

JCI UNDER MACROECONOMIC PRESSURE: THE MODERATING ROLE OF INTEREST RATES ON INFLATION AND EXCHANGE RATES

Irma Nur Halimah¹

Universitas Muhammadiyah Tangerang, Banten, Indonesia

irmanurhaalimah@gmail.com



Sustari Alamsyah²

Universitas Muhammadiyah Tangerang, Banten, Indonesia

doni.alamsyah06@gmail.com

Dhea Zatira³

Universitas Muhammadiyah Tangerang, Banten, Indonesia

dhea.zatira@gmail.com

Abstract

This study analyzes the effects of inflation, exchange rates, and interest rates on the Jakarta Composite Index (JCI) and examines the moderating role of interest rates during the 2020 to 2024 period. Using monthly time-series data from the Indonesia Stock Exchange and Bank Indonesia, the study applies multiple linear regression and Moderated Regression Analysis (MRA). The results indicate that inflation, exchange rates, and interest rates each exert a positive and significant direct effect on the JCI, collectively explaining approximately 42.6 percent of total index variation. However, interest rates do not significantly moderate the relationship between inflation and the JCI, nor between exchange rates and the JCI, suggesting these macroeconomic variables influence the JCI independently within the linear framework applied. The remaining unexplained variation points to omitted determinants such as foreign capital inflows, global commodity prices, and political uncertainty, which future research should incorporate. These findings demonstrate that during periods of economic turbulence, macroeconomic stability signals including controlled inflation and credible monetary policy can positively influence equity market performance in ways that deviate from conventional predictions. For policymakers, transparent monetary responses to macroeconomic shocks can sustain capital market confidence during global volatility.

Keywords: Inflation, Exchange Rate, Interest Rate, JCI

INTRODUCTION

The capital market serves as a cornerstone of a country's financial system, functioning not only as a medium for capital allocation but also as a barometer of economic health and investor confidence. In the VUCA era (Volatility, Uncertainty, Complexity, and Ambiguity), stock market dynamics have become increasingly unpredictable, as market movements are shaped simultaneously by fundamental corporate performance, macroeconomic conditions, and shifting policy environments. In Indonesia, the Jakarta Composite Index (JCI) represents the most comprehensive measure of overall stock market performance, aggregating the price movements of all listed companies on the Indonesia Stock Exchange (IDX). A rising JCI signals investor optimism and favorable economic conditions, while a declining JCI reflects systemic financial instability and eroding market confidence (Puspitasari et al., 2012).



TradingView

Figure 1. Source: FXStreet-Indonesia

The movement of the JCI over the 2020–2024 period, as illustrated in Figure 1, reveals a pattern of pronounced volatility that is deeply connected to the macroeconomic turbulence of this era. The sharp contraction observed in early 2020 coincides with the onset of the COVID-19 pandemic, which triggered capital outflows, currency depreciation, and a collapse in investor sentiment across emerging markets, including Indonesia. The subsequent recovery phase from 2021 onward reflects the gradual restoration of economic activity alongside accommodative monetary policy by Bank Indonesia. However, renewed pressure emerged in 2022–2023, driven by aggressive interest rate hikes by the United States Federal Reserve, which created spillover effects on the rupiah exchange rate and domestic monetary policy. These fluctuations are not random; they reflect the JCI's high sensitivity to external macroeconomic shocks, particularly exchange rate volatility, inflationary pressures, and interest rate adjustments. It is precisely this pattern of sensitivity that motivates the present study.

Among the macroeconomic variables most closely associated with JCI movements, inflation, exchange rates, and interest rates occupy a central position in both theoretical and empirical literature. Inflation, defined as a sustained increase in the general price level, erodes corporate purchasing power, increases production costs, and reduces consumer demand, all of which depress earnings expectations and, consequently, stock valuations. Exchange rate volatility introduces additional risk for companies with import-dependent supply chains or

foreign currency-denominated debt, as rupiah depreciation directly increases their cost burdens and reduces profit margins, thereby exerting downward pressure on their stock prices and the broader index. Interest rate policy, as the primary instrument of monetary authority, influences capital allocation decisions: when rates rise, fixed-income instruments become more attractive relative to equities, prompting a reallocation of investment away from the stock market (Paryudi, 2021; Wulandari et al., 2021).

Despite extensive scholarly attention to these variables, prior empirical studies have yielded inconsistent and at times contradictory findings, and the reasons for these inconsistencies have not been adequately theorized. Silalahi and Sihombing (2021) documented a significant negative effect of both inflation and exchange rates on the JCI, consistent with conventional macroeconomic theory. In contrast, Paramita et al. (2024) reported a positive relationship in certain sectoral contexts, suggesting that the direction of the effect may be contingent on the nature of the sector and prevailing market conditions. Similarly, Ardian et al. (2024) and Nurjanah (2023) found that the magnitude and direction of interest rate and inflation effects on stock markets vary considerably depending on the broader economic environment. These inconsistencies are not merely methodological artifacts; they reflect the conditional and context-dependent nature of macroeconomic relationships in emerging markets. Specifically, during periods of crisis or extreme monetary tightening, the relationships among these variables may become non-linear, with one variable moderating or amplifying the effect of another in ways that static regression models cannot capture.

