



The Influence of Inflation, BI Rate and Exchange Rates on Stock Index Prices in The Infrastructure Sector (IDXINFRA)

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ABSTRACT

This study examines the impact of macroeconomic variables, specifically inflation, the BI Rate, and the exchange rate, on the stock prices of infrastructure companies listed on the Indonesia Stock Exchange (IDX) for the 2019-2024 period. Employing an associative quantitative approach, this research utilizes panel data analysis consisting of 17 purposively selected infrastructure firms, with data processed via EViews 9. Based on the Chow, Hausman, and Lagrange Multiplier tests, the Random Effect Model (REM) was determined as the most appropriate regression model. The partial T-test results indicate that inflation has no significant effect on stock prices. Conversely, the BI Rate exerts a significant positive effect, while the exchange rate demonstrates a significant negative effect. Simultaneously, the F-test confirms that inflation, the BI Rate, and the exchange rate collectively influence the stock prices of the sampled infrastructure firms. Lastly, the Adjusted R-squared value of 0.057018 indicates that approximately 5.7% of the variance in infrastructure stock prices can be explained by these three independent variables, while the remaining variance is accounted for by other factors outside the model.

Keywords: Inflation; BI Rate; Exchange Rate (Kurs); Infrastructure Sector Stock Price Index (IDXINFRA); Capital Market

1. INTRODUCTION

The infrastructure sector serves as a fundamental pillar of national economic growth, encompassing the essential facilities required for daily socioeconomic activities. However, achieving sustainable economic expansion remains a complex challenge due to the diverse array of influencing factors (Fitri, 2024). The performance of companies within this sector is encapsulated in the Infrastructure Stock Price Index (IDXINFRA), which serves as a crucial benchmark for investor confidence and national economic prospects. Stock price fluctuations within this index are heavily influenced by external factors, particularly macroeconomic conditions. In this regard, the 2019-2024 period presents a compelling timeframe for analysis, as

both global and domestic economies encountered unprecedented macroeconomic disruptions.

Economic stability is attainable when the inflation rate is managed at a low and consistent level, thereby facilitating sustainable economic growth (Fadilla & Purnamasari, 2021). High and persistent inflation can exert a detrimental impact on household welfare. This is particularly evident when inflationary pressures are not accompanied by commensurate growth in wages and income, thereby eroding purchasing power and potentially exacerbating poverty rates (Utami & Sutiadi, 2023). Controlled inflation can stimulate economic growth by bolstering investment and consumption. Beyond inflation, other primary macroeconomic challenges include fluctuations in the BI

Rate, a key monetary policy instrument, and exchange rate dynamics, which are critical for companies with international trade exposure.

Previous studies examining the relationship between macroeconomic variables and stock returns have yielded highly inconsistent empirical results, leaving a notable gap in the literature. For instance, Sukesti et al. (2021) observed that macroeconomic indicators like inflation and interest rates can simultaneously dictate stock returns, yet their partial effects often vary depending on the observation window. Conversely, many researchers argue that central bank interest rate hikes are traditionally perceived as a negative signal for capital-intensive sectors due to rising borrowing costs. Regarding currency fluctuations, dynamic market analysis indicates that local currency depreciation triggers volatile shifts in sectoral stock prices, heavily affecting firms with foreign-denominated debt or high import reliance (Adam & Tweneboah, 2008). Furthermore, empirical evidence from modern financial crises highlights that during periods of severe global economic turbulence, conventional macroeconomic indicators often exhibit remarkably low explanatory power (R^2) over short-term market volatility, as stock prices become predominantly driven by systemic shocks, behavioral biases, and heightened investor panic rather than fundamental indicators (Al-Awadhi et al., 2020; Baker et al., 2020).

This empirical inconclusiveness, coupled with distinct methodological limitations in prior literature, justifies the present study. Most existing regional studies rely heavily on aggregate time-series data, which tends to overlook firm-level heterogeneity and specific corporate financial structures within a sector. This study addresses these gaps both methodologically and contextually. Methodologically, instead of analyzing

the IDXINFRA merely as a single aggregated index, this research employs panel data analysis across 17 distinct infrastructure firms over the 2019-2024 period. This disaggregated approach allows for a more granular examination of how macroeconomic shocks filter through individual corporate frameworks. Contextually, the 2019-2024 timeframe captures a highly volatile economic cycle, spanning the COVID-19 crisis, post-pandemic recovery, and aggressive global monetary tightening. Consequently, this study contributes to the literature by reconciling prior empirical contradictions and demonstrating the precise transmission mechanism of systemic macroeconomic stress on micro-level stock performance within a critical emerging market sector.

