

Research Article

The Effect of Inflation, Interest Rates, Exchange Rates, and Foreign Exchange Reserves on the Composite Stock Price Index (IHSG) on the Indonesia Stock Exchange 2013-2024

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Abstract: Over the period from 2013 to 2024, this study examines how inflation, interest rates, exchange rates, and foreign exchange reserves impact Jakarta Composite Index (JCI), which is listed on Indonesia Stock Exchange. The JCI functions as a broad measure of stock market performance in Indonesia and reflects broader macroeconomic conditions. This research employs a quantitative approach utilizing time-series data over twelve years. Secondary data were collected from official publications of Bank Indonesia, the Indonesia Stock Exchange, and Yahoo Finance. Analytical procedures include descriptive statistics, classical assumption testing, multiple linear regression, hypothesis testing (t-test and F-test), and coefficient of determination analysis, processed using SPSS. Findings indicate that, partially, inflation, interest rates, and exchange rates do not exert a statistically significant effect on the JCI. In contrast, foreign currency reserves demonstrate its positive and significant influence on index. Simultaneously, all macroeconomic variables collectively influence the JCI significantly. The Adjusted R² value of 0.891 suggests that 89.1% of JCI variation is explained by selected macroeconomic variables, while the remaining 10.9% is attributable to additional elements not discussed in this research.

Keywords: Foreign Exchange Reserves; IHSG; Inflation; Interest Rates; Rupiah Exchange Rates

1. Introduction

Increasing integration of global financial markets has intensified the interconnection between macroeconomic indicators, capital market performance. In emerging economies such as Indonesia, stock market movements are highly responsive to fluctuations in macroeconomic fundamentals. The capital market plays a strategic role in channeling funds from surplus units to deficit units, thereby supporting corporate expansion and economic growth. Jakarta Composite Index, which represents all registered parts on Indonesia Stock Exchange, functions as a primary benchmark for measuring overall market performance.

Previous studies have shown that macroeconomic elements such inflation, interest rates, exchange rates, and commodity prices significantly influence the JCI. Bahagia & Febriana (2024) found the JCI sensitive to macroeconomic changes, Garnia (2021) confirmed the influence of international commodity prices, and Muttalib & Solatiyah (2024) demonstrated how changes in exchange rates and monetary policies affect the Islamic stock index. These findings confirm that the JCI reflects broader economic conditions. This research offers a new perspective by analyzing the JCI trend from 2013 to 2024, enabling the identification of long-term fluctuation patterns and the JCI's response to economic changes, differing from previous studies that tended to focus on shorter periods.

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In an economic context, inflation is defined as a general increase in the prices of goods and services that reduces the purchasing power of money (Rahardja & Manurung, 2019). Inflation influences both individual and macroeconomic decisions, including central bank monetary policy.

The interest rate, according to Fabozzi et al. (2015), is the price paid by borrowers to lenders for the use of funds over a specific period. Bank Indonesia, as the monetary authority, sets the BI rate as a benchmark indicating the direction and stance of monetary policy (BI, accessed April 23, 2025). Rupiah fluctuations impact export-import competitiveness, investor sentiment, and company performance on the Indonesia Stock Exchange. Rupiah depreciation increases import costs and depresses corporate profits, while appreciation increases foreign investor confidence in economic stability. Foreign exchange reserves are also an important factor. Adequate foreign exchange reserves strengthen external resilience, reduce country risk, and improve investor sentiment. During the study period, Indonesia's foreign exchange reserves were at historically high levels, reflecting the dynamics of trade, commodity prices, and capital flows (BI/IMF–World Bank).

Table 1. Percentage Inflation, Interest Rate, Rupiah Exchange Rate, and Foreign Exchange Reserve to JCI Index on the Indonesia Stock Exchange, 2013 – 2024

Year	Inflation (%)	Interest rate (%)	Exchange Rate (Rp)	Foreign Exchange Reserves (Billions of Rp)	IHSG (Rp)
2013	8,38	7,50	10.451,37	1,038,730	4.274.01
2014	8,36	7,75	11.878,30	1,328,730	5.226,74
2015	3,35	7,50	13.391,97	1,418,625	4.593,01
2016	3,02	4,75	13.307,38	1,548,473	5.296,71
2017	3,61	4,25	13.384,13	1,742,560	6.355,65
2018	3,13	6,00	14.246,43	1,718,888	6.194,50
2019	2,72	5,00	14.146,33	1,827,465	6.299,54
2020	1,68	3,75	14.572,26	1,980,326	5.979,07
2021	1,87	3,50	14.311,96	2,073,874	6.581,48
2022	5,51	5,50	14.870,61	2,040,738	6.850,62
2023	2,61	6,00	15.255,05	2,233,095	7.272,80
2024	1,57	6,00	15.846,90	2,467,663	7.079,90