This study contends that a critical missing element in prior research is the failure to account for the moderating role of interest rates. While interest rates are frequently included as an independent variable, they also function as a policy instrument that shapes the environment within which inflation and exchange rates exert their effects on the stock market. During periods of high interest rates, inflationary pressure may carry a different implication for equity investors than it would during a low-rate environment, because tight monetary policy simultaneously constrains liquidity and alters the risk-return calculus of market participants. Similarly, exchange rate depreciation may produce divergent outcomes for the JCI depending on whether the interest rate environment is accommodative or restrictive. By treating interest rates as a moderating variable through Moderated Regression Analysis (MRA), this study offers a more nuanced analytical framework that addresses the gap left by prior research.

Based on the phenomena and gaps described above, this study formulates the following research questions: (1) Does inflation affect the JCI? (2) Do exchange rates affect the JCI? (3) Do interest rates affect the JCI? (4) Do interest rates moderate the effect of inflation on the JCI? and (5) Do interest rates moderate the effect of exchange rates on the JCI?

This study offers three distinct contributions relative to prior work. First, the observation period of 2020–2024 spans three economically distinct phases, namely the pandemic shock, the recovery expansion, and the global monetary tightening cycle, providing a richer and more contextually varied dataset than studies limited to pre-pandemic periods. Second, by applying MRA, this study moves beyond the additive treatment of interest rates and formally tests its conditional effects on the inflation-JCI and exchange rate-JCI relationships, a dimension that remains largely underexplored in the Indonesian capital

market literature. Third, this study explicitly theorizes why prior findings have been inconsistent, arguing that the failure to model interaction effects between macroeconomic variables accounts for much of the observed heterogeneity in results, and provides an empirically grounded resolution to this unresolved debate.

REVIEW OF LITERATURE

Theoretical Foundation

The relationship between macroeconomic variables and stock market performance can be grounded in several established theoretical frameworks that continue to receive empirical validation in contemporary literature. Arbitrage Pricing Theory (APT) posits that asset returns are determined by multiple systematic risk factors, including macroeconomic variables such as inflation, exchange rates, and interest rates. Unlike the Capital Asset Pricing Model (CAPM), which relies on a single market factor, APT explicitly accommodates the multidimensional nature of macroeconomic risk, making it particularly relevant for studying the JCI's sensitivity to simultaneous macroeconomic pressures. Within the APT framework, any unanticipated change in inflation, exchange rates, or interest rates constitutes a systematic risk factor that is priced into equity returns, thereby providing a theoretical basis for the hypothesized relationships in this study. Recent empirical applications of APT in emerging markets confirm that macroeconomic factors collectively explain a substantial portion of stock return variation, particularly during periods of heightened economic uncertainty (Devi et al., 2022).

The Efficient Market Hypothesis (EMH) further complements this framework by asserting that stock prices fully reflect all available information, including publicly observable macroeconomic data. Under the semi-strong form of EMH, any new macroeconomic information, such as a change in the central bank's benchmark interest rate or a shift in the inflation trajectory, is rapidly incorporated into stock prices. This implies that the JCI responds not merely to the levels of macroeconomic variables but to unexpected deviations from anticipated values, a distinction that helps explain why empirical studies find varying directions and magnitudes of effects depending on the economic context and the degree of market surprise involved. Consistent with this perspective, Ardian et al. (2024) observed that JCI responses to macroeconomic announcements were particularly sensitive during the post-pandemic normalization period, when uncertainty regarding policy trajectories was elevated.

Keynesian monetary theory additionally provides a conceptual link between interest rates and asset markets. Within a Keynesian framework, interest rates represent the cost of capital and serve as a transmission mechanism through which monetary policy affects real economic activity, investment demand, and ultimately corporate profitability. When interest rates rise, the discount rate applied to future corporate cash flows increases, mechanically reducing the present value of equities. Furthermore, higher interest rates crowd out private investment and dampen aggregate demand, creating second-order negative effects on corporate earnings and stock valuations. This theoretical channel is central to understanding not only the direct effect of interest rates on the JCI but also their potential moderating influence on how inflation and exchange rate shocks are transmitted to equity markets. Nurjanah (2023) affirmed this transmission mechanism in the Indonesian context, finding

that interest rate movements by Bank Indonesia produced measurable adjustments in equity valuations across the observation period.

Jakarta Composite Index (JCI) and Macroeconomic Sensitivity

The Jakarta Composite Index (JCI) serves as the primary benchmark for assessing the overall performance of Indonesia's capital market, aggregating the price movements of all stocks listed on the Indonesia Stock Exchange (IDX). Beyond its function as a market performance indicator, the JCI reflects aggregate investor expectations regarding macroeconomic conditions, policy directions, and corporate earnings prospects. In emerging markets such as Indonesia, stock market movements tend to exhibit heightened sensitivity to macroeconomic fluctuations relative to developed markets, owing to shallower financial markets, greater dependence on foreign capital flows, and structural vulnerabilities to external shocks (Aldiansyah, 2024). This sensitivity is particularly pronounced during periods of global economic stress, when risk aversion among international investors amplifies domestic market volatility beyond what fundamental factors alone would predict.

