2024). The Rupiah as Indonesia's currency often fluctuates against the United States Dollar (USD), which is the global benchmark currency. This exchange rate movement is inseparable from various economic factors, including inflation rates and interest rates, both domestically and from the United States. In recent years, the dynamics of the global economy have created major challenges for the stability of the Rupiah exchange rate. The monetary policies implemented by Bank Indonesia and the Federal Reserve (Fed) through the setting of each country's benchmark interest rates have had a significant impact on exchange rate movements. Meanwhile, the difference in inflation rates between Indonesia and the United States also plays an important role in determining the direction of the exchange rate movement of the two currencies.

This phenomenon is becoming increasingly interesting to study given the complexity of the relationship between the three variables. High inflation rates tend to weaken the value of a country's currency, while higher interest rates can attract foreign capital and strengthen the exchange rate (Murjiani & Reza Adiyanto, 2023). However, this relationship is not always linear and can be influenced by various other external factors. The movement pattern of the Rupiah exchange rate against the US Dollar since the 1998 economic crisis shows a volatile trend and tends to depreciate. This is inseparable from various fundamental economic factors, including differences in inflation rates and interest rates between the two countries.

The Global Financial Crisis (GFC) phenomenon in 2008 and the COVID-19 pandemic in 2020 have provided valuable lessons on how external shocks can affect exchange rate dynamics through inflation and interest rate channels. Both events triggered aggressive monetary policy responses, including significant interest rate cuts and the implementation of quantitative easing policies, which in turn affected exchange rate movements. Differences in economic fundamentals between Indonesia and the United States create disparities in the determination of monetary policy between the two countries (Bella & Kusumawardhani, 2022). Indonesia, as a developing country, tends to have a higher inflation rate than the United States, which implies differences in the determination of the benchmark interest rate. This creates an interest rate differential that affects capital flows and ultimately impacts the exchange rate.

Digital transformation and global financial market integration have increased the sensitivity of exchange rates to changes in monetary policy. The speed of capital movement across countries is getting higher, so any changes in expectations regarding the direction of interest rate and inflation policies can be immediately reflected in exchange rate movements (Herawati, 2021). This requires a deeper understanding of the transmission mechanism of monetary policy on exchange rates.

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Bank Indonesia's efforts to maintain exchange rate stability through a combination of monetary policy and forex market intervention face increasingly complex challenges (Ulya & Qothrunnada, 2024). On the one hand, the central bank needs to maintain a competitive exchange rate to support exports and economic growth. On the other hand, excessive exchange rate volatility can destabilise prices and the financial system. The Federal Reserve, as the central bank of the United States, has a significant influence on global exchange rate movements through its monetary policy. Any change in the Fed's policy direction, whether in the form of interest rate adjustment or forward guidance, often triggers a strong response in the foreign exchange market, including the Rupiah exchange rate. This emphasises the importance of understanding the interaction between the two countries' monetary policies in the context of bilateral exchange rates.

Based on the background that has been described, this study seeks to analyse the complexity of the relationship between macroeconomic variables that affect the Rupiah exchange rate against the US Dollar. Specifically, this study examines how the inflation rate in Indonesia plays a role in influencing the movement of the Rupiah exchange rate against the US Dollar, as well as the extent to which the US inflation rate impacts the exchange rate dynamics. Furthermore, this study also investigates how monetary policy through interest rate instruments, whether set by Bank Indonesia or The Federal Reserve, affects the exchange rate movements of both currencies.

II. LITERATURE REVIEW

Exchange Rate Theory

Exchange rate is one of the fundamental concepts in international economics that has evolved in understanding since the Gold Standard era to the current floating exchange rate system. In a theoretical context, exchange rates are defined as the relative price of one country's currency against another country's currency. Modern exchange rate theory recognises that exchange rate movements are influenced by various economic, political and psychological factors that interact with each other in a complex global financial system. The Monetary Approach to Exchange Rate Determination developed by Frenkel (1976) and Mussa (1976) emphasises that exchange rate movements are primarily influenced by differences in the demand and supply of money between countries (Al-qarni, 2024). This theory explains that changes in monetary variables such as money supply, interest rates, and price levels have a direct impact on exchange rates through the money market adjustment mechanism. In its development, the Portfolio Balance Approach theory proposed by Branson and Henderson (1985) expanded the analysis by considering the role of financial assets in determining exchange rates (Santosa, 2015). This approach emphasises that international investors consider the composition of their portfolios based on the expected return and risk of various assets denominated in different currencies, which in turn affects currency demand and exchange rates.