While the critical role of the infrastructure sector and its susceptibility to external shocks are well-recognized, empirical ambiguity persists regarding how specific macroeconomic transmission mechanisms operate at the firm level during periods of extreme market volatility. Previous generalized index studies fail to capture this granularity, creating a distinct empirical gap. To resolve this problem, this study explicitly analyzes the individual and collective impact of inflation, the BI Rate, and the exchange rate on the stock performance of 17 selected infrastructure firms within the IDXINFRA index from 2019 to 2024. By shifting the analytical lens from an aggregate index to a disaggregated firm-level panel data framework, this research bridges the gap between macroeconomic theory and corporate reality during a highly turbulent economic cycle. Ultimately, this study contributes to the existing literature by providing institutional investors with a more precise, risk-adjusted forecasting benchmark and offering policymakers robust empirical evidence to evaluate the micro-level



consequences of monetary adjustments within a cornerstone national industry.

2. LITERATURE REVIEW

Signaling Theory in Macroeconomic Context

In the asymmetric information framework, signaling theory posits that information released into the market serves as a vital signal that alters investor perceptions and shapes subsequent investment decisions. While signaling theory traditionally addresses firm-specific financial disclosures, contemporary literature confirms its critical application to macro-monetary announcements and systemic market indicators (Gozgor et al., 2022). In this study, macroeconomic variables, namely inflation, the central bank interest rate (BI Rate), and the exchange rate, are conceptualized as systemic signals. In a highly volatile economic environment, such as the 2019-2024 period, investors do not merely evaluate a firm's localized financial statements; they constantly scan the macroeconomic horizon for signals regarding future corporate cash flows, systemic risk premiums, and aggregate economic health.

When a macroeconomic shock occurs, it creates what is known as a market. If investors interpret a macroeconomic shift as a threat to corporate profitability, it triggers a negative signal, prompting capital flight and driving stock prices down. Conversely, if a macro indicator signals economic resilience, stabilization, or growth, it acts as a positive signal, stimulating buying pressure. Because infrastructure projects are highly capital-intensive, require long-term debt financing, and are deeply integrated with national supply chains, their corporate valuation is exceptionally sensitive to these systemic signals.

Therefore, shifting macroeconomic indicators directly alter investor sentiment and discount rates, which are ultimately reflected in the volatility of stock prices within the infrastructure sector.

The Transmission Mechanisms of Macroeconomic Signals on Infrastructure Valuation

The interaction between macroeconomic shocks and infrastructure stock performance operates through specific corporate transmission channels, where each variable acts as a distinct signaling mechanism. Inflation, as an indicator of systemic price increases, serves as a dual-faceted signal depending on the overarching economic climate. Empirically, recent studies show that the market interpretation of inflation is highly context-dependent; (Sukesti et al. 2021) observed that high inflation generally acts as a negative signal because it escalates operational and production costs, which subsequently squeezes corporate profit margins and reduces future dividend expectations. Given that infrastructure firms often operate under long-term concession agreements with fixed tariffs or regulated pricing, they cannot easily pass sudden rising costs onto consumers. Consequently, during periods of heightened economic uncertainty, inflation predominantly acts as an adverse signal to investors, indicating a contraction in real asset returns and downward pressure on sectoral stock prices.

In parallel, the central bank benchmark interest rate (BI Rate) plays a critical role as a powerful monetary

signal regarding liquidity availability and macroeconomic temperature. Theoretically, an upward adjustment of the interest rate transmits a negative signal to equity markets through two distinct transmission mechanisms. First, from an investment substitution perspective, higher interest rates make fixed-income instruments, such as corporate bonds or government securities, more attractive relative to riskier equities, inducing a portfolio reallocation that dampens equity demand. Second, from a corporate finance perspective, an increasing benchmark rate signals a substantial rise in borrowing costs. This mechanism is particularly devastating for capital-intensive industries such as infrastructure, which rely heavily on leverage to fund massive, multi-year projects (Al-Awadhi et al., 2020). Higher borrowing costs directly compress future net cash flows and increase the discount rate applied by investors to value those cash flows, thereby establishing an inverse relationship between interest rate signals and equity valuations.