Inflation and the JCI

Inflation represents a continuous increase in the general price level and constitutes one of the most closely monitored macroeconomic indicators in equity market analysis. From a theoretical standpoint, high inflation erodes corporate purchasing power, increases input costs, and compresses profit margins, thereby reducing earnings expectations and depressing stock valuations. Moreover, elevated inflation typically prompts monetary tightening, which further constrains liquidity and raises the discount rate applied to future earnings.

Empirically, however, the inflation-JCI relationship has produced inconsistent findings that reflect methodological and contextual heterogeneity across studies. Silalahi and Sihombing (2021) employed time-series regression and documented a significant negative effect of inflation on the JCI, consistent with the cost-push and monetary tightening channels described above. In contrast, Paramita et al. (2024) and Fuad (2021), examining sectoral and sub-period data respectively, reported positive relationships under certain conditions, which they attribute to demand-pull inflation scenarios in which rising prices signal expanding economic activity and improving corporate revenues. These divergent findings suggest that the direction of the inflation effect is contingent on the source of inflationary pressure, the prevailing monetary policy stance, and the composition of the index under study, dimensions that purely additive regression models are ill-equipped to capture.

Exchange Rates and the JCI

Exchange rates affect stock market performance through multiple transmission channels, including trade competitiveness, cost structures, and investor sentiment. Currency depreciation creates asymmetric effects across firms depending on their exposure to international trade: export-oriented companies may benefit from improved price competitiveness in global markets, while import-dependent firms face rising input costs that compress margins and reduce profitability. In the aggregate, the net effect of exchange rate movements on the JCI depends on the sectoral composition of the index and the degree of foreign currency exposure among listed firms.

The portfolio balance approach to exchange rates suggests that capital flows and equity prices are jointly determined, such that exchange rate movements and stock prices can reinforce each other through feedback loops. Rupiah depreciation may trigger capital outflows by foreign investors seeking to avoid currency losses on their Indonesian equity

holdings, creating a simultaneous decline in both the exchange rate and the JCI. This dynamic was clearly observable during the 2020 pandemic shock and the 2022 Federal Reserve tightening cycle, both of which produced correlated rupiah depreciation and JCI declines. Paryudi (2021) confirmed a significant negative effect of exchange rate depreciation on the JCI using monthly time-series data, while Kartiko and Mayasari (2024), employing panel data across multiple sectors, found evidence of positive effects in export-dominated industries. The methodological difference between these two studies, specifically the use of aggregate versus sectoral data, is a primary source of the observed inconsistency and underscores the importance of research design in interpreting empirical results.

Interest Rates and the JCI

Interest rates represent the primary instrument of monetary policy and exert their influence on the stock market through several theoretically distinct channels. First, consistent with Keynesian theory, interest rates determine the discount rate applied to future corporate cash flows, such that an increase in rates mechanically reduces the present value of equities, all else being equal. Second, higher interest rates increase the relative attractiveness of fixed-income instruments, prompting a portfolio reallocation away from equities. Third, rising rates increase the cost of corporate borrowing, constraining capital investment and potentially reducing future earnings growth.

Wulandari et al. (2021) found that interest rates exert a significant negative effect on the JCI, consistent with the theoretical predictions outlined above. Nurjanah (2023), however, reported that the relationship varies considerably across different sub-periods, with interest rate increases during periods of high inflation sometimes accompanied by JCI stabilization or even recovery, as markets interpret rate hikes as evidence of credible monetary governance. This finding is consistent with the EMH perspective, in which the direction of the market response depends on whether the rate change was anticipated or constitutes a policy surprise. The context-dependence of the interest rate effect, and its interaction with inflationary conditions, provides the primary theoretical justification for examining interest rates as a moderating variable in this study.

The Moderating Role of Interest Rates

While the direct effects of inflation and exchange rates on the JCI have been studied extensively, considerably less attention has been paid to the conditional nature of these relationships. Interest rates, as both a monetary policy instrument and a macroeconomic signal, plausibly moderate how inflation and exchange rate shocks are transmitted to equity markets. In a high-interest-rate environment, inflationary pressure carries amplified negative implications for the JCI because tight monetary conditions simultaneously suppress liquidity, raise discount rates, and reduce corporate borrowing capacity, compounding the adverse effect of rising prices on stock valuations. Conversely, in a low-rate environment, moderate inflation may exert a neutral or even positive effect on the JCI by supporting nominal revenue growth without triggering significant monetary tightening.

A parallel logic applies to the exchange rate channel: the impact of rupiah depreciation on the JCI may be more pronounced when interest rates are high, because the combination of currency weakness and elevated borrowing costs creates compounded financial stress for leveraged and import-dependent firms. Rady et al. (2024) provided preliminary evidence for this moderating dynamic in a cross-country emerging market context, finding that the interaction between monetary policy tightness and exchange rate

volatility produces non-linear effects on stock market performance. However, their study did not specifically examine the Indonesian market, and the generalizability of their findings to the JCI context remains to be established. This gap in the literature, specifically the absence of moderated regression analysis applied to the JCI using recent data spanning the pandemic and global monetary tightening cycle, constitutes the primary contribution of the present study.