Inflation Theory and its Relationship with Exchange Rates

The Purchasing Power Parity (PPP) theory developed by Gustaf Cassel (1918) provides a basic framework for understanding the relationship between inflation and exchange rates (Azwenda & Satrianto, 2023). This theory explains that in the long run, exchange rates will adjust to reflect the difference in price levels between two countries. However, various empirical studies show that PPP is often not fulfilled in the short run due to various factors such as transport costs, trade barriers, and differences in the composition of the price basket. Inflation affects exchange rates through several transmission channels. First, higher inflation in a country tends to reduce the competitiveness of the country's exports, which in turn can depress the exchange rate. Second, high inflation often encourages economic agents to shift their assets to more stable currencies, creating depreciation pressure on the domestic currency. Thirdly, inflation expectations influence investment decisions and international capital flows, impacting currency demand.

Interest Rate Theory and its Effect on Exchange Rates

The Interest Rate Parity (IRP) theory provides an analytical framework to understand the relationship between interest rates and exchange rates. The theory explains that interest rate differentials between two countries will be reflected in the difference between forward and spot exchange rates (Rasbin, 2015). In the context of Uncovered Interest Rate Parity (UIP), the nominal interest rate differential between two countries should equal the expected change in the exchange rate, although empirical evidence shows that this condition is not always fulfilled in practice. The Fisher Effect International developed by Irving Fisher explains the relationship between nominal interest rates, inflation, and exchange rates. The theory states that differences in nominal interest rates between two countries reflect differences in inflation expectations, which in turn affect exchange rate expectations. In this context, an increase in domestic interest rates relative to foreign interest rates tends to strengthen the domestic currency exchange rate through increased capital inflows.

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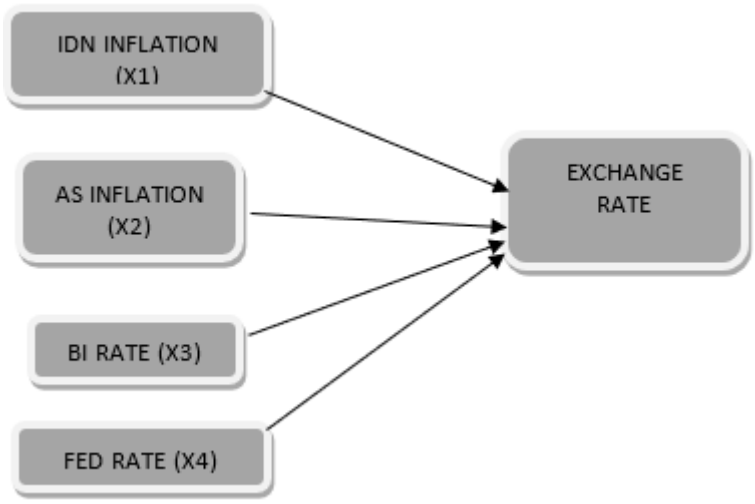
Previous Research

Various empirical studies have been conducted to analyse the relationship between inflation, interest rates, and exchange rates. Inflation has a significant influence on exchange rate volatility, with stronger effects in developing countries (Anggraeni, 2022). The response of the exchange rate to an inflation shock varies depending on the credibility of the central bank's monetary policy (Juli & Ghofur, 2024). The effectiveness of Bank Indonesia's monetary policy in influencing the Rupiah exchange rate through the interest rate channel. Their findings show that the effectiveness of monetary policy transmission through the exchange rate channel is affected by global financial market conditions and investor sentiment. Meanwhile, the relationship between inflation and exchange rate in Indonesia is non-linear and influenced by the prevailing exchange rate regime. Recent research by (Hidayati & Sugiyanto, 2020) used the Vector Autoregression (VAR) methodology to analyse the dynamic interaction between the Federal Reserve monetary policy and the exchange rate movements of developing countries. The results showed that the influence of Fed policy on the exchange rate of emerging market currencies is getting stronger along with the increasing integration of global financial markets.