Furthermore, the foreign exchange rate serves as a vital macroeconomic signal that determines international competitiveness and balance-sheet stability. Fluctuations in the local currency exchange rate emit asymmetrical signals based on a sector's specific operational profile. In the context of the Indonesian infrastructure sector, depreciation of the Rupiah against foreign currencies functions as a severe negative signal. Infrastructure development in emerging markets remains heavily dependent on imported capital goods, raw materials, and components. Moreover, many infrastructure firms secure foreign-denominated debt to finance their infrastructure rollouts. A weakening Rupiah results in immediate currency

translation losses, inflates the cost of imported inputs, and balloons foreign debt-servicing burdens without a corresponding increase in local-currency revenues. This accumulation of financial distress signals an impending contraction in firm value, driving rational investors to liquidate their positions and causing a swift decline in the sector's stock prices.

Ultimately, in accordance with system-wide market efficiency, inflation, the benchmark interest rate, and the exchange rate do not operate in isolation; rather, they form an interconnected macroeconomic ecosystem. For instance, a spike in inflation frequently triggers a compensatory defensive increase in the central bank rate, which subsequently alters cross-border capital flows and influences exchange rate volatility. Under signaling theory, investors process these multi-layered macroeconomic indicators simultaneously rather than independently to evaluate systematic risk premiums. During turbulent economic cycles, such as the post-pandemic recovery era, the joint volatility of these three indicators dictates the aggregate direction of investor sentiment and capital allocation within the capital market, exerting a powerful simultaneous influence on the stock prices of infrastructure companies (Baker et al., 2020).

Based on these theoretical connections and previous empirical results, it can be inferred that inflation, the BI Rate, and the exchange rate possess the potential to influence stock prices either partially or simultaneously. Consequently, this study hypothesizes that these three macroeconomic variables significantly affected IDXINFRA stock prices throughout the 2019-2024 period.

More specifically, the hypotheses proposed in this research suggest that inflation is expected to influence IDXINFRA stock prices, the BI Rate is



expected to influence IDXINFRA stock prices, and the exchange rate is expected to influence IDXINFRA stock prices. Additionally, it is posited that inflation, the BI Rate, and the exchange rate simultaneously exert a significant influence on the stock prices within this sector's index.

3. RESEARCH METHOD

Type of Research

This study utilizes an associative research design with a quantitative approach. The primary objective of associative research is to identify the causal relationships between independent and dependent variables, thereby determining the extent of the influence exerted by the independent variables on the dependent variable.

Research Object

The object of this research focuses on the firm-level stock performance of companies listed within the infrastructure sector on the Indonesia Stock Exchange (IDX) for the 2019-2024 period. In this context, the Infrastructure Stock Price Index (IDXINFRA) does not serve as the direct econometric dependent variable; rather, it functions as the conceptual boundary and population baseline for sample selection. Structuring the object of research at the firm level allows the study to utilize a robust panel data framework, capturing the distinct corporate behaviors and financial realities of 17 selected infrastructure firms across 72 months, resulting in 1,224 individual observations.

Sampling Technique

The sampling technique employed in this study is purposive sampling, selecting a sample based on specific criteria aligned with the research

objectives. The research population encompasses all 69 companies listed within the infrastructure sector on the Indonesia Stock Exchange (IDX). To resolve any structural ambiguity, it is critical to clarify that while these firms are constituents of the Infrastructure Stock Price Index (IDXINFRA), the actual dependent variable under analysis is the firm-level stock performance of the selected individual companies, not the aggregated index value itself. Shifting the unit of analysis to a firm-level panel data framework (consisting of cross-sectional corporate units over time) allows this study to capture corporate heterogeneity that aggregate index-level data typically conceals.

The specific sample selection criteria are established as follows:

1. Companies must be listed in the infrastructure sector and categorized under the Main Board of the IDX.
2. Companies must have remained consistently active, operational, and traded throughout the entire 2019-2024 observation period.
3. Complete monthly financial and trading data required for the model must be consistently available.

Based on these established criteria, 17 infrastructure companies met all requirements and were selected as the research sample. Observed over a 72-month period (January 2019 to December 2024).

To achieve higher analytical accuracy, the metrics for all variables have been meticulously standardized on a uniform monthly basis. Specifically, the dependent variable, firm-level stock price, is operationalized using the monthly adjusted closing price of each of the 17 selected companies on the final trading day of each month, accounting for corporate actions such as stock splits and dividends.