Hypothesis Development

Drawing on the theoretical frameworks and empirical evidence reviewed above, this study develops the following hypotheses. Based on APT and Keynesian monetary theory, as well as the preponderance of empirical evidence, inflation is expected to exert a negative effect on the JCI (H1). Exchange rate depreciation is similarly hypothesized to negatively affect the JCI through capital outflow and cost-increase channels (H2). Interest rates are expected to negatively affect the JCI by reducing equity valuations and shifting investor preferences toward fixed-income instruments (H3). Finally, consistent with the moderating logic outlined above, interest rates are hypothesized to moderate the effect of inflation on the JCI (H4) and to moderate the effect of exchange rates on the JCI (H5), such that the adverse effects of both variables are amplified under conditions of monetary tightening.

RESEARCH METHOD

This study employs a quantitative approach with an explanatory research design aimed at examining the causal relationships between macroeconomic variables, namely inflation, exchange rates, and interest rates, and the Jakarta Composite Index (JCI), with interest rates positioned as a moderating variable. The data used in this study are secondary data in the form of monthly time-series observations covering the period from January 2020 to December 2024, resulting in a total of 60 observations. The data were obtained from official publications issued by the Indonesia Stock Exchange and Bank Indonesia, including data on the JCI, inflation rates, the exchange rate of the Indonesian rupiah against the US dollar, and the benchmark interest rate.

It is acknowledged that 60 monthly observations represent a relatively modest sample size for time-series analysis. To address this limitation, the study applies rigorous pre-estimation diagnostics and adopts robust estimation procedures where necessary, so that inference remains as reliable as possible within the available data structure. Furthermore, the observation period of 2020 to 2024, while encompassing extraordinary events including the COVID-19 pandemic, the subsequent economic recovery, and the global monetary policy tightening cycle, is treated not as a limitation but as a deliberate design choice. This period is selected precisely because it captures episodes of extreme macroeconomic volatility, allowing the study to examine how inflation, exchange rates, and interest rates interact with the JCI under conditions of elevated uncertainty and structural market stress, conditions that are increasingly recognized as the norm rather than the exception in emerging market economies (Aldiansyah, 2024). To mitigate the risk that pandemic-era distortions reduce the generalizability of findings, the regression models incorporate all classical assumption diagnostics, and the results are interpreted with explicit reference to the broader economic context of each sub-period.

The analytical techniques applied in this study include multiple linear regression to examine the direct effects of independent variables on the dependent variable, and Moderated

Regression Analysis (MRA) to assess the moderating role of interest rates in the relationship between inflation and exchange rates on the JCI. MRA is selected over alternative interaction-testing methods because it allows the moderating variable, in this case interest rates, to be retained as both an independent predictor and an interaction term within a unified regression framework, enabling simultaneous estimation of direct and conditional effects without requiring sample splitting. This approach is particularly appropriate when the theoretical expectation is that the moderating variable does not merely shift the intercept but actively alters the slope of the relationship between the predictor and the outcome variable.

Prior to hypothesis testing, the model was evaluated using classical assumption tests, including normality, heteroskedasticity, multicollinearity, and autocorrelation tests, to ensure the validity and reliability of the regression model. Given the time-series nature of the data, the autocorrelation test is of particular importance and was conducted using the Durbin-Watson statistic, with remediation applied through the Cochrane-Orcutt procedure if serial correlation was detected. Heteroskedasticity was assessed using the Breusch-Pagan test, and, where present, heteroskedasticity-consistent standard errors were employed to preserve the validity of inferential statistics. Multicollinearity among the independent variables, a potential concern given the theoretical interdependencies among inflation, exchange rates, and interest rates, was evaluated using Variance Inflation Factor (VIF) values, with a threshold of VIF below 10 applied as the criterion for acceptable collinearity levels. Data processing was conducted using statistical software to produce accurate and scientifically reliable results.

Research Framework

This research framework is based on the assumption that the dynamics of the Jakarta Composite Index (JCI) are inseparable from the influence of fundamental macroeconomic variables, particularly inflation, exchange rates, and interest rates. Inflation is positioned as an indicator of price stability, reflecting the balance between supply and demand in the economy. Under controlled inflation, price increases can be interpreted as a signal of economic expansion, boosting corporate profit expectations, thus positively impacting the stock market. Meanwhile, the exchange rate plays a strategic role in determining external competitiveness and real sector performance, particularly for export-import-based companies. Changes in the exchange rate can affect a company's cost structure and revenue, which are ultimately reflected in stock price movements. Therefore, both inflation and the exchange rate theoretically have a direct relationship with the JCI, which represents aggregate capital market performance.