Inflation and SBI interest rates have a significant effect on the rupiah exchange rate. However, in this case the influence of inflation and the SBI interest rate on the exchange rate is not so great, so it can still be controlled or balanced (Farlian et al., 2019). In research (Diana & Dewi, 2019) proves that simultaneously the variables of interest rates, money supply, inflation, and exports have a significant effect on the Rupiah exchange rate over the United States Dollar. Partially, the interest rate variable has a positive effect on the Rupiah exchange rate over the United States Dollar, while the money supply, inflation, and export variables have no effect on the Rupiah exchange rate over the United States Dollar. This is in line with research (Istiqamah & Septiana, 2018) which proves that simultaneously the inflation rate and interest rate (BI rate) have a positive and significant effect on the US Dollar Exchange Rate. While partially, inflation has a negative effect on the Rupiah Exchange Rate against the US Dollar, while the interest rate has a positive and significant effect on the Rupiah Exchange Rate against the US Dollar.

Conceptual Framework



III. METHOD

This research uses a quantitative method with an econometric approach. The type of data used is secondary data sourced from official websites such as Bank Indonesia, BPS, Inflationcalculator, and Tradingeconomics. The data used in the study is quarterly data for the period from the first quarter of 2013 to the fourth quarter of 2023. The variables used are the Rupiah exchange rate on the US Dollar (Y), Indonesian inflation (X1), US Inflation (X2), BI Rate (X3), and FED Rate (X4). The analysis technique used is the Vector Error Correction Model (VECM) using EViews 12 software for econometric model estimation and Microsoft Excel for initial data processing.

The Vector Error Correction Model (VECM) has several stages of analysis including:

1. Data Stationarity Testing
   Using the Augmented Dickey-Fuller test to ensure the data used is stationary or needs to be differentiated.
2. Cointegration Test
   Using the Johansen test to determine the long-term relationship between variables.
3. VECM Model Estimation

This model was chosen because it is able to capture both short-term and long-term relationships between variables, and can show the speed of adjustment when imbalances occur.

4. Impulse Response and Variance Decomposition Analysis
   To see the response of the exchange rate to shocks in the inflation and interest rate variables, and measure the contribution of each variable in explaining exchange rate variability.

The mathematical model used in this study is:

$$\mathbf{Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon}$$

Dimana:

Y = Rupiah/USD Exchange Rate

X_1 = Indonesia Inflation

X_2 = AS Inflation

X_3 = BI Rate

X_4 = Fed Rate

α = Constant

β = Koefisien regresi

ε = Error term

IV. RESULTS AND DISCUSSION

1. Data Stationarity Test

Stationary tests are conducted using the Augmented Dickey-Fuller (ADF) test at the level.

Table 1. Stationary Test with ADF Test at *Level*

Variable	Probability	Test Result Stationary at *Level*
Exchange Rate	0,0252	p < 0,05 (data stasioner at the level)
IDN Inflation	0,3592	p > 0,05 (data not stationary at level)
AS Inflation	0,4902	p > 0,05 (data not stationary at level)
BI Rate	0,4101	p > 0,05 (data not stationary at level)
FED Rate	0,6415	p > 0,05 (data not stationary at level)

Based on the stationary test results in Table 1. It is known that the exchange rate data is stationary at the level with a p value <0.05. However, IDN inflation, US inflation, BI rate, and FED rate data are not yet stationary at the level, with a p value > 0.05. The data of exchange rate, IDN inflation, US inflation, BI rate, and FED rate are tested again for stationary at first difference.

Table 2. Stationary Test with ADF Test on First Difference

Variable	Probability	Stationary test results at *first difference*
Exchange Rate	0,000	p < 0.05 (data stationary at *first difference*)
IDN Inflation	0,0002	p < 0.05 (data stationary at *first difference*)
AS Inflation	0,0422	p < 0.05 (data stationary at *first difference*)
BI Rate	0,0028	p < 0.05 (data stationary at *first difference*)
FED Rate	0,0023	p < 0.05 (data stationary at *first difference*)

Based on the stationary test results in Table 2, it is known that the exchange rate, IDN inflation, US inflation, BI rate, and FED rate data are stationary in the first difference. With all p values <0.05.

2. Cointegration Test

After stationary testing, then cointegration testing is carried out. Cointegration testing is done using the Johansen cointegration test.

Table 3. Johansen Cointegration Test

Date: 04/29/25 Time: 22:50
Sample (adjusted): 2013Q3 2023Q4
Included observations: 42 after adjustments
Trend assumption: No deterministic trend
Series: KURS INFLASIIDN INFLASIAS BIRATE FEDRATE
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.554581	70.25316	60.06141	0.0054
At most 1	0.361776	36.28613	40.17493	0.1167
At most 2	0.212308	17.42537	24.27596	0.2848
At most 3	0.152279	7.402168	12.32090	0.2869
At most 4	0.010977	0.463597	4.129906	0.5593

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Based on the Johansen cointegration test results in Table 3. It is known that the probability value in the None row is 0.0054, which is <0.05, which means that there is a cointegration equation, which means that it has a long-term balance.

3. VECM Model

Next, a VECM model will be formed. The results of the VECM model are presented in Table 4.

Table 4. VECM Model

Vector Error Correction Estimates
Date: 04/29/25 Time: 22:54
Sample (adjusted): 2013Q3 2023Q4
Included observations: 42 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
KURS(-1)	1.000000
INFLASIIDN(-1)	58.70766
	(14.2696)
	[4.11418]
INFLASIAS(-1)	-46.32736
	(11.6047)
	[-3.99210]
BIRATE(-1)	-44.36601
	(12.6783)
	[-3.49936]
FEDRATE(-1)	85.33395

	(13.9180)				
	[6.13118]				
Error Correction:	D(KURS)	D(INFLASIIDN)	D(INFLASIAS)	D(BIRATE)	D(FEDRATE)
CointEq1	0.000650	-0.005544	-0.002904	0.000564	-0.001140
	(0.00116)	(0.00188)	(0.00100)	(0.00071)	(0.00059)
	[0.56188]	[-2.94842]	[-2.91657]	[0.79152]	[-1.92642]
D(KURS(-1))	-0.335601	0.023968	0.011996	0.142111	0.205583
	(0.16809)	(0.27338)	(0.14477)	(0.10351)	(0.08600)
	[-1.99659]	[0.08767]	[0.08286]	[1.37296]	[2.39052]
D(INFLASIIDN(-1))	0.106215	-0.175645	0.067284	0.024030	0.055696
	(0.09396)	(0.15282)	(0.08093)	(0.05786)	(0.04807)
	[1.13042]	[-1.14937]	[0.83139]	[0.41531]	[1.15855]
D(INFLASIAS(-1))	0.044861	-0.333907	-0.386245	0.072741	-0.032727
	(0.20586)	(0.33482)	(0.17731)	(0.12677)	(0.10533)
	[0.21792]	[-0.99727]	[-2.17833]	[0.57381]	[-0.31072]
D(BIRATE(-1))	-0.024848	0.434242	0.014375	0.135322	-0.132469
	(0.28117)	(0.45730)	(0.24217)	(0.17314)	(0.14386)
	[-0.08837]	[0.94958]	[0.05936]	[0.78156]	[-0.92084]
D(FEDRATE(-1))	0.212935	0.497859	0.214084	0.347075	0.780078
	(0.26679)	(0.43391)	(0.22979)	(0.16429)	(0.13650)
	[0.79814]	[1.14738]	[0.93166]	[2.11261]	[5.71491]
R-squared	0.136106	0.251341	0.213184	0.316218	0.489878
Adj. R-squared	0.016121	0.147361	0.103904	0.221248	0.419028
Sum sq. resids	17.35588	45.91030	12.87549	6.581403	4.543270
S.E. equation	0.694340	1.129286	0.598041	0.427571	0.355249
F-statistic	1.134359	2.417197	1.950807	3.329670	6.914283
Log likelihood	-41.03691	-61.46483	-34.76619	-20.67356	-12.89094
Akaike AIC	2.239853	3.212611	1.941247	1.270170	0.899569
Schwarz SC	2.488092	3.460850	2.189486	1.518408	1.147807
Mean dependent	0.130643	-0.078333	0.054762	0.000000	0.125000
S.D. dependent	0.700005	1.222985	0.631762	0.484516	0.466075
Determinant resid covariance (dof adj.)	0.002412				
Determinant resid covariance	0.001116				
Log likelihood	-155.2208				
Akaike information criterion	9.058132				
Schwarz criterion	10.50619				
Number of coefficients	35				

Based on the results of the VECM model in Table 4. the following interpretations can be made:

- In the short run, changes in US inflation during the past quarter significantly affect US inflation in the current quarter, with a statistical value of t [-2.17833] > critical value of t [2.016692199]. If past-quarter US inflation increases by 1 per cent, it will cause current-quarter US inflation to decrease by -0.386245 dollars.

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- In the long run, US inflation has a significant effect on the exchange rate, with a statistical value of t [-3.99210] > critical value of t [2.016692199].
- In the long run, the BI rate has a significant effect on the exchange rate, with a statistical value of t [-3.49936] > the critical value of t [2.016692199].

Based on the VECM model results in Table 4. The equation is obtained as follows:

Estimation Proc:

==========

EC(A,1) 1 1 KURS INFLASIIDN INFLASIAS BIRATE FEDRATE

VAR Model:

==========

D(KURS) = A(1,1)*(B(1,1)*KURS(-1) + B(1,2)*INFLASIIDN(-1) + B(1,3)*INFLASIAS(-1) + B(1,4)*BIRATE(-1) + B(1,5)*FEDRATE(-1)) + C(1,1)*D(KURS(-1)) + C(1,2)*D(INFLASIIDN(-1)) + C(1,3)*D(INFLASIAS(-1)) + C(1,4)*D(BIRATE(-1)) + C(1,5)*D(FEDRATE(-1))

D(INFLASIIDN) = A(2,1)*(B(1,1)*KURS(-1) + B(1,2)*INFLASIIDN(-1) + B(1,3)*INFLASIAS(-1) + B(1,4)*BIRATE(-1) + B(1,5)*FEDRATE(-1)) + C(2,1)*D(KURS(-1)) + C(2,2)*D(INFLASIIDN(-1)) + C(2,3)*D(INFLASIAS(-1)) + C(2,4)*D(BIRATE(-1)) + C(2,5)*D(FEDRATE(-1))

D(INFLASIAS) = A(3,1)*(B(1,1)*KURS(-1) + B(1,2)*INFLASIIDN(-1) + B(1,3)*INFLASIAS(-1) + B(1,4)*BIRATE(-1) + B(1,5)*FEDRATE(-1)) + C(3,1)*D(KURS(-1)) + C(3,2)*D(INFLASIIDN(-1)) + C(3,3)*D(INFLASIAS(-1)) + C(3,4)*D(BIRATE(-1)) + C(3,5)*D(FEDRATE(-1))

D(BIRATE) = A(4,1)*(B(1,1)*KURS(-1) + B(1,2)*INFLASIIDN(-1) + B(1,3)*INFLASIAS(-1) + B(1,4)*BIRATE(-1) + B(1,5)*FEDRATE(-1)) + C(4,1)*D(KURS(-1)) + C(4,2)*D(INFLASIIDN(-1)) + C(4,3)*D(INFLASIAS(-1)) + C(4,4)*D(BIRATE(-1)) + C(4,5)*D(FEDRATE(-1))

D(FEDRATE) = A(5,1)*(B(1,1)*KURS(-1) + B(1,2)*INFLASIIDN(-1) + B(1,3)*INFLASIAS(-1) + B(1,4)*BIRATE(-1) + B(1,5)*FEDRATE(-1)) + C(5,1)*D(KURS(-1)) + C(5,2)*D(INFLASIIDN(-1)) + C(5,3)*D(INFLASIAS(-1)) + C(5,4)*D(BIRATE(-1)) + C(5,5)*D(FEDRATE(-1))

VAR Model - Substituted Coefficients:

==========

D(KURS) = 0.000649621021293*(KURS(-1) + 58.707656915*INFLASIIDN(-1) - 46.3273610202*INFLASIAS(-1) - 44.3660052575*BIRATE(-1) + 85.3339509567*FEDRATE(-1)) - 0.335600901208*D(KURS(-1)) + 0.106214732968*D(INFLASIIDN(-1)) + 0.044860822286*D(INFLASIAS(-1)) - 0.024847818195*D(BIRATE(-1)) + 0.212934977555*D(FEDRATE(-1))

D(INFLASIIDN) = - 0.00554416377633*(KURS(-1) + 58.707656915*INFLASIIDN(-1) - 46.3273610202*INFLASIAS(-1) - 44.3660052575*BIRATE(-1) + 85.3339509567*FEDRATE(-1)) + 0.0239682041303*D(KURS(-1)) - 0.175645301293*D(INFLASIIDN(-1)) - 0.333906986376*D(INFLASIAS(-1)) + 0.434241773525*D(BIRATE(-1)) + 0.497858926563*D(FEDRATE(-1))

D(INFLASIAS) = - 0.00290433721869*(KURS(-1) + 58.707656915*INFLASIIDN(-1) - 46.3273610202*INFLASIAS(-1) - 44.3660052575*BIRATE(-1) + 85.3339509567*FEDRATE(-1)) + 0.0119963774446*D(KURS(-1)) + 0.0672837547524*D(INFLASIIDN(-1)) - 0.386245052102*D(INFLASIAS(-1)) + 0.0143745925805*D(BIRATE(-1)) + 0.214083627858*D(FEDRATE(-1))

D(BIRATE) = 0.000563527878429*(KURS(-1) + 58.707656915*INFLASIIDN(-1) - 46.3273610202*INFLASIAS(-1) - 44.3660052575*BIRATE(-1) + 85.3339509567*FEDRATE(-1)) + 0.142110717252*D(KURS(-1)) + 0.0240297038531*D(INFLASIIDN(-1)) + 0.0727412530344*D(INFLASIAS(-1)) + 0.135322347194*D(BIRATE(-1)) + 0.347075290561*D(FEDRATE(-1))

D(FEDRATE) = - 0.00113953328927*(KURS(-1) + 58.707656915*INFLASIIDN(-1) - 46.3273610202*INFLASIAS(-1) - 44.3660052575*BIRATE(-1) + 85.3339509567*FEDRATE(-1)) + 0.205582765662*D(KURS(-1)) + 0.055695528592*D(INFLASIIDN(-1)) - 0.0327269165553*D(INFLASIAS(-1)) - 0.13246891197*D(BIRATE(-1)) + 0.780078359843*D(FEDRATE(-1))

If only significant criteria are selected, then the equation is summarised as:

D(KURS) = 0.000649621021293*(KURS(-1) - 46.3273610202*INFLASIAS(-1) - 44.3660052575*BIRATE(-1) + 0.044860822286*D(INFLASIAS(-1))

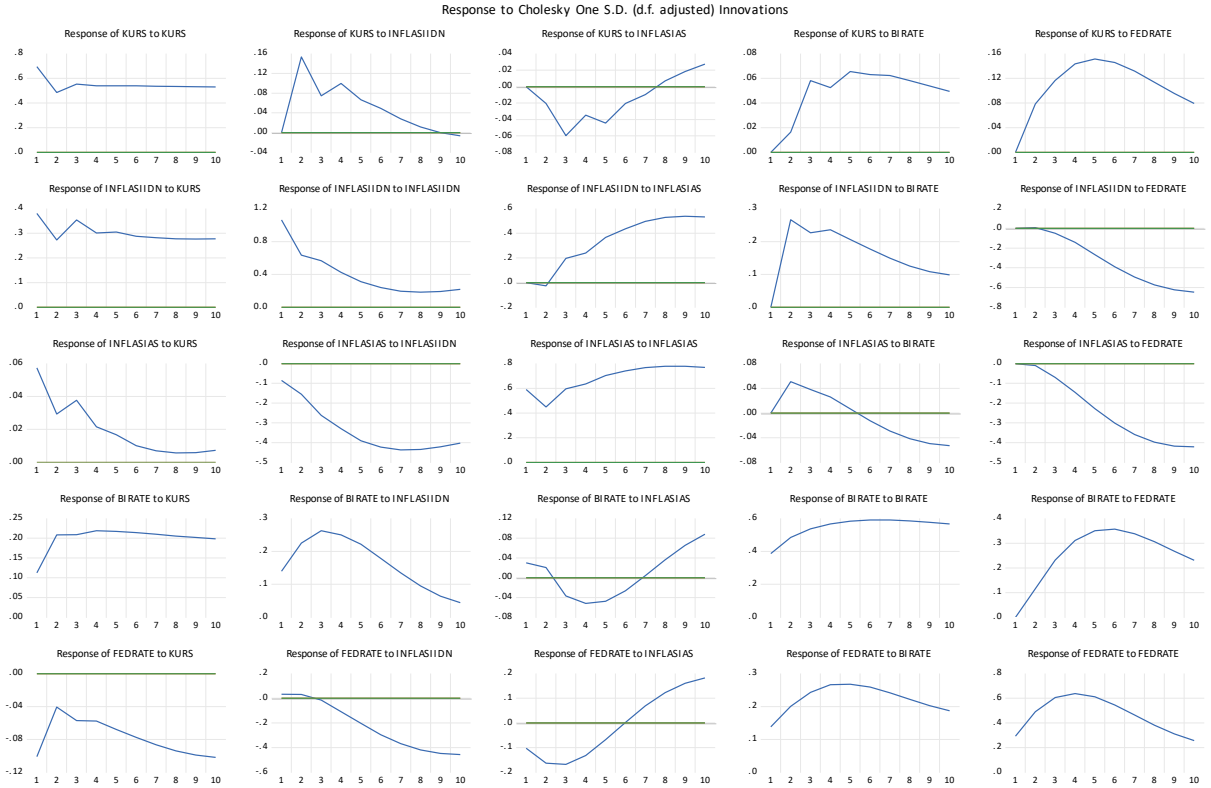
D(INFLASIAS) = - 46.3273610202*INFLASIAS(-1) - 0.386245052102*D(INFLASIAS(-1))

D(BIRATE) = - 44.3660052575*BIRATE(-1)

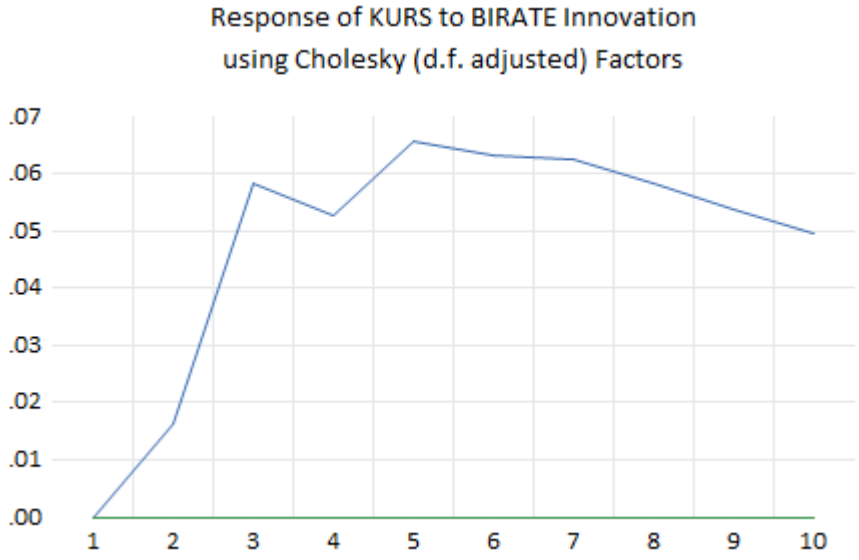
4. Impulse Response dan Variance Decomposition Analysis

a. Impulse Response

Next, the Impulse response test will be carried out



Based on the impulse response in the figure above, we want to see the overall response until period 10. After we observe the reponse until period 10, we want to see in detail the response of the exchange rate to the BI rate until period 10.



Based on the impulse response above, it can be seen that at the beginning of the period until the 3rd period the exchange rate response increases. After the 3rd period, the exchange rate response fluctuctes until the 5th period (up and down), since there is a shock to the BI rate. Furthermore, after the 5th period, the exchange rate response has descreased, meaning that the exchange rate fluctuates unlike the previous period.

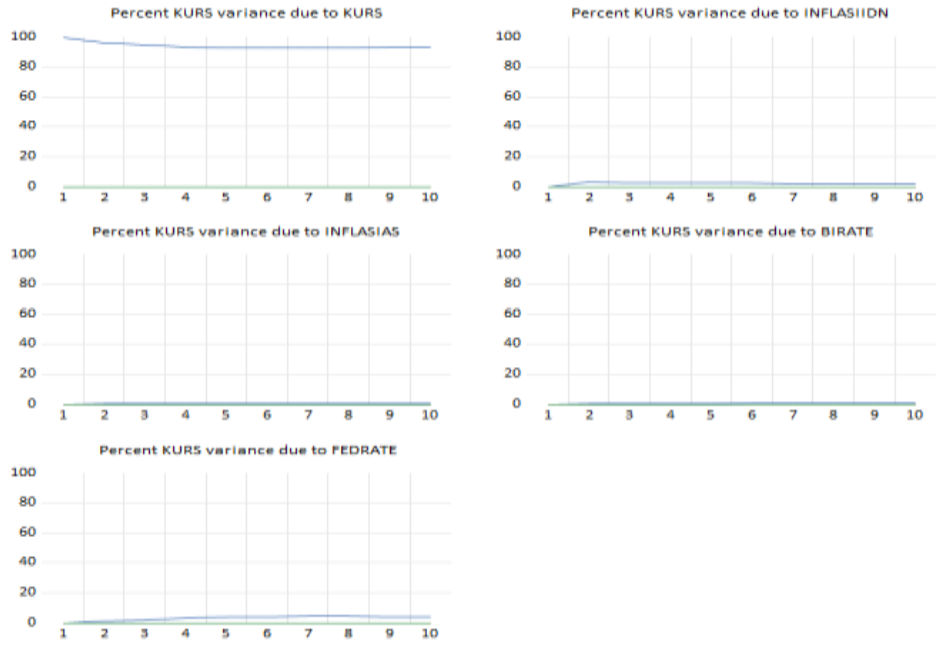
b. Variance Decomposition

Tabel 5. Variance Decomposition

Variance Decomposition of KURS:

Period	S.E.	KURS	INFLASIIDN	INFLASIAS	BIRATE	FEDRATE
1	0.694340	100.0000	0.000000	0.000000	0.000000	0.000000
2	0.864375	95.93072	3.155739	0.056346	0.035490	0.821704
3	1.039375	94.76960	2.698704	0.369603	0.337403	1.824691
4	1.185815	93.52851	2.778021	0.369328	0.455642	2.868495
5	1.315620	92.79740	2.512319	0.413899	0.618742	3.657644
6	1.431658	92.54874	2.238746	0.370428	0.716196	4.125888
7	1.535811	92.58592	1.978367	0.326031	0.787005	4.322673
8	1.631170	92.80842	1.758655	0.290911	0.824640	4.317370
9	1.719430	93.11099	1.582742	0.273308	0.840101	4.192855
10	1.802303	93.43631	1.441870	0.271822	0.840112	4.009890

Based on the variance decomposition test, as the period increases, the ability of the BI rate and Fed rate to influence the exchange rate increases while the ability of Indonesian inflation and US inflation to influence the exchange rate decreases.



Based on the variance decomposition test result above, it can be see that:

- Exchange rate on Indonesian inflation. It can be seen that, from period, 1 to period 2, Indonesia's inflation has increased in influencing the exchange rate. After period 2 inflation, Indonesia has decreased until period 3. In period 3 to period 6,5 inflation, Indonesia stabilised, then decreased again until period 7. And after period 7, Indonesia's inflation stabilised in affecting the exchange rate.
- Exchange rate on inflation As. It can be seen that from period 1 to period 10 US inflation is stable, in affecting the exchange rate.
- Exchange rate against Bi rate. It can be seen that from period 1 to period 5,5 Bi rate is stable in affecting the exchange rate, in period 5,5 to period 6 it has increased in affecting the exchange rate, and in period 6 to period 10 Bi rate is stable in affecting the exchange rate.
- Exchange rate against the FED rate. It can be seen that from period 1 to period 8,5 the FED rate has increased in influencing the exchange rate. In the period 8,5 to period 9 the FED rate decreased and in the period 9 to period 10 the FED rate stabilised in affecting the exchange rate.

CONCLUSIONS

This study analyses the effect of inflation and interest rates on the Rupiah exchange rate over the period Q1 2013 to Q4 2023. Using the Vector Error Correction Model (VECM) method, this study shows that in the short term US inflation has a significant effect on the Rupiah exchange rate over the US dollar with a statistical value of t [-2.17833], while Indonesian inflation, BI rate, and F**ed** rate have no significant effect on the Rupiah exchange rate over the US dollar. Meanwhile, in the long term, US inflation and BI rate have a significant effect on the Rupiah exchange rate against the US dollar with a statistical value of t [-3.99210] and [-3.49936], while Indonesian inflation and the F**ed** rate have no significant effect on the Rupiah exchange rate on the US dollar. Therefore, BI needs to consider the Fed Rate, Indonesian inflation and US inflation in setting its monetary policy.

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