Source: Bank Indonesia and Yahoo Finance

Based on the data, during the 2013–2024 period, inflation in Indonesia tended to decline from 8.38% (2013) to 1.57% (2024), although it rose to 5.51% in 2022. Interest rates fell from 7.50% (2013) to a low of 3.50% (2021), then rose again to 6.00% in 2023–2024. The Rupiah weakened from Rp10,451.37 (2013) to Rp15,846.90 (2024), while foreign exchange reserves showed a long-term upward trend, from Rp1,038,730 billion (2013) to Rp2,467,663 billion (2024), although it fell in 2018 and 2022. The JCI generally increased from 4,274.01 (2013) to 7,079.90 (2024), with some declines in 2015, 2018, 2020, and 2024 compared to the previous year.

2. Literature Review

Composite Stock Price Index

Jakarta Composite Index, also known as the CSPI, is a broad market index established to capture the aggregate all performance publicly traded parts listed on market. Jakarta Composite Index is used in this study to represent the Indonesian stock market as a whole and to reflect market movements. The Jakarta Composite Index is used to gauge overall stock market conditions, including price uptrends and downtrends, as it encompasses all stocks listed the Indonesia Stock Exchange. To maintain fairness in its movements, the Indonesia Stock Exchange has the authority to include or exclude issuers from the JCI calculation, particularly if a stock has a large market capitalization but low public ownership (free float), potentially disproportionately affecting index movements.

Inflation

Inflation is a major problem in many developing countries. Rahardja & Manurung (2019) defines inflation as "a general and continuous increase in price goods." Suparnomo (2018) defines inflation as an economic problem that can occur in both developed and developing countries like Indonesia.

Interest Rate

Sunariyah (2015) defines the interest rate as the percentage return on principal over a specific period of time. Interest rates constitute an external macroeconomic variable that can affect stock prices and firm value. Rise of interest rates generally encourages investors to shift their funds toward banking products such as savings accounts or time deposits rather than investing in the real sector. Furthermore, higher interest rates may raise borrowing costs for

companies, thereby reducing net income and earnings per share, which can subsequently exert downward pressure on share prices in the capital market.

Exchange Rate

According to Hendra et al. (2024), Price of one unit of foreign currency in domestic currency or the price of domestic currency against a foreign currency is the currency exchange rate.

Foreign Exchange Reserves

Countries with large foreign exchange reserves have a better ability to maintain exchange rate stability, meet foreign obligations, and face external shocks. Therefore, foreign exchange reserves are a strong indicator of weak economic fundamentals and need to be managed stably. Sources of foreign exchange reserves come from exports, tourism, foreign investment, and foreign loans. According to the International Monetary Fund's *International Reserves and Foreign Currency Liquidity* (IRFCL) concept, foreign exchange reserves are all foreign assets controlled by monetary authorities and can be used at any time to finance balance of payments imbalances, maintain monetary stability, and intervene in foreign exchange market.

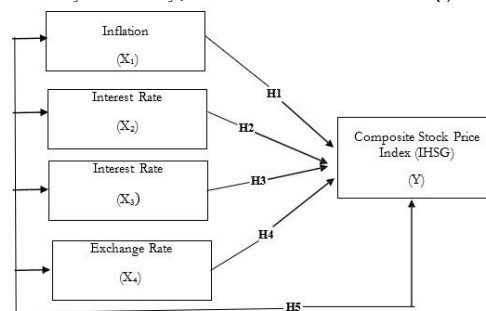


Figure 1. Thinking Framework Scheme

3. Research Method

The research method used in this study is quantitative. Quantitative methods are a research approach used to address research problems through careful measurement techniques of research variables, resulting in generalizable conclusions that are not tied to a specific time or situation. The data used is quantitative (Nurhasana et al., 2022). This research uses secondary data obtained online from official BI website and Yahoo Finance for the period 2013–2024.

Population in study includes all historical the data related to inflation rate, Bank Indonesia's benchmark interest rate (BI Rate), the rupiah exchange rate, against the United States dollar (USD/IDR), foreign exchange reserves, and the Jakarta Composite Index for the period 2013 to 2024, amounting to 144 populations.

Tabel 2. Variable Operational Definitions

Variable	Operational Definition	Indicator	Scale
IHSG (Y)	IHSG (Composite Stock Price Index) is an index that reflects the general movement of stock prices on the Indonesia Stock Exchange, which serves as a reference in assessing developments in capital market activity.	Stock Price = Ln (Closing Price)	Ratio
Inflation (X1)	Inflation is a general and continuous increase in the price of goods" (Rahardja & Manurung, 2019)	$\text{Inflation} = \frac{(\text{IHK} - \text{IHK}_{-1})}{\text{IHK}_{-1}} \times 100\%$	Ratio
Interest Rate (X2)	Interest rates are the price paid for borrowed capital and dividends and capital gains resulting from equity capital. (Fabozzi et al (2015:204))	Interest Rate = BI Rate (BI 7-Day Reverse Repo Rate) for December	Ratio
Exchange Rate (X3)	The currency exchange rate, often referred to as the exchange rate, is the price of one unit of foreign currency in domestic currency, or the price of domestic currency against a foreign currency. The exchange rate is the value of one country's currency expressed in another country's currency, used for international transactions (Hendra et al., 2024)	$\text{Kurs Tengah} = \text{Ln} \frac{\text{Kb} + \text{Kj}}{2}$	Ratio
Foreign Exchange Reserves (X4)	Foreign exchange reserves are part of national savings, so the growth and size of foreign exchange reserves are a signal to global financial markets regarding the credibility of a country's monetary policy and creditworthiness (Arqam, 2024).	$\text{Ln [Total Foreign Exchange Reserves (USD) x Annual Exchange Rate]}$	Ratio

Analysis techniques data processing was performed using SPSS.

4. Results and Discussion

Descriptive Statistic

Were carried out to see the character of each research variable.

Table 3. Descriptive Statistics Test Results

	N	Descriptive Statistics		Mean	Std. Deviation
		Minimum	Maximum		
Inflation	12	1.57	8.38	3.8192	2.37301
Interest rate	12	3.50	7.75	5.6250	1.44796
Exchange Rate	12	9.25	9.67	9.5271	.11411
Foreign Exchange Reserves	12	25.32	25.77	25.5652	.13816
IHSG	12	8.36	8.89	8.6869	.16960
Valid N (Listwise)	12				

Source: data processed using SPSS

Descriptive analysis was conducted to examine the characteristics of each research variable. The data processing results show:

Inflation (X1): minimum value 1.57; maximum 8.38; mean 3.8192 with a standard deviation of 2.37301. The findings indicate that Indonesia's inflation rate throughout the period of observation experienced noticeable fluctuations, reflecting a relatively high level of variability.

Interest Rate (X2): minimum value 3.50; maximum 7.75; mean 5.6250 with a standard deviation of 1.44796. The findings show that interest rates did not vary as significantly as inflation; however, they continued to exhibit movement over the course of the research period.

Exchange Rate (X3): minimum value 9.25; maximum 9.67; mean 9.5271 with standard deviation of 0.11411. Small value of the standard deviation reflects limited variability in the exchange rate, indicating that it did not undergo major fluctuations during the study period.

Foreign Exchange Reserves (X4): minimum value 25.32; maximum 25.77; mean 25.5652 with a standard deviation of 0.13816. The findings suggest that foreign exchange reserves remained relatively stable during the observation period.

Jakarta Composite Index (Y): minimum value 8.36; maximum 8.89; mean 8.6869 with a standard deviation of 0.16960. The modest standard deviation suggests that the movement of the JCI throughout the observation period remained relatively stable and did not fluctuate significantly.

Classic Assumption Test

Table 4. Normality Test Results
One-sample Kolmogorov-smirnov test

		Unstandardized Residual
N		12
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	.04471103
Most Extreme Differences	Absolute	.190
	Positive	.190
	Negative	-.161
Test Statistic		.190
Asymp. Sig. (2-tailed)		.200 ^{c,d}

a. Test Distribution Is Normal

b. Calculated From Data

c. Lilliefors Significance Correction

d. This Is A Lower Bound Of The True Significance

Source: SPSS output

T Kolmogorov-Smirnov test results showed significance level of $0.200 > 0.05$, indicating that data were normally distributed. Probability plot also supports this conclusion

Table 5. Multicollinearitas Test Result
coefficients^a

Model		Collinearity Statistics	
		Tolerance	VIF
1	(constant)		
	Inflation	.195	5.131
	Interest rate	.380	2.633
	Exchange Rate	.110	9.069
	Foreign Exchange Reserves	.171	5.857

a. dependent variable : IHSG

Source: SPSS output

Table 5 All variables have a tolerance value > 0.10 and VIF < 10 , so no multicollinearity problems were found.

Table 6. Autocorrelation Test Results

Model Summary^b					
Model	R	R Square	Adjusted R Square	Std. Error Of The Estimate	Durbin-Watson
1	.965 ^a	.930	.891	.05605	1.624

a. Predictors : (constant), Inflation, Interest rate, Exchange Rate, Foreign Exchange Reserves

b. Dependent Variable : IHSG

Source: Output SPSS

Durbin-Watson value of 1.624. range indicating no autocorrelation, so the regression model can be used.

Multiple Linear Regression Analysis

The direction and magnitude impact independent variables on dependent variables is determined using multiple linear regression analysis (Ghozali, 2021). A multiple linear regression analysis of the research data yielded the following findings.

Table 7. Result Of Multiple Linear Regression Analysis coefficients^a

Model		Unstandardized Coefficient		Standardized Coefficient	t	Sig.
		B	Std. Error	Beta		
1	(constant)	-19.613	4.854		-4.040	.005
	Inflation	0.028	.016	.396	1.755	.123
	Interest rate	-0.017	.019	-.142	-.879	.408
	Exchange Rate	0.801	.446	.539	1.797	.115
	Foreign Exchange Re-serves	0.808	.296	.658	2.729	.029

Source: SPSS output

Results of data processing Table 7, multiple linear regression equation can be formulated:
 $Y = -19.613 + 0.028 X_1 - 0.017 X_2 + 0.801 X_3 + 0.808 X_4$

Based on estimated regression equation, the constant value is -19.613. This implies that when inflation, interest rates, exchange rates, and foreign exchange reserves are assumed be zero, dependent variable is projected to be -19.613.

The coefficient of the inflation variable is 0.028, suggesting that a one-unit rise in inflation is associated with an increase 0.028 units in dependent variable, holding other factors constant. This reflects a positive relationship between inflation and the dependent variable.

the interest rate variable has a coefficient -0.017 ceteris paribus, a raise of one unit in the interest rate will reduce the dependent variable by 0.017 units. interest rates have a negative relationship with the dependent variable.

Exchange rate variable has coefficient 0.801, means increase in exchange rate of one unit contributes to a 0.801-unit rise in the dependent variable, assuming other variables remain unchanged. This finding points to a positive exchange rate effects on dependent variable.

Lastly, the coefficient for foreign exchange reserves is 0.808, indicating that a one-unit growth in foreign exchange reserves increases the dependent variable by 0.808 units. Accordingly, foreign exchange reserves also exert a positive influence on dependent variable.

Hypothesis Test**Table 8.** Partial t-Test Results coefficients^a

Model		Unstandardized Coefficient		Standardized Coefficient	t	Sig.
		B	Std. Error	Beta		
1	(constant)	-19.613	4.854		-4.040	.005
	Inflation	0.028	.016	.396	1.755	.123
	Interest rate	-0.017	.019	-.142	-.879	.408
	Exchange Rate	0.801	.446	.539	1.797	.115
	Foreign Exchange Re-serves	0.808	.296	.658	2.729	.029

Source: SPSS output

Based on statistical results presented in the table, several conclusions can be drawn:

Inflation (X1) and IHSG: The partial t-test results show that null hypothesis (H0) is accepted and alternative hypothesis (H1) is rejected. Inflation variable produced a t-statistic 1.755, which is lower than the critical t-value of 1.894. Furthermore, inflation does not have statistically significant impact on IHSG, the significance value of 0.123 exceeds the 0.05 threshold.

Interest rates (X_2) and IHSG The t-test result for interest rate variable show a calculated t-value of -0.879, which is smaller than the critical value of 1.894. Consequently, H_0 is accepted and H_1 is rejected. With significance level of 0.408, which greater than 0.05, it can concluded which interest rates do not have significant impact on IHSG.

Exchange rate (X_3) and IHSG: Rupiah exchange rate does not have significant impact on IHSG, as null hypothesis is accepted and alternative hypothesis is rejected. Computed t-value for the exchange rate variable is 1.797, which is below critical t-value of 1.894.

Foreign exchange reserves (X_4) and IHSG The t-test for foreign exchange reserves shows a calculated t-value of 2.729, exceeding the critical value of 1.894. This result leads to the rejection of H_0 and acceptance of H_1 . Moreover, the significance value 0.029 is below 0.05, indicating foreign exchange reserves have a statistically significant effect on IHSG.

Simultaneous Test (Test f)

Table 9. Result of the F test Multiple Linear Regression Analysis

ANOVA ^a						
Model		Sum of Square	df	Mean Square	F	Sig.
1	Regression	.294	4	.074	23.429	.000 ^b
	Residual	.022	7	.003		
	Total	.316	11			

a. Dependent Variabel : IHSG

b. Predictors : (constant), Inflation, Interest rate, Exchange Rate, Foreign Exchange Reserves

Source: SPSS output

According to the F-test results presented Table 9 the variables inflation, interest rates, exchange rates, and foreign exchange reserves jointly influence JCI. The calculated F-statistic of 23.429 exceeds the F-table value of 4.120, and the significance level of 0.000 is below threshold of 0.05, so null hypothesis (H_0) rejected, and alternative hypothesis (H_a) supported.

Coefficient Of Determination

Table 10. Coefficient of Determination Test

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error Of The Estimate	Durbin-Watson
1	.965 ^a	.930	.891	.05605	1.624

a. Predictors : (constant), Inflation, Interest rate, Exchange Rate, Foreign Exchange Reserves

b. Dependent Variable : IHSG

Source: Output SPSS

According to Table 10, the R^2 value of 0.891 indicates that inflation, interest rates, exchange rates, and foreign exchange reserves each account for 89.1% of variation in dependent variable. Furthermore, remaining 10.9 percent comes from factors unrelated to this study.

Discussion

Effect of Inflation on the JCI

Regression analysis demonstrates a positive coefficient for inflation, indicating a direct relationship between inflation and the JCI. However, statistical testing reveals that this relationship is not significant at the 5% significance level. The findings suggest that moderate inflation during the study period did not substantially disturb investor confidence or corporate earnings projections. This result implies that the Indonesian stock market may exhibit resilience toward inflationary pressures within a controlled range.

Effect of Interest Rates on the JCI

Interest rates show a negative regression coefficient, suggesting an inverse relationship with the JCI. Economically, this aligns with conventional financial theory, as rising interest rates may shift investment preference toward fixed-income instruments. Nevertheless, the statistical evidence indicates that the effect is not significant. This suggests that investors may have considered additional macroeconomic signals beyond monetary tightening when making equity investment decisions.

Effect of Exchange Rates on the JCI

The exchange rate variable presents a positive coefficient but fails to reach statistical significance. Although currency depreciation or appreciation affects corporate costs and export competitiveness, the results show changes in exchange rate during the sample period did not independently determine stock index movements. This indicates that exchange rate effects may operate indirectly through other macroeconomic channels.

Effect of Foreign Exchange Reserves on the JCI

Foreign exchange reserves demonstrate a positive and statistically significant effect JCI. This finding supports the argument that strong reserve positions enhance macroeconomic credibility, reduce country risk, and strengthen investor confidence. High reserves signal the government's ability to stabilize currency fluctuations and manage external shocks, which positively influences market sentiment and equity performance.

Simultaneous Effect of Macroeconomic Variables

The F-test confirms that inflation, interest rates, exchange rates, and foreign exchange reserves collectively exert significant effect JCI. High Adjusted R^2 (89.1%) indicates substantial explanatory power of the model. This demonstrates that while certain variables may not show individual significance, their combined interaction plays a crucial role in explaining stock market dynamics.

5. Conclusion

Based on empirical analysis, can concluded inflation, interest rates, and exchange rates do not individually exert a statistically significant impact on the Jakarta Composite Index during the 2013–2024 period. However, foreign exchange reserves exhibit a positive and significant for the index influence on the index. Simultaneously, all macroeconomic variables considered in this study significantly affect the JCI. High determination coefficient shows that macroeconomic fundamentals collectively explain a substantial proportion of stock market movement in Indonesia. These findings contribute to the understanding of macroeconomic–capital market linkages in emerging economies and provide insights for policymakers and investors in anticipating market responses to economic fluctuations.

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