Furthermore, this study integrates interest rates as a moderating variable that contextually strengthens or weakens the relationship between macroeconomic variables and the JCI. Interest rates reflect the direction of monetary policy, which influences the cost of capital, investment preferences, and liquidity flows in financial markets. From the perspective of monetary signaling and transmission theory, changes in interest rates not only directly impact the stock market but also potentially alter market sensitivity to inflation and exchange rates. Therefore, the presence of interest rates as a moderating variable is important to test whether the effects of inflation and exchange rates on the Jakarta Composite Index (JCI) are conditional or remain consistent across interest rate levels. This framework provides a more comprehensive analytical approach to understanding the complex interactions

between macroeconomic factors and stock market dynamics in Indonesia. The conceptual framework in this study is as follows:

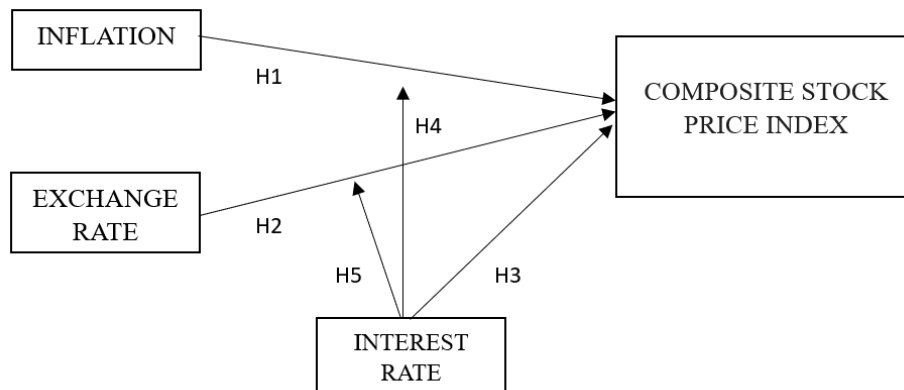


Figure 2.
Research Framework

Research Hypothesis

Based on the research objectives, problem formulation, and framework above, the study provides the following hypotheses:

- H1: The Effect of Inflation on the Jakarta Composite Index
- H2: The Effect of Exchange Rates on the Jakarta Composite Index
- H3: The Effect of Interest Rates on the Jakarta Composite Index
- H4: The Effect of Inflation on the Jakarta Composite Index, moderated by Interest Rates
- H5: The Effect of Exchange Rates on the Jakarta Composite Index, moderated by Interest Rates

RESULTS AND DISCUSSION

Descriptive Analysis

Descriptive statistics are used to provide an overview of the data characteristics based on minimum values, maximum values, mean values, and standard deviations, enabling an initial understanding of the distribution and variability of each variable during the observation period.

Descriptive Statistics Results

Tabel 1.
Statistics Result

	IHSG	INFLASI	KURS	SUKU_BUNGA
Mean	6275.529	2.758167	14998.43	4.737500
Median	6632.205	2.535000	14927.49	4.500000
Maximum	8040.800	5.950000	16338.90	6.250000

Source: Data processed 2026

The inflation variable has a mean value of 2.758167 with a median of 2.535000. The maximum value of inflation is 5.950000, while the minimum value is 1.320000, suggesting that inflation remained relatively stable during the study period. The standard deviation of

1.330747 indicates a relatively low level of variability compared to its mean, implying that inflation was generally well-controlled throughout the observation window. The exchange rate variable shows a mean value of 14,998.43 with a median of 14,927.49. The maximum and minimum values are 16,338.90 and 13,481.23, respectively, reflecting considerable fluctuations over the period. The standard deviation of 769.3944 indicates notable exchange rate volatility, and the mean value exceeding the median suggests a right-skewed distribution, consistent with periods of sustained depreciation pressure. The interest rate variable has a mean value of 4.737500 with a median of 4.500000, ranging from a minimum of 3.500000 to a maximum of 6.250000. The standard deviation of 1.103178 reflects relatively low variability, consistent with a deliberately managed monetary policy stance by Bank Indonesia across the observation period.

Classical Assumption Tests

1. Normality Test

The results of the Normality Test are presented in Table 2 below:

Table 2.

Normality Test

Statistik	Nilai
Observations	60
Mean	3.78E-13
Median	46.93417
Maximum	1525.426
Minimum	-2199.257
Std. Dev.	811.2780
Skewness	-0.381432
Kurtosis	2.866752
Jarque-Bera	1.499293
Probability	0.472534

Source: Data processed 2026

The Jarque-Bera statistic is 1.499293 with a probability value of 0.472534, which exceeds the significance threshold of 0.05. The null hypothesis of normally distributed residuals is therefore accepted, confirming that the regression model satisfies the normality assumption. The skewness value of -0.381432 and kurtosis of 2.866752 are both close to the values expected under normality, further supporting this conclusion.

2. Heteroskedasticity Test

The results of the heteroscedasticity test are presented in Table 3 below:

Table 3.

ARCH Test

Heteroskedasticity Test: ARCH

F-statistic	2.361412	Prob. F (1,57)	0.1299
Obs*R-squared	2.347035	Prob. Chi-Square (1)	0.1255

Source: Data processed 2026

The ARCH heteroskedasticity test yields a Prob. Chi-Square value of 0.1255, which exceeds 0.05. The null hypothesis of homoskedastic residuals is accepted, indicating that the variance of the residuals remains constant across observations. The model is therefore free from autoregressive conditional heteroskedasticity, supporting the reliability of standard error estimates.