For the independent macroeconomic variables, inflation is operationalized using the Monthly Consumer Price Index (CPI) inflation rate calculated on a month-on-month (MoM) percentage basis. The BI Rate is measured using the annualized policy rate established and published during Bank Indonesia's monthly Board of Governors meetings, reflecting the prevailing interest rate environment for that specific month.

Lastly, the exchange rate is captured using the monthly average middle rate of the Indonesian Rupiah (IDR) against the United States Dollar (USD), based on Bank Indonesia's Jakarta Interbank Spot Dollar Rate (JISDOR). This precise operational definition eliminates measurement ambiguity and ensures a mathematically rigorous framework to analyze the disaggregated relationship between macroeconomic indicators and individual infrastructure stock performance.

Research Data Type and Source

This study utilizes secondary data derived from various official and credible sources. Secondary data was selected for its high degree of accuracy and its suitability for analyzing historical trends over a defined timeframe.

The dataset comprises inflation rates, the BI Rate, the Indonesian Rupiah (IDR) exchange rate against the US Dollar (USD), and the infrastructure sector stock price index. Inflation and BI Rate data were sourced from Bank Indonesia, whereas stock index data was obtained from the Indonesia Stock Exchange. Furthermore, exchange rate data was retrieved from official government portals.

Utilizing data from these authoritative institutions is intended to ensure the research's validity and reliability. Consequently, the resulting analysis and

its findings maintain scientific accountability and rigor.

Data Analysis Method

This study employs panel data analysis, facilitated by EViews 9 software. Panel data analysis was selected for its capability to integrate both time-series and cross-sectional data, thereby producing more robust and comprehensive estimations.

The panel data regression model comprises three distinct approaches: the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM). To determine the most appropriate model for the analysis, the study utilizes the Chow test, the Hausman test, and the Lagrange Multiplier test.

The regression equation in this research is formulated as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

where Y represents IDXINFRA, X_1 inflation, X_2 signifies the BI Rate, and X_3 indicates the exchange rate.

4. RESULT AND DISCUSSION

Following the sample selection process, out of 69 infrastructure sector companies listed on the Indonesia Stock Exchange (IDX), the initial criterion limited the sample to firms categorized within the main board, which left 23 companies after 46 were excluded. Subsequently, a second criterion was applied requiring companies to have been established prior to 2019 and remain listed through the end of 2024, which further reduced the sample by six firms. Consequently, the final sample meeting all specified research criteria comprises 17 companies. With an observation period of 72 months, the total dataset processed for analysis in this study amounts to 1,224 observations.



Based on these criteria, a total of 17 companies were identified as samples; the following list presents the firms that satisfied the requirements outlined in the preceding table:

Table 1. Sample List

NO	Kode	Nama Perusahaan
1	ISAT	PT Indosat Tbk.
2	CMNP	PT Citra Marga Nusaphala Persada Tbk
3	TLKM	PT Telkom Indonesia (Persero) Tbk
4	SSIA	PT Surya Semesta Internusa Tbk.
5	ADHI	PT Adhi Karya (Persero) Tbk.
6	EXCL	PT XLSMART Telecom Sejahtera Tbk.
7	TOTL	PT Total Bangun Persada Tbk.
8	JSMR	PT asa Marga (Persero) Tbk.
9	JKON	PT Jaya Konstruksi Manggala Prata
10	PTPP	PT PP (Persero) Tbk.
11	TOWR	PT Sarana Menara Nusantara Tbk.
12	TBIG	PT Tower Bersama Infrastructure Tbk.
13	CASS	Cahaya Aero Services Tbk.
14	BALI	PT Bali Towerindo Sentra Tbk.
15	POWR	PT Cikarang Listrindo Tbk.
16	WEGE	PT. Wijaya Karya (Persero) Tbk
17	IPCC	PT Indonesia Kendaraan Terminal Tbk.

Source: *idx.co.id* (2025)



Figure 1. Average Stock Price

Source: *idx.co.id*

Based on figure 1, it can be seen that monthly average stock price data reveals significant annual fluctuations, characterized by a sharp decline in early 2020 due to the pandemic's impact,

followed by a surge until mid-2021 signaling market recovery. However, this upward trend was transitory, as a sustained decline ensued through late 2022 and into early 2023. This pattern underscores stock market dynamics driven by investor sentiment, macroeconomic conditions, monetary policy, and various global factors.

Analyses of inflation, the BI Rate, and exchange rates demonstrate a robust correlation between monetary policy and market dynamics during the 2019-2024 period. Average inflation during this timeframe was approximately 2.81%, with a peak of 6.00% in September 2022, reflecting price pressures from post-pandemic recovery and supply chain disruptions. In response, Bank Indonesia implemented a contractionary monetary policy, raising the BI Rate from its nadir of 3.50% to 6.25% by April 2024 to mitigate inflation and maintain economic stability. These interest rate hikes directly impacted financial market activities, including stock price volatility, which saw a post-2020 recovery followed by a downturn after mid-2021.

Concurrently, the Rupiah (IDR) to US Dollar (USD) exchange rate exhibited significant volatility. The rate fluctuated from a low of Rp13,650 in January 2020 to a peak of Rp16,370 in June 2024, with a six-year average of approximately Rp14,827. Rupiah depreciation was primarily driven by external factors, such as the Federal Reserve's interest rate policies and global uncertainty, as well as trade balance pressures. This significant depreciation trend, particularly between 2023 and 2024, exacerbated domestic inflationary pressures due to rising import costs. The confluence of elevated inflation, BI Rate hikes, and Rupiah depreciation has been a critical factor influencing the infrastructure sector's stock price index movements throughout the study period.

Model Selection Test Result

Panel data regression analysis is employed to determine the most accurate model for this study. The three model approaches analyzed include the Common Effect Model (CEM), the Fixed Effect Model (FEM), and the Random Effect Model (REM). To select the optimal model, a series of statistical tests were conducted, namely the Chow test, the Hausman test, and the Lagrange Multiplier test, the results of which are presented in the appendix. Based on the results of these three tests, the following conclusions were reached:

Table 2. Chow Test Result

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	274.260	(16,120)	0.000
Cross-section Chi-square	1879.718	16	0.000

Source: Data processed (2025)

Based on the table, the Chow test results reveal a cross-section Chi-square probability value of $0.000 < 0.05$, which signifies that the null hypothesis H_0 is rejected. Accordingly, the results of the Chow test indicate that the Fixed Effect Model (FEM) is the most appropriate model for this study.

Table 3. Hausman Test Result

Correlated Random Effects Tests
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000	3	1.000

Source: Data processed (2025)

Referring to the table provided above, the results of the Hausman test indicate that the cross-section random probability value is $1.000 > 0.05$, which signifies that the null hypothesis H_0 is accepted. Consequently, the Hausman test demonstrates that the Random Effect

Model (REM) is the most appropriate model for this study. As the REM was selected, the analysis must proceed with the Lagrange Multiplier test to determine the optimal choice between the Common Effect Model (CEM) and the REM.

Table 4. Lagrange Multiplier Test Result

Lagrange Multiplier Tests for random effects Null Hypotheses: No Effects
Alternative hypotheses: Two-sided (Breusch-Pagan) and one sided (all other alternatives)

	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	26549.28 (0.000)	22.71 (0.0000)	26571.99 (0.0000)
Honda	162.93 (0.000)	-4.76 --	111.84 (0.0000)
King-Wu	162.93 (0.000)	-4.76 --	145.15 (0.0000)
Standardized Honda	167.64 (0.000)	-4.55 --	110.07 (0.0000)
Standardized King-Wu	167.64 (0.000)	-4.55 --	145.54 (0.0000)
Gourieroux, et al.*	--	--	26549.28 (< 0.01)

Source: Data processed (2025)

Based on the data presented in the table, the results of the Lagrange Multiplier test reveal a Breusch-Pagan probability value of $0.000 < 0.05$, which signifies that the null hypothesis H_0 is rejected. Consequently, the results indicate that the Random Effect Model (REM) is the most appropriate model for this analysis.

Classical Assumption Test

The next stage involves performing classical assumption tests. According to Baltagi (2021), although the Random Effect Model (REM) utilizes Generalized Least Squares (GLS) estimation, which accounts for the variance of error components, the assumption of homoscedasticity regarding idiosyncratic errors may still be violated. If heteroscedasticity occurs, the GLS estimates remain consistent but lose their



efficiency. Greene (2020) further asserts that the efficiency advantages of Generalized Least Squares (GLS) are heavily contingent upon the assumption that error variances are known and homogeneous. If this assumption is violated, the coefficient variances become inaccurate, rendering hypothesis testing unreliable. Consequently, examining for heteroscedasticity remains imperative, even when utilizing the Random Effect Model (REM). Furthermore, Gujarati (2009) asserts that while multicollinearity does not render estimators biased or inconsistent, it can inflate standard errors, weaken the significance of t-tests, and widen confidence intervals. Consequently, diagnosing multicollinearity through inter-variable correlations and Variance Inflation Factor (VIF) values remains essential.

Drawing from the assertions of the aforementioned experts, it can be concluded that the classical assumption tests implemented for the Random Effect Model (REM) consist of the multicollinearity test and the heteroscedasticity test. The following section presents the results of the multicollinearity test.

This test is conducted by examining the correlation matrix. If a correlation coefficient exceeds 0.85, it is concluded that multicollinearity is present among the independent variables. Conversely, if the correlation value is below 0.85, the conclusion is that no multicollinearity exists within the independent variables.

Table 5. Multicollinearity Test Result

	X1	X2	X3
X1	1.000000	0.272324	0.220715
X2	0.272324	1.000000	0.509678
X3	0.220715	0.509678	1.000000

Source: Data processed (2025)

As shown in the results, the correlation coefficient between X1 and X2 is $0.272324 < 0.85$, while the

correlation coefficient between X1 and X3 is $0.220715 < 0.85$. Furthermore, the correlation between X2 and X3 is $0.509678 < 0.85$. Consequently, it can be concluded that the model is free from multicollinearity, thereby passing the multicollinearity test.

The next stage of analysis involves the heteroscedasticity test using the Glejser test, applying the following decision-making criteria: if the probability value (p-value) is greater than 0.05, it signifies the absence of heteroscedasticity; conversely, if the p-value is less than 0.05, it indicates the presence of heteroscedasticity. The results of the Glejser test are presented below:

Table 6. Heteroscedasticity Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob
C	-0.932	0.241	-3.866	0.000
X1	0.985	0.784	1.256	0.209
X2	-5.131	1.014	-5.058	0.000
X3	0.000	1.51	8.973	0.000

Source: Data processed (2025)

Based on the results of the Glejser test, it is found that variables X2 and X3 exhibit probability values of less than 0.05, indicating the presence of heteroscedasticity. To address this issue, the subsequent step involves transforming the data into Natural Logarithms (LN) and utilizing a residual graph for heteroscedasticity diagnosis.

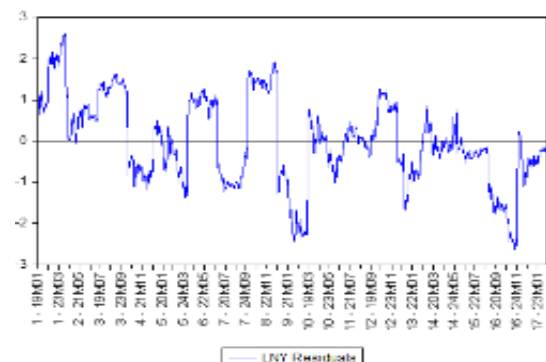


Figure 2. Heteroscedasticity Residual Graph Test Result

Source: Data processed (2025)

As illustrated in the graph, the residuals do not fall outside the range of -500 to 500. Consequently, it can be concluded that the data does not exhibit symptoms of heteroscedasticity, thereby passing the heteroscedasticity test.

Panel Data Regression Analysis

The following is the panel data regression equation generated from the transformed Random Effect Model (REM):

$$\begin{aligned} \text{LNY} = & 30.2950680441 + \\ & 0.0364234081284 * \text{LNX1} + \\ & 0.262952336943 * \text{LNX2} - \\ & 2.3447979562 * \text{LNX3} + [\text{CX}=\text{R}] \end{aligned}$$

The interpretation of the regression equation above is as follows:

- Intercept: The LNY value is 30.29 if the average values of all independent variables (LNX1, LNX2, and LNX3) are zero.
- Inflation (LNX1): If LNX1 increases by 1%, then LNY is predicted to increase by 3.64%.
- BI Rate (LNX2): If LNX2 increases by 1%, then LNY is predicted to increase by 2.6%.
- The regression coefficient for the exchange rate variable is 2.3447979562. In accordance with log-log model specifications, this indicates that a 1% depreciation of the Indonesian Rupiah (IDR) against the United States Dollar (USD), represented by a 1% increase in the exchange rate value, is associated with an approximate 2.345% decline in infrastructure stock prices, ceteris paribus. This high elasticity highlights that the infrastructure sector's equity value is remarkably sensitive to foreign exchange shocks.

T-Test Analysis

The t-test in this study is conducted at a significance level of 0,05 ($\alpha = 5\%$) and involves comparing the t-statistic (tcount) with the t-table value (ttable). The decision-making criteria are established as follows: if the p-value is less than 0.05 or the t-statistic is greater than the t-table value (tcount > ttable), the independent variable is considered to have a significant partial influence on the dependent variable. Conversely, if the p-value exceeds 0.05 or the t-statistic is less than the t-table value (tcount < ttable), the independent variable does not exert a significant partial influence on the dependent variable.

Table 7. T-Test Result

Variable	Coefficient	Std. Error	t-Statistic	Prob
C	30.29507	2.699498	11.22248	0.000
LNX1	0.036423	0.028818	1.263904	0.206
LNX2	0.262952	0.059081	4.450713	0.000
LNX3	-2.344798	0.270540	-8.667103	0.000

Source: Data processed (2025)

The following results were obtained from the t-test using the natural logarithm-transformed data under the Random Effect Model (REM):

- Inflation (LNX1): The t-test for the inflation variable yielded a t-statistic (tcount) of 1.263904, which is lower than the ttable value of 1.961907. Additionally, the significance value (p-value) is $0.206 > 0.05$. Consequently, H1 is rejected, indicating that inflation has no significant effect on stock prices in the IDXINFRA sector.
- BI Rate (LNX2): For the BI Rate variable, the t-statistic reached 4.450713, exceeding the ttable of 1.961907, with a significance value of $0.000 < 0.05$. Therefore, H2 is accepted, signifying that the BI Rate has a significant influence on stock prices in the IDXINFRA sector.



- Exchange Rate (LNX3): The results for the exchange rate variable show a t-statistic of 8.866710, which is greater than the t-table of 1.961907, and a significance value of $0.000 < 0.05$. Accordingly, H3 is accepted, confirming that the exchange rate has a significant impact on stock prices in the IDXINFRA sector.

F-Test and Coefficient of Determination Result

The F-test in this study is conducted at a significance level of 0,05 ($\alpha = 5\%$) and involves comparing the F-statistic (Fcount) with the F-table value (Ftable). The decision-making criteria are established as follows: if the p-value is less than 0.05 or the F-statistic is greater than the F-table value ($F_{\text{count}} > F_{\text{table}}$), it indicates that the independent variables simultaneously influence the dependent variable. Conversely, if the p-value exceeds 0.05 or the F-statistic is less than the F-table value ($F_{\text{count}} < F_{\text{table}}$), the independent variables do not have a simultaneous influence on the dependent variable.

Table 8. F-Test and Coefficient of Determination Result

R-squared	0.059332
Adjusted R-squared	0.057018
S.E. of regression	0.388095
F-statistic	25.65000
Prob(F-statistic)	0.000000

Source: Data processed (2025)

The F-statistic value of 25.65000 is greater than the F-table value of 2.61219697, and with a significance value of $0.0000 < 0.05$, the null hypothesis is rejected and H4 is accepted. This indicates that inflation (LNX1), the BI Rate (LNX2), and the exchange rate (LNX3) exert a simultaneous influence on the stock prices of IDXINFRA (LNY). Furthermore, the coefficient of determination analysis, specifically the Adjusted R-squared value of 0.057018, demonstrates that these independent variables collectively account for 5.7% of

the variation in IDXINFRA stock prices. Consequently, the remaining 94.3% of the variation is attributed to other external factors that were not included within the scope of this research model.

Discussion

1. The Insignificant Signal of Inflation on Infrastructure Stock Prices

Based on the partial t-test results, inflation does not exert a statistically significant impact on the stock prices of the selected infrastructure firms during the 2019-2024 period. From the perspective of signaling theory, this insignificance demonstrates that systemic price level fluctuations did not emit a sufficiently strong or disruptive re-pricing signal to alter investor valuation of this specific sector. In capital-intensive industries, minor inflationary shifts can be absorbed or deferred within long-term corporate budgeting frameworks.

Furthermore, