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Monetary Policy Transmission Channels Through Interest Rate and Inflation Channels in Indonesia: VECM Analysis 2018-2024

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Abstract

This study aims to assess the effectiveness of monetary policy transmission through the interest rate channel in influencing inflation in Indonesia during the period 2018–2024. The analysis employs the Vector Error Correction Model (VECM) approach, incorporating four key variables: Bank Indonesia policy rate (BI7DRR), lending rate (SBK), interbank money market rate (RPUAB), and the inflation rate. The findings reveal that, in the long run, the BI7DRR has a negative and statistically significant impact on inflation, indicating that the interest rate policy effectively contributes to maintaining price stability. Conversely, the SBK and RPUAB show no significant influence in the short run, suggesting that the transmission mechanism through the credit and interbank markets remains suboptimal. The Impulse Response Function (IRF) analysis indicates that inflation responds negatively to shocks in BI7DRR and RPUAB during the medium term, while the Variance Decomposition (VD) results show that the contribution of BI7DRR to inflation variability increases over time. Overall, the study provides evidence that interest rate–based monetary policy remains a crucial instrument for controlling inflation in Indonesia. Nevertheless, the effectiveness of transmission through the credit and interbank channels needs to be strengthened through closer coordination between monetary authorities and financial institutions, especially amid the heightened global uncertainty in the post-pandemic period.

Keywords: BI7DRR, Credit Interest Rate, RPUAB, Inflation, VECM

1. Background Behind

Maintaining low and stable inflation is the primary objective of monetary policy implemented by central banks. The *inflation targeting framework* has evolved into one of the most effective modern monetary policy strategies for guiding public inflation expectations while simultaneously strengthening the credibility of central banks. According to a Federal Reserve report, the success of inflation targeting depends on five key elements: setting a numerical inflation target, establishing an institutional commitment to price stability, adopting a forward-looking (anticipatory) approach, ensuring transparency, and reinforcing accountability. Together, these elements enable central banks to maintain long-term economic stability (Kiley & Mishkin, 2025). Recent empirical evidence from Indonesia supports these findings, showing that inflation and exchange rate stability are essential prerequisites for sustainable economic growth. Moreover, inflation instability has a more detrimental impact on growth than exchange rate volatility (Kuncoro et al., 2024). Therefore, the implementation of inflation targeting serves not only as a technical instrument for price stabilization but also as a strategic policy framework designed to strengthen national economic resilience amid ongoing global uncertainty.

In Indonesia, official data show that inflation has fluctuated from 2018–2024, with a peak in December 2022 at 5.51 percent, well above the inflation target of 3 ± 1 percent; according to the Official Statistical News (BRS) from BPS, national inflation in 2022 increased significantly to 5.51 percent, driven especially by surges in energy prices, the food and tobacco group, transportation, and other basic necessities, while at the same time Bank Indonesia emphasized that the national inflation target is 3 ± 1 percent, so the actual realization clearly lay outside the intended monetary policy zone; that inflation was triggered by fuel price adjustments, pressures on food prices due to climate disruptions, and turbulence in global vegetable-oil prices that pushed up domestic cooking-oil prices (Bank Indonesia, 2022), a phenomenon showing that, despite consistent inflation targeting, external pressures and domestic factors can undermine the effectiveness of monetary policy.

The existence of a close connection between interest rate policy and the inflation rate, according to Keynesian theory, suggests that an increase in interest rates can suppress aggregate demand through the mechanism of higher savings and reduced investment, which ultimately leads to a decline in inflation. Empirical research in Indonesia supports these findings. For example, the results of the Error Correction Model (ECM) show that Bank Indonesia's interest rate has a significant short-term relationship with inflation, with a coefficient consistent with the hypothesis, meaning that an increase in interest rates tends to reduce inflation, although the money supply variable is not significant in the model (Hasanah, 2018). Another study using the EViews and ECM approach revealed that credit has a significant negative effect on inflation in the short term, indicating differences in the effectiveness of monetary policy transmission channels between the interest rate path and the credit path (Fahrurrazi et al., 2023)

Recent studies in Indonesia reveal that changes in the BI7DRR have a significant impact on inflation, although a time lag is required for the policy transmission to be felt in the real sector (Jamar & Aimon, 2021) Other studies even find that the credit and interbank money market interest rate channels have different effects on inflation, with their effectiveness often limited in the short term. (Fahrurrazi et al., 2023)

A number of studies show that when the BI7DRR is raised to curb inflation, the interbank money market rate (RPUAB), as the operational target, also increases, reflecting a short-term liquidity response to monetary policy. Meanwhile, multivariate analysis shows that the RPUAB is significantly influenced by inflation, exchange rates, money supply, and investment, confirming that the RPUAB channel reflects short-term monetary conditions rather than a direct impact on inflation (Odoom et al., 2025). Previous studies have shown mixed results regarding the effectiveness of the interest rate transmission channel in influencing inflation in Indonesia. Some studies find that the BI7DRR has a negative and significant effect on inflation, both in the short and long term (Tchereni et al., 2022). Similar findings are also reported by (Shahzad et al., 2024), who emphasize that inflation targeting through the policy interest rate instrument effectively reduces inflation expectations in developing countries. However, other studies report different results, where the credit interest rate channel (SBK) is only significant in the long term, and the RPUAB channel often shows no significant effect on inflation, particularly in the short term (Sosial et al., n.d.). This is further supported by (Fahrurrazi et al., 2023), who state that the transmission of monetary policy through the RPUAB in Indonesia still faces limitations due to its high sensitivity to daily banking liquidity conditions.

The phenomenon of differing results can also be observed during the COVID-19 pandemic and the post–global energy crisis period. The study by (Amalia et al., 2025) shows that shocks to the BI7DRR require a relatively longtime lag before influencing inflation, while the SBK tends to transmit more slowly due to credit rate rigidity. On the other hand, recent research by (Odoom et al., 2025) confirms that global uncertainty—such as volatility in food and energy prices has increasingly limited the role of domestic monetary instruments like the RPUAB. In other words, there remains a research gap in the form of inconsistent findings regarding the effectiveness of the interest rate transmission channel in Indonesia, particularly when the three variables (BI7DRR SBK, and RPUAB) are tested simultaneously. Furthermore, most previous studies were conducted before the COVID-19 pandemic or without considering the impact of global inflationary pressures arising from the energy crisis, supply chain disruptions, and domestic fuel price adjustments. This has caused earlier studies to not fully reflect the current dynamics. Therefore, research focusing on the 2018-2024 period becomes essential to provide a clearer and more comprehensive picture of the effectiveness of monetary policy in Indonesia through the interest rate transmission channel.

Based on the above phenomena and previous research findings, there are still differences in the results regarding the effectiveness of the interest rate transmission channel on inflation in Indonesia. This inconsistency is particularly evident in the roles of SBK and RPUAB, which have not yet fully reflected the latest inflation dynamics, especially after the COVID-19 pandemic and the post global energy crisis inflationary pressures. Therefore, this study was conducted to comprehensively examine the influence of BI7DRR, SBK, and RPUAB on inflation in Indonesia during the 2018-2024 period using the VECM approach. It is expected that the results will provide new empirical evidence and strengthen the understanding of the effectiveness of monetary policy through the interest rate transmission channel in maintaining price stability amid global economic uncertainty.

2. Method Study

This study is an explanatory type of research with an associative approach, which aims to provide an explanation of the relationship between several variables and to examine the influence of one variable on another. In this case, the research focuses on analyzing the effect of the BI7DRR interest rate, the interbank money market rate

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(RPUAB), and the lending interest rate (SBK) on inflation in Indonesia during the 2018–2024 period. These three variables were selected because they represent the transmission channels of monetary policy through the interest rate mechanism, which theoretically play an important role in controlling inflation. The type of data used in this study is secondary data in the form of monthly time-series data collected from official sources such as Bank Indonesia and the Central Statistics Agency (BPS). The data were obtained through documentation studies and literature reviews of relevant published reports. The data analysis technique employed is the Vector Error Correction Model (VECM), chosen because it is capable of capturing both long-term and short-term relationships among variables, as well as identifying the adjustment process when disequilibrium occurs. By using this approach, the study aims to provide a comprehensive description of the effectiveness of interest rate instruments in controlling inflation through each transmission channel.

Track ethnic group flower

The basic model used in study This can written in form equality general VAR/VECM as following:

$$Y_t = \beta_1 + \alpha_{1i} \sum_{i=1}^{k} Y_{t-k} + \epsilon_t$$

Where:

Yt = endogenous variables (BI7DRR, RPUAB, SBK, INF).
β1 = constant.
α1i = lag coefficient (influence variables in the period previously).
k = lag length (how many periods previously considered).
ϵt. = error term (disturbation /residual).

This equation shows that an endogenous variable Yt in a given period is influenced by its own past values (lag) as well as by random or disturbance factors (εt). In other words, this model represents the dynamic relationship among economic variables, where changes occur not only due to current conditions but also as a result of historical patterns of the related variables. To describe the dynamic relationship between the Bank Indonesia benchmark interest rate (BI7DRR), the lending interest rate (SBK), the interbank money market rate (RPUAB), and inflation (INF), this study employs the VAR/VECM model framework. The general form of the simultaneous equation system representing the interaction among these four variables can be written as follows:

$$BI7DRR_t = \beta_1 + \alpha_{1i} \sum_{i=1}^{k} BI7DRR_{t-k} + \alpha_{1i} \sum_{i=1}^{k} RSPUAB_{t-k} + \alpha_{1i} \sum_{i=1}^{k} SBK_{t-k} + \alpha_{1i} \sum_{i=1}^{k} INF_{t-k} + \epsilon_1$$

$$SBK_t = \beta_1 + \alpha_{1i} \sum_{i=1}^{k} BI7DRR_{t-k} + \alpha_{1i} \sum_{i=1}^{k} RSPUAB_{t-k} + \alpha_{1i} \sum_{i=1}^{k} SBK_{t-k} + \alpha_{1i} \sum_{i=1}^{k} INF_{t-k} + \epsilon_3$$

$$RSPUAB_t = \beta_1 + \alpha_{1i} \sum_{i=1}^{k} BI7DRR_{t-k} + \alpha_{1i} \sum_{i=1}^{k} RSPUAB_{t-k} + \alpha_{1i} \sum_{i=1}^{k} SBK_{t-k} + \alpha_{1i} \sum_{i=1}^{k} INF_{t-k} + \epsilon_2$$

$$INF_t = \beta_1 + \alpha_{1i} \sum_{i=1}^{k} BI7DRR_{t-k} + \alpha_{1i} \sum_{i=1}^{k} RSPUAB_{t-k} + \alpha_{1i} \sum_{i=1}^{k} SBK_{t-k} + \alpha_{1i} \sum_{i=1}^{k} INF_{t-k} + \epsilon_4$$

The equation model above represents the framework of the Vector Autoregression (VAR), which is further developed into the Vector Error Correction Model (VECM) to examine the transmission channels of monetary policy through interest rates toward inflation in Indonesia. In this model, there are four endogenous variables: BI7DRR (the Bank Indonesia benchmark interest rate), SBK (the lending interest rate), RPUAB (the interbank money market rate), and INF (inflation). Each variable in the system of equations is influenced by its own past values (lag) and also by the past values of the other variables. This structure reflects the simultaneous and dynamic interrelationships among macroeconomic variables. For instance, changes in the BI7DRR not only have a direct impact on inflation but are also transmitted through adjustments in the interbank rate (RPUAB) and the lending rate (SBK), which ultimately affect inflation. Conversely, movements in inflation can also provide feedback to the

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policy rate and the lending rate. Thus, this model provides a comprehensive overview of both the short-term and long-term interactions among variables, allowing for an assessment of the effectiveness of monetary policy in maintaining price stability.

3. Results and Discussion

Stationarity Test

The stationarity test for this data can be conducted using the Augmented Dickey-Fuller (ADF) test at various levels or degrees until the data become stationary, meaning that the variance is not excessively large and the trend tends to approach the mean value.

Table 1 Stationarity Test

Variables	ADF Probability Value Statistics
	First Difference
BI7DRR	0.0004
RSPUAB	0.0000
SBK	0.0000
INF	0.0001

Source: Secondary Data Processed

Based on Table 1 above, which presents the results of the stationarity test using the Augmented Dickey-Fuller (ADF) method, it can be seen that only at the first difference level does each variable have a probability value smaller than 0.05 or 5%. Therefore, it can be concluded that all variables are stationary at the first difference level, indicating that the appropriate estimation model to be used is the VECM, which is tested using first difference data.

Determining Optimum Lag

Table 2. Determination of optimum lag path interest rate

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-4,028,976	NA	3.77e-05	1.165520	1.288190	1.214545
1	-1,645,461	72.20382*	2.08e-05*	0.569617*	1.182968*	0.814742*
2	6.118739	13.68951	2.59e-05	0.786349	1.890381	1.227573
3	19.45034	22.10238	2.81e-05	0.856570	2.451282	1.493894
4	36.05126	25.77512	2.81e-05	0.840756	2.926149	1.674180
5	42.11494	8.776384	3.75e-05	1.102238	3.678312	2.131762
6	48.01725	7.921519	5.11e-05	1.367967	4.434722	2.593591
7	53.55689	6.851665	7.15e-05	1.643240	5.200675	3.064963

Source: Secondary Data processed, Appendix 3

Based on Table 2 above, it can be seen that the optimal lag selection in the model is determined using several information criteria, including the Akaike Information Criterion (AIC), Schwarz Criterion (SC), and Hannan-Quinn Criterion (HQ). Among the three, the smallest values for AIC, SC, and HQ are generally found simultaneously at lag 1, with an AIC value of 0.569617, SC of 1.182968, and HQ of 0.814742. The values marked with an asterisk (*) indicate that lag 1 is the optimal lag based on these three criteria. Therefore, it can be concluded that the most appropriate model to be used in the VECM analysis of the interest rate transmission channel is the model with lag 1, as it satisfies the optimal lag selection criteria and provides the best balance between goodness of fit and model complexity. Selecting the appropriate lag length is very important in the VECM model because it affects the accuracy of short-term relationship estimates and the adjustment toward long-term equilibrium.

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Stability Test

Table 3. Stability test Track Interest rate

Root	Modulus	Information
0.647983	0.647983	Stable
-0.452595	0.452595	Stable
-0.137606	0.137606	Stable
-0.086381	0.086381	Stable

Source: Secondary Data, Processed

Based on table above, it is known that in VAR estimation of the whole variables in track ethnic group flower own modulus value is less from 1 (modulus < 1). The modulus value in path VAR estimation ethnic group flower the is 0.647983, 0.452595, 0.137606 and 0.086381. Then can concluded that the data used in path VAR estimation ethnic group flower own stable condition.

Johansen Cointegration Test

Table 4. Johansen Trace Statistics Cointegration Test Interest rate

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistics	00.05.00 Critical Value	Prob.**
None *	0.548617	159.1837	47.85613	0.0000
At most 1 *	0.448795	94.75303	29.79707	0.0000
At most 2 *	0.359823	46.50550	15.49471	0.0000
At most 3*	0.120262	10.37866	3.841465	0.0013

Source: Secondary Data Processed, Appendix 5

Based on Table 3 above, it can be explained that the Trace Test Statistic value is greater than the 5% Critical Value, and the Probability Value is smaller than 0.05 (prob < 0.05). Therefore, it can be concluded that in the interest rate transmission channel, there exists a cointegration equation that indicates a long-term relationship. The results of the cointegration test confirm the presence of such an equilibrium relationship, meaning that within the interest rate transmission channel, there is a long-term connection among inflation, BI7DRR, the lending interest rate, and RPUAB. Based on these results, it can be concluded that this study employs the VECM method.

VECM Model Estimation

After the cointegration test is carried out, the next step is furthermore is estimate the VECM model for see connection term long between variables ethnic group interest and inflation. Estimation results term long track ethnic group flower shown in Table 5 below:

Long-Term VECM Estimation Results of the Path Interest rate

Cointegrating Eq:	CointEq1
D(INFLATION(-1))	1,000,000
D(BI7 DRR(-1))	33.18326
	(8.09483)
	[4.09932]
D (SBK (-1))	-1,556,355
	(9.92256)
	[-1.56850]
D (RPUAB (-1))	-1,934,819
	(2.59347)
	[-7.46034]
C	-0.369737

Source: Data processed 2025

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Based on the results of the VECM model estimation in the long term, it is evident that the Bank Indonesia benchmark interest rate (BI7DRR) has a significant effect on inflation. This is confirmed by the *t*-statistic value of 4.09932, which is greater than the critical value of 1.96, indicating statistical significance at the 95% confidence level. The coefficient value of –33.18326 theoretically suggests that an increase in BI7DRR will reduce inflation, as the relationship shown in the long-term equilibrium of the model is negative. Meanwhile, the lending interest rate (SBK) shows an insignificant effect on inflation, as indicated by the *t*-statistic value of –1.56850, which is smaller than the *t*-critical value of 1.96, implying that statistically, there is insufficient evidence to confirm a long-term effect. This indicates that during the observation period, fluctuations in the lending rate did not make a substantial contribution to inflation dynamics. On the other hand, the interbank money market rate (RPUAB) exhibits a statistically significant influence on inflation, as reflected by a *t*-statistic value of –7.46034, which in absolute terms exceeds 1.96. The negative coefficient of –1934.819 indicates that an increase in the interbank rate in the long term tends to suppress inflation, consistent with the role of money market instruments in monetary policy transmission. The constant value of -0.369737 represents the constant term in the long-term cointegration relationship. Thus, these results confirm that, in the long run, the interest rate policy through BI7DRR and RPUAB plays an important role in controlling inflation in Indonesia, while the lending rate (SBK) does not have a significant impact during the study period.

Table 6. Long-Term VECM Estimation Results Short Track Interest rate

Error Correction:	D(INFLATION,2)	D(BI7DRR,2)	D(SBK,2)	D(RPUAB,2)
D(INFLATION(-1),2)	-0.816324	0.024973	-0.009995	0.095271
	(0.10669)	(0.03453)	(0.04503)	(0.10653)
	[-7.65146]	[0.72333]	[-0.22193]	[0.89435]
D(BI7 DRR(-1),2)	0.070608	-0.383268	0.397417	-2,124,922
	(0.45028)	(0.14571)	(0.19007)	(0.44959)
	[0.15681]	[-2.63027]	[2.09091]	[-4.72635]
D(SBK(-1),2)	0.155012	0.105706	-0.900420	0.804020
	(0.27943)	(0.09043)	(0.11795)	(0.27901)
	[0.55473]	[1.16896]	[-7.63374]	[2.88173]
D(RPUAB(-1),2)	-0.127678	-0.016195	0.065095	0.288551
	(0.14782)	(0.04784)	(0.06240)	(0.14759)
	[-0.86375]	[-0.33857]	[1.04326]	[1.95506]
C	0.001226	0.000144	-0.003480	-0.009679
	(0.05166)	(0.01672)	(0.02180)	(0.05158)
	[0.02373]	[0.00859]	[-0.15961]	[-0.18765]
R-squared	0.554255	0.165867	0.614942	0.617706
Adj. R-squared	0.496944	0.058621	0.565434	0.568554

Source: Secondary Data Processed

Based on the short-term estimation results of the VECM model, it is known that the variable D(INFLATION (-1),2) has a significant effect on D(INFLATION,2), with a *t*-statistic value of –7.65146, which in absolute terms is greater than the critical value of 1.96. This indicates that, in the short term, there is a correction mechanism for long-term disequilibrium within the model. The error correction coefficient of –0.816324 shows that approximately 81.63% of the deviation from the long-term equilibrium is corrected within one period (one month), indicating that the adjustment process toward inflation equilibrium occurs relatively quickly. The negative sign of this coefficient is important, as it demonstrates the correct direction of adjustment toward long-term stability. If this coefficient were positive, it would instead drive the system further away from equilibrium. Meanwhile, the variable D(INFLATION(-1),2) does not show a significant effect on changes in BI7DRR, SBK, and RPUAB, as

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the *t*-statistic values for each are below the critical value of 1.96 specifically 0.72333, -0.22193, and 0.89435, respectively. This means that past changes in inflation do not play an important role in explaining the variation of the three variables in the short term.

For the variable D(BI7DRR(-1),2), although it is statistically insignificant in explaining changes in inflation (*t* = 0.15681), it has a significant effect on itself, namely D(BI7DRR,2), with a *t*-statistic value of –2.63027, indicating the presence of an internal adjustment mechanism within the benchmark interest rate. In addition, D (BI7DRR (-1),2) also has a significant effect on D(RPUAB,2), with a *t*-statistic of –4.72635, showing that changes in BI7DRR have a direct impact on movements in the interbank money market rate. This finding is economically reasonable because adjustments in the policy rate set by Bank Indonesia are typically responded to by changes in short-term interbank rates as part of the monetary transmission mechanism. Furthermore, D (SBK (-1),2) is not significant in affecting inflation and BI7DRR, with *t*-statistics of 0.55473 and 1.16896, respectively—both below the critical threshold of 1.96. However, this variable shows a significant effect on itself, D(SBK,2), with a *t*-statistic value of -7.63374, indicating the presence of internal adjustments within the lending rate movements. Interestingly, D (SBK (-1),2) also has a significant effect on D(RPUAB,2) (*t* = 2.88173), indicating a dynamic relationship between the lending rate and interbank money market conditions, which may be driven by changes in liquidity preferences or borrowing costs among financial institutions.

The variable D (RPUAB (-1),2) does not show a significant influence on the four variables in the model, namely inflation (*t* = –0.86375), BI7DRR (*t* = –0.33857), SBK (*t* = 1.04326), and RPUAB itself (*t* = 1.95506). Although the *t*-statistic for D (RPUAB (-1),2) on D(RPUAB,2) is close to the critical value, it remains slightly below 1.96, making it statistically insignificant. This implies that, in the short term, changes in the interbank money market rate have not provided a sufficiently strong response to other variables, including itself. This condition may be attributed to a greater dependence on external factors or other policy instruments that are not directly reflected within the short-run period. Overall, these results indicate that, in the short term, monetary policy transmission through the interest rate channel requires a time lag before exerting a real effect on inflation. However, there are strong interactions between interest rate variables particularly BI7DRR with RPUAB and SBK with RPUAB showing that the interest rate policy remains relevant and influences both market expectations and overall monetary conditions. These findings also reaffirm the importance of considering the interest rate transmission channel when designing effective monetary policy, especially in the context of inflation stabilization in Indonesia.

Impulse Response Function (IRF)

The Impulse Response Function (IRF) analysis is employed to illustrate how inflation responds to changes in BI7DRR, SBK, and RPUAB across several future periods. The results of the IRF estimation are presented in the following table:

Impulse Response Function Results Table Interest rate

Response of D(INFLATION): Period	D(INFLATION)	D(BI7DRR)	D(SBK)	D(RPUAB)
1	0.461900	0.000000	0.000000	0.000000
2	0.061278	0.022322	0.020417	-0.111037
3	0.188361	-0.089607	-0.014530	0.043316
4	0.248378	0.029922	0.013953	-0.020223
5	0.170676	-0.046256	0.004160	-0.020915
6	0.193983	-0.032859	-0.004104	-0.015653
7	0.206306	-0.010239	0.004747	-0.017336
8	0.189860	-0.025480	0.005437	-0.020790
9	0.197220	-0.026072	0.000641	-0.012844
10	0.197617	-0.021374	0.003622	-0.017094

Source: Processed data, 2025

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Based on the impulse response results over 10 periods, the response of inflation (D(INFLATION)) to shocks in BI7DRR, SBK, and RPUAB shows different directions. The response of inflation to BI7DRR initially fluctuates in the early periods but begins to show a consistent negative effect from the third to the tenth period, with a response value of -0.021374 in the tenth period. This indicates that a 1 percent increase in the BI7DRR benchmark interest rate will reduce inflation by 0.0214 percent, reflecting the effectiveness of monetary policy in controlling inflation after a certain lag. The response of inflation to RPUAB also demonstrates a relatively consistent negative pattern across almost all periods, with a value of –0.017094 in the tenth period, meaning that a 1 percent increase in the interbank money market rate will reduce inflation by 0.0171 percent. Conversely, the response of inflation to SBK is dominated by positive values in nearly all periods, including the tenth period, with a value of 0.003622, indicating that a 1 percent increase in the lending interest rate tends to raise inflation by 0.0036 percent. This finding suggests that monetary policy transmission through the lending rate channel has not yet functioned optimally in reducing inflation, in contrast to the benchmark interest rate and interbank rate channels, which appear to be more effective.

Decompostion Variant (VD)

To provide a more comprehensive description of the role of the interest rate transmission channel on inflation in Indonesia during the 2018–2024 period, a Variance Decomposition (VD) analysis was conducted. This analysis aims to measure the magnitude of the contributions of BI7DRR, SBK, and RPUAB in explaining fluctuations in inflation over time. The results of the VD estimation for the interest rate transmission channel are presented in Table 18 below:

Table 18. Results of Decompostion Variance (VD) Path Interest rate

Variance Decomposition of D(INFLATION):Period	SE	D(INFLATION)	D(BI7DRR)	D(SBK)	D(RPUAB)
1	0.461900	100,0000	0.000000	0.000000	0.000000
2	0.479949	94.25040	0.216316	0.180962	5.352323
3	0.525307	91.53423	3.090344	0.227566	5.147861
4	0.582356	92.66963	2.778536	0.242566	4.309268
5	0.608985	92.59714	3.117785	0.226483	4.058591
6	0.640183	92.97373	3.084771	0.209056	3.732446
7	0.672922	93.54628	2.815063	0.194186	3.444468
8	0.699987	93.80895	2.734088	0.185493	3.271473
9	0.727821	94.11386	2.657297	0.171655	3.057183
10	0.754677	94.39152	2.551747	0.161958	2.894771

Based on Table 18, the results of the Variance Decomposition (VD) analysis for the inflation variable (D(INFLATION)) over 10 future periods show that inflation fluctuations in the short to medium term are predominantly influenced by its own past variations. In the first period, 100% of the variation in inflation is explained by shocks to inflation itself, indicating that other variables have not yet exerted any influence. However, starting from the second period, the effects of other variables begin to appear, although still relatively small. In the second period, BI7DRR contributes 0.22%, SBK contributes 0.18%, and RPUAB contributes 5.35%, while the influence of inflation on itself declines to 94.25%. Over time, the contribution of inflation to itself remains dominant but continues to show a slight increase from 94.25% (period 2) to 94.39% (period 10). Meanwhile, the contribution of BI7DRR experiences minor fluctuations but tends to increase, reaching 2.55% in the tenth period, indicating that the interest rate policy begins to have an impact on inflation in the medium term. The contribution of SBK, however, decreases from 0.18% (period 2) to 0.16% (period 10), reflecting that the influence of the lending rate on inflation is very small and statistically insignificant. RPUAB, which initially contributes 5.35% in period 2, gradually declines to 2.89% by period 10, suggesting that the impact of interbank money market shocks on inflation weakens over time. These results indicate that inflation in Indonesia tends to be self-driven largely influenced by its internal factors while monetary policy instruments such as BI7DRR and RPUAB are starting to show some influence, albeit still limited, and the effect of SBK remains relatively minimal. This interpretation is consistent with the monetary economics literature, which states that the effectiveness of the policy interest rate channel generally becomes more evident in the medium term after the monetary transmission process takes place.

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The Impact of BI7DRR on Inflation In Indonesia 2018-2024

Based on the results of the Vector Error Correction Model (VECM) analysis for the interest rate transmission channel, it was found that, in the long run, the BI7DRR (Bank Indonesia 7-Day Reverse Repo Rate) variable has a negative and significant effect on inflation. This is evidenced by a *t*-statistic value of 4.09932, which exceeds the critical value of 1.96, with a coefficient of 33.18326. Although the coefficient appears positive numerically due to the model specification, the interpretation within the cointegration context indicates that an increase in the BI7DRR interest rate will reduce the inflation rate in the long term. This finding is consistent with monetarist theory and the inflation-targeting framework implemented by Bank Indonesia, wherein the interest rate serves as a key policy instrument to suppress aggregate demand and control price pressures. In contrast, in the short term, the influence of BI7DRR on inflation is statistically insignificant, as shown by a *t*-statistic value of 0.15681, which is below the 1.96 threshold. This suggests that monetary policy transmission through the interest rate channel requires a time lag and does not exert an immediate monthly impact. Nevertheless, the results of the Impulse Response Function (IRF) analysis reveal that shocks to BI7DRR generate a gradually negative response in inflation, starting from the third period up to the tenth period, where a 1% increase in BI7DRR is estimated to lower inflation by 0.0214% in the tenth period. This provides further evidence that the effectiveness of the interest rate channel in mitigating inflation becomes more evident in the medium term. The findings are also reinforced by the results of the Variance Decomposition (VD) analysis, which show that the contribution of BI7DRR to inflation variation increases from 0.22% in the second period to 2.55% in the tenth period, indicating that BI7DRR has gradually become an increasingly influential instrument in controlling inflation over time.

This result is consistent with the study which concluded that the benchmark interest rate has a negative and significant effect on inflation in Indonesia. These findings are also supported by (Tchereni et al., 2022), who confirmed that the interest rate serves as the main channel of monetary policy transmission in developing countries, particularly in the context of controlling price pressures. Furthermore, (Shahzad et al., 2024), in their recent study, found that tightening the benchmark interest rate has a real impact in reducing inflation, especially when accompanied by well-managed inflation expectations and strong central bank credibility. Similarly, Odoom et al. (2025) also highlight the importance of an effective benchmark interest rate transmission mechanism in achieving a balance between economic growth and price stability.

In addition, (Monge et al., 2024) and (Haslag & Kang, 2023) state that the monetary base and policy interest rates complement each other in controlling inflation, and the transmission mechanism operates optimally when the financial system is sufficiently responsive to changes in the benchmark interest rate. A study by (Ali et al., 2023) in the *International Journal of Economics and Financial Issues* also demonstrates that in emerging market economies such as Indonesia, the effectiveness of interest rates in controlling inflation increases when coordination between fiscal and monetary policies is strengthened. Research by (Warjiyo & Juhro, n.d.) further supports that interest-rate-based monetary policy is the main strategy employed by Bank Indonesia under the Inflation Targeting Framework (ITF), and its effectiveness largely depends on credibility and the timeliness of market responses to policy changes. Therefore, it can be concluded that during the 2018–2024 period, the BI7DRR has been proven to be an important and effective monetary policy instrument for controlling inflation in Indonesia, particularly in the medium to long term. Although its impact is not immediately visible in the short run, in the long run the BI7DRR demonstrates a strategic role in maintaining price stability, consistent with the primary mandate of Bank Indonesia.

The Influence of SBK on Inflation in Indonesia 2018-2024

Based on the results of the VECM testing for the interest rate transmission channel, it is observed that, in the long term, the SBK (Credit Interest Rate) variable does not have a significant effect on inflation, as indicated by a *t*-statistic value of –1.56850, which is smaller than the critical value of 1.96. Although the SBK coefficient of –1,556.355 suggests a negative relationship, it is not statistically significant. In the short term, the analysis also shows that SBK does not significantly affect inflation, with a *t*-statistic value of 0.55473. However, based on the Impulse Response Function (IRF) results, the response of inflation to shocks in SBK tends to be positive, with a value of 0.003622 in the 10th period. This means that a 1% increase in SBK actually raises inflation by 0.0036%. This finding implies that an increase in the credit interest rate does not necessarily reduce inflation, possibly due to the monetary policy transmission mechanism not operating effectively through this channel. Furthermore, the results of the Variance Decomposition (VD) analysis reinforce this conclusion, showing that the contribution of SBK to inflation variation remains very small and continues to decline—from 0.18% in the second period to only 0.16% in the tenth period.

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This study is consistent with the findings of Kartika et al. (2020), who revealed that the credit interest rate has no significant effect on inflation—either in the short or long term—due to the rigidity of credit interest rates in the Indonesian banking market. Similar conclusions were also presented by (Fahrurrazi et al., 2023), who found that the interest rate channel is not always effective in monetary transmission, particularly through the credit rate, which largely depends on the structural conditions of the banking sector. (Aditya et al., 2024)also discovered that the response of inflation to credit interest rate changes is very small and depends on the elasticity of public credit demand. Research by (Tchereni et al., 2022) further strengthens this view, stating that credit interest rates tend to have a weak effect in reducing inflation when the financial system is uncompetitive and unresponsive to monetary policy. International studies by (Ali et al., 2023) in *The International Journal of Economics and Financial Issues* also show that, in developing countries, the lending interest rate has a limited influence on inflation unless accompanied by liquidity management policies and well-anchored inflation expectations. In the Indonesian context, the interest rate transmission mechanism often faces bottlenecks within the banking sector, where lending rates do not adjust proportionally to changes in the benchmark rate (BI7DRR), thereby diminishing their overall impact on inflation. Thus, it can be concluded that during the 2018–2024 period, the SBK has not shown significant effectiveness in influencing inflation, either directly or as part of the interest rate transmission channel. To enhance its effectiveness, it is necessary to strengthen the transmission mechanism, improve financial sector efficiency, and enhance regulatory supervision so that banking interest rates can respond more effectively to Bank Indonesia's monetary policy.

The Impact of RPUAB on Inflation In Indonesia 2018-2024

Based on the results of the Vector Error Correction Model (VECM) testing for the interest rate transmission channel, the RPUAB (Interbank Money Market Interest Rate) variable shows a negative but insignificant effect on inflation in both the long and short term. The long-term coefficient value of RPUAB on inflation is recorded at -0.268438, with a *t*-statistic of -0.86375, which is smaller than the critical value of 1.96, indicating insignificance. Similarly, in the short term, the *t*-statistic of RPUAB(–1) is -0.33857, which is also not significant. This suggests that although the direction of the relationship between RPUAB and inflation is negative where an increase in the interbank rate tends to reduce inflation the magnitude of the influence is not statistically strong, either in the short or long term. This may be due to the relatively low sensitivity of the interbank money market to inflationary pressures in Indonesia or because the transmission of interbank interest rates to the real sector has not yet been fully effective.

However, the results of the Impulse Response Function (IRF) analysis provide a clearer picture of the relationship pattern between the two variables. The response of inflation to shocks in RPUAB consistently shows a negative direction across almost all periods, particularly from the second to the tenth period. The inflation response value to RPUAB shocks in the tenth period is –0.017094, indicating that a 1% increase in the interbank money market rate will reduce inflation by 0.0171%. This suggests that although the effect is not statistically significant in the VECM model, dynamically, shocks to RPUAB still have the capacity to moderate inflationary pressures, especially in the medium term. These findings support the theory of monetary transmission through the money market channel, where interbank interest rates reflect short-term liquidity conditions that can influence inflation expectations and the funding costs of financial institutions. The results of the Variance Decomposition (VD) analysis show that RPUAB's contribution to inflation variation increased from 5.35% in the second period, experienced some fluctuations, and settled at 2.89% in the tenth period. Although this contribution is relatively small compared to that of inflation itself, it still indicates that RPUAB has gradually begun to play a role in influencing inflation, particularly in the context of short-term control through the interbank money market. The low level of contribution may be attributed to the structural dependence of credit and financing activities that remain heavily concentrated within the formal banking sector, rather than being distributed across the broader interbank market.

Study This in line with findings (Sosial et al., n.d.) which states that RPUAB has influence negative to inflation **,** However size influence very depends on speed transmission and effectiveness control liquidity by Bank Indonesia. Study by Ginting et al. (2023) in *Journal Indonesian Finance and Banking* also emphasized that ethnic group flower interbank has potential in control inflation **,** however only if the financial market Enough deep and responsive to policy monetary that the money market between banks in Indonesia still own weakness in distribute pressure ethnic group flower to sector real , which causes the effect to inflation become weak . At the level international find that interbank rate shocks tend to own effect contractive to inflation in developing countries**,** However the effect delayed because slow transmission. In the Indonesian context, the effectiveness of RPUAB as a monetary policy transmission instrument remains complementary and is not yet as strong as the benchmark

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interest rate, such as the BI7DRR. Therefore, to maximize the role of RPUAB in controlling inflation, it is necessary to strengthen money market integration and adjust the monetary operations framework to become more responsive to daily liquidity dynamics and inflation expectations.

4. Conclusion

Based on the results of the VECM model estimation, it can be concluded that, in the long term, the BI7DRR has a negative and significant effect on inflation in Indonesia, indicating that monetary policy tightening through increases in the benchmark interest rate is effective in curbing price pressures. This finding aligns with monetarist theory and the inflation-targeting framework implemented by Bank Indonesia. The rise in the BI7DRR indirectly suppresses aggregate demand and promotes price stabilization. Meanwhile, the credit interest rate (SBK) and the interbank money market rate (RPUAB) exhibit different dynamics. The SBK shows no significant effect in either the short or long term, suggesting that the transmission of monetary policy through the lending rate channel has not yet operated optimally. This may be attributed to structural rigidities in the banking sector and the slow adjustment of lending rates to changes in policy rates. For the RPUAB, the long-term results show a negative but statistically insignificant relationship with inflation, indicating that interbank rate movements are not yet strong enough to directly influence inflation. However, the pattern observed from the Impulse Response Function (IRF) demonstrates that shocks to RPUAB tend to be followed by a decline in inflation in subsequent periods, signifying the potential role of RPUAB in medium-term inflation control particularly if supported by greater money market depth and improved monetary transmission efficiency. In the short term, all three variables BI7DRR, SBK, and RPUAB do not show significant effects on inflation, reinforcing the understanding that interest rate transmission requires time to operate effectively, and that interest rate policy does not exert an immediate impact on prices on a monthly basis. Thus, these results underline the importance of strengthening the monetary policy transmission mechanism, particularly through the interest rate channel, to ensure a more effective response to inflation dynamics and to maintain macroeconomic stability in a sustainable manner.

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