3. Multicollinearity Test

The results of the multicollinearity test are presented in Table 4 below:

Table 4.
Multicollinearity Test

Variable	Coefficient Uncentered Centered		
	Variance	VIF	VIF
C	5179764.	448.1856	NA
INFLASI	7171.559	5.801227	1.080570
KURS	0.028226	550.8220	1.421660
SUKU BUNGA	14625.34	29.91665	1.514419

Source: Data processed 2026

The centered VIF values for all independent variables are well below the threshold of 10, registering at 1.080570 for inflation, 1.421660 for exchange rates, and 1.514419 for interest rates. These values confirm the absence of problematic multicollinearity among the predictors, indicating that each variable contributes independent informational content to the regression model.

4. Autocorrelation Test

The results of the autocorrelation test are presented in Table 5 below:

Table 5.
Autocorrelation Test

Indikator	Nilai	Indikator	Nilai
R-squared	0.103215	Mean dependent var	3.78E-13
Adjusted R-squared	0.020179	S.D. dependent var	811.2780
S.E. of regression	803.0507	Akaike info criterion	16.30935
Sum squared resid	34,824,085	Schwarz criterion	16.51879
Log likelihood	-483.2806	Hannan-Quinn criterion	16.39127
F-statistic	1.243020	Durbin-Watson stat	1.929637
Prob (F-statistic)	0.302065		

Source: Data processed 2026

The Durbin-Watson statistic of 1.929637 falls within the acceptable range close to 2.000, indicating the absence of first-order autocorrelation in the residuals. This confirms that observations are sufficiently independent across time periods and that the time-series structure of the data does not invalidate the regression assumptions.

Multiple Linear Regression Results

The results of the Multiple Linear Regression Test are presented in Table 6 below:

Table 6.
Multiple Linear Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2114.512	2275.910	-0.929084	0.3568
INFLASI	173.6665	84.68506	2.050733	0.0450
KURS	0.404291	0.168006	2.406408	0.0194
BI RATE	389.9338	120.9353	3.224318	0.0021

Source: Data processed 2026

The regression equation derived from these results can be expressed as $JCI = -2114.512 + 173.6665 (\text{Inflation}) + 0.404291 (\text{Exchange Rate}) + 389.9338 (\text{Interest Rate})$. The constant value of -2114.512 indicates the baseline JCI level when all predictors are held at zero, a purely theoretical baseline given the nature of the variables. The positive coefficient on inflation (173.6665) indicates that a one-unit increase in the inflation rate is associated with an increase of approximately 173.67 points in the JCI. Similarly, the exchange rate coefficient of 0.404291 implies that a one-unit rupiah depreciation against the US dollar is associated with an increase of approximately 0.40 points in the JCI. The interest rate coefficient of 389.9338 suggests that a one percentage point increase in the benchmark interest rate is associated with an increase of approximately 389.93 points in the JCI, a finding that carries important theoretical implications discussed in the following sections.

Simultaneous Test (F-Test)

The results of the Simultaneous Test (F) are presented in Table 7 below:

Table 7.
F-Test

R-squared	0.455293	Mean dependent var	6275.529
Adjusted R-squared	0.426112	S.D. dependent var	1099.229
S.E. of regression	832.7251	Akaike info criterion	16.35162
Sum squared resid	38832145	Schwarz criterion	16.49125
Log likelihood	-486.5487	Hannan-Quinn criter.	16.40624
F-statistic	15.60251	Durbin-Watson stat	1.953591
Prob(F-statistic)	0.000000		

Source: Data processed 2026

The F-statistic of 15.60251 with a probability of 0.000000 confirms that the model as a whole is statistically significant at the one percent level. Inflation, exchange rates, and interest rates jointly explain a significant portion of the variation in the JCI over the observation period, validating the overall model specification.

Coefficient Of Determination (R²)

Before testing the hypotheses, this study presents the results of the Coefficient of Determination (R²) test to provide an overview of the characteristics of the data used. This presentation aims to understand the data distribution and the level of variation of each variable during the study period. The results of the Coefficient of Determination (R²) are presented in Table 8 below.

Table 8.
Coefficient Of Determination (R²)

R-squared	0.455293	Mean dependent var	6275.529
Adjusted R-squared	0.426112	S.D. dependent var	1099.229
S.E. of regression	832.7251	Akaike info criterion	16.35162
Sum squared resid	38832145	Schwarz criterion	16.49125
Log likelihood	-486.5487	Hannan-Quinn criter.	16.40624
F-statistic	15.60251	Durbin-Watson stat	1.953591
Prob(F-statistic)	0.000000		

Source: Data processed 2026

The adjusted R-squared value of 0.426112 indicates that approximately 42.6 percent of the variation in the JCI is explained by the three macroeconomic predictors included in the model. The remaining 57.4 percent is attributable to variables outside the model, which is consistent with the well-established finding in the financial literature that stock market indices are influenced by a broad range of factors beyond macroeconomic fundamentals, including investor sentiment, corporate earnings surprises, global commodity price movements, and geopolitical developments.

T-Test (Partial Test)

The results of the t-Hypothesis are presented in Table 9 below:

Table 9.
T-Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2114.512	2275.910	-0.929084	0.3568
INFLASI	173.6665	84.68506	2.050733	0.0450
KURS	0.404291	0.168006	2.406408	0.0194
BI RATE	389.9338	120.9353	3.224318	0.0021

Source: Data processed 2026

The partial t-test results confirm that all three independent variables exert statistically significant effects on the JCI. Inflation registers a probability value of 0.0450, marginally below the 0.05 threshold, indicating a significant positive partial effect. The exchange rate records a probability of 0.0194, also below 0.05, confirming its significant positive partial effect on the JCI. Interest rates demonstrate the strongest partial significance with a probability of 0.0021, well below both the 0.05 and 0.01 thresholds, indicating a highly significant positive effect on the JCI.

Moderation Test (MRA)

1. The Moderating Role of Interest Rates on the Effect of Inflation on JCI

The results of the subsequent moderation test are presented in Table 10 below:

Table 10.

Results of Moderated Regression Analysis: The Effect of Inflation on JCI with Interest Rates as a Moderating Variable

Variable	Coefficient	Std. Error	t-Statistic	Prob.
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C	2015.060	1231.805	1.635859	0.1075
SUKU BUNGA	814.3315	268.6826	3.030830	0.0037
INFLASI	654.1209	458.9722	1.425186	0.1597
BI INFLASI	-104.1608	95.85191	-1.086684	0.2818

Source: Data processed 2026

The interaction term between interest rates and inflation (BI_INFLASI) yields a coefficient of -104.1608 with a probability value of 0.2818, which exceeds the 0.05 significance level. On the basis of this result, interest rates do not significantly moderate the relationship between inflation and the JCI within the linear MRA framework applied here. However, this finding warrants a more careful interpretation than a simple conclusion of independence. Several alternative explanations deserve consideration. First, the absence of a significant interaction effect may reflect insufficient statistical power resulting from the relatively modest sample size of 60 observations, as interaction terms in moderated regression are known to require considerably larger samples to detect moderate effect sizes reliably (Carte & Russell, 2003). Second, the non-significance of the linear interaction term does not preclude the existence of a non-linear moderating relationship; if the moderating effect of interest rates on inflation operates through threshold or regime-switching dynamics, a standard linear MRA would be unable to detect it. Third, the 2020 to 2024 period was characterized by an unusual monetary policy environment in which Bank Indonesia maintained historically low interest rates until 2022 before initiating a rapid tightening cycle, potentially compressing the variance of the moderating variable in ways that reduce its statistical detectability. These considerations suggest that the absence of moderation should be treated as an inconclusive rather than definitive finding, and future research employing longer time horizons or threshold regression approaches may yield different results.

2. The Moderating Role of Interest Rates on the Effect of Exchange Rates on JCI

The results of the subsequent moderation test are presented in Table 11 below:

Table 11.

Results of Moderated Regression Analysis: The Effect of Exchange Rate on JCI with Interest Rates as a Moderating Variable

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-9314.361	10968.45	-0.849196	0.3994
SUKU BUNGA	2149.146	2391.449	0.898679	0.3727
KURS	0.892716	0.729879	1.223101	0.2264
BI KURS	-0.111609	0.157090	-0.710482	0.4804

Source: Data processed 2026

The interaction term between interest rates and exchange rates (BI_KURS) produces a coefficient of -0.111609 with a probability value of 0.4804, again exceeding the significance threshold of 0.05. The linear moderating effect of interest rates on the exchange rate-JCI relationship is therefore not supported by the data. Notably, when the interaction term is introduced into the model, the previously significant direct effect of the exchange rate on the JCI loses its significance (prob. 0.2264), which may suggest that collinearity between

the exchange rate and the interaction term inflates standard errors and reduces the precision of individual coefficient estimates, a recognized limitation of MRA models that include highly correlated predictor-moderator combinations (Carte & Russell, 2003). An alternative explanation is that the moderating effect of interest rates on exchange rate transmission to the JCI may operate with a time lag rather than contemporaneously, a dynamic that monthly cross-sectional time-series models without distributed lag specifications are not designed to capture.

Furthermore, given that both exchange rate volatility and interest rate adjustments during this period were partly driven by the same external shock, namely the Federal Reserve tightening cycle, their comovement may have absorbed the statistical space that a genuine moderating effect would otherwise occupy. These considerations reinforce the conclusion that the non-significant moderation results should be interpreted as evidence of a methodological boundary condition rather than a definitive theoretical rejection of the moderating hypothesis

The Effect of Inflation on the JCI

The finding that inflation has a positive and significant effect on the JCI (prob. 0.0450) is consistent with the demand-pull inflation hypothesis, wherein rising prices driven by expanding aggregate demand reflect improving economic conditions and stronger corporate revenue prospects. During the 2020 to 2024 period, Indonesia's inflation remained largely within the central bank's target range, peaking at 5.95 percent during the global commodity price shock of 2022 before returning to moderate levels. Under these conditions, inflation increments were more likely interpreted by investors as signals of economic recovery and demand expansion rather than as cost-push threats to corporate margins, which aligns with the positive coefficient observed. This finding is consistent with Paramita et al. (2024) and Fuad (2021), who also documented positive inflation effects in contexts where price increases were associated with demand-side growth dynamics, and diverges from Silalahi and Sihombing (2021), whose findings of a negative relationship may reflect a different inflationary regime in which supply-side pressures dominated. The context-dependence of this relationship reinforces the theoretical argument that the direction of inflation's effect on equity markets cannot be determined independently of the prevailing economic structure and the source of inflationary pressure.

The Effect of Exchange Rates on the JCI

The exchange rate variable exhibits a positive and significant effect on the JCI (prob. 0.0194), indicating that rupiah depreciation against the US dollar was associated with JCI appreciation over the observation period. This finding is consistent with the stock-oriented model of exchange rate determination, which predicts that in economies with a significant export sector, currency depreciation improves the international price competitiveness of domestic firms, boosting revenues and stock valuations. The Indonesian stock market is heavily weighted toward commodity exporters, resource-based industries, and manufacturing firms with substantial export revenues, making the aggregate index particularly responsive to the competitive gains from currency weakness.

This result aligns with Kartiko and Mayasari (2024), who identified positive exchange rate effects in export-oriented sectors, while contrasting with Paryudi (2021), whose aggregate time-series analysis found negative effects, a discrepancy that likely reflects the difference in sample composition and the specific sub-periods examined. The positive

relationship observed in this study may also partially reflect the 2022 to 2023 rupiah depreciation episode, during which commodity export revenues surged alongside currency weakness, producing a simultaneous JCI appreciation that was driven by sector-specific windfalls rather than broad-based economic improvement.

The Effect of Interest Rates on the JCI

The positive and highly significant effect of interest rates on the JCI (prob. 0.0021) represents a notable departure from the negative relationship predicted by Keynesian theory and documented in several prior studies including Wulandari et al. (2021). However, this finding is theoretically interpretable within the EMH and monetary signaling frameworks. During the 2020 to 2024 period, Bank Indonesia's interest rate trajectory moved from historical lows during the pandemic accommodation phase to a deliberate tightening cycle from 2022 onward in response to global inflationary pressures. In this context, interest rate increases were likely perceived by market participants as evidence of monetary policy credibility and commitment to macroeconomic stability rather than as a constraint on corporate financing. Investors operating in an emerging market context may assign positive valuation effects to central bank credibility signals, particularly following the extreme uncertainty of the pandemic period, as macroeconomic stability reduces the risk premium required on equity investments.

This interpretation is consistent with Nurjanah (2023), who observed that the negative interest rate effect on the JCI was not uniform across sub-periods and weakened considerably during phases of monetary normalization. The positive coefficient therefore reflects not a violation of financial theory but rather the operation of a confidence channel in monetary policy transmission that is particularly salient in emerging markets recovering from systemic economic disruption.

Interest Rates as a Moderating Variable

The MRA results indicate that interest rates do not significantly moderate either the inflation-JCI relationship (H4) or the exchange rate-JCI relationship (H5) within the linear regression framework employed. Rather than interpreting this as a straightforward finding that macroeconomic variables operate independently, it is more accurate to recognize the methodological and contextual boundaries of this result. Linear MRA assumes a constant multiplicative interaction effect across the full range of the moderating variable, an assumption that may be inappropriate for interest rate moderation in financial markets where threshold effects, asymmetric responses, and regime-dependent dynamics are theoretically expected.

The compressed interest rate variance during the early part of the observation period, combined with the rapid and synchronized tightening in the latter period, may have created a non-stationary moderating environment that linear interaction terms cannot adequately represent. Future research employing threshold regression, Markov-switching models, or rolling-window estimation would be better equipped to detect conditional effects that operate non-linearly or vary across monetary policy regimes. The present findings therefore establish a useful baseline while simultaneously identifying the limitations of linear MRA as a tool for capturing the complex, context-dependent interactions among macroeconomic variables in emerging market equity markets.

CONCLUSION

This study examined the direct and conditional effects of inflation, exchange rates, and interest rates on the Jakarta Composite Index (JCI) over the 2020 to 2024 period. The findings confirm that all three macroeconomic variables exert positive and statistically significant effects on the JCI both individually and jointly, explaining approximately 42.6 percent of total index variation. The moderation analysis finds no statistically significant evidence that interest rates condition the inflation-JCI or exchange rate-JCI relationships within the linear MRA framework applied.

Beyond their statistical content, these findings carry meaningful implications. The positive inflation effect reflects Indonesia's demand-driven inflationary environment during this period, where controlled price increases were interpreted by investors as recovery signals rather than macroeconomic threats, underscoring the importance of credible inflation targeting in maintaining market confidence. The positive exchange rate effect mirrors the structural dominance of commodity exporters and resource-based industries in the JCI, suggesting that rupiah depreciation does not uniformly harm the equity market and that sectoral composition should inform how exchange rate movements are interpreted by investors and policymakers alike. The positive interest rate effect, contrary to conventional theory, points to a monetary credibility channel in which well-communicated rate adjustments during post-crisis normalization strengthen rather than suppress investor confidence, a finding with direct relevance to central bank communication strategy.

The non-significant moderation results highlight a methodological boundary rather than a theoretical rejection of the moderating hypothesis. Linear MRA may be insufficient to capture threshold or regime-dependent interaction effects that are theoretically plausible in emerging market contexts. Future research should therefore employ more flexible analytical frameworks such as threshold regression or time-varying parameter models, extend the observation period to encompass more stable economic cycles, and incorporate additional variables including foreign capital flows and global commodity prices to produce a more complete account of JCI dynamics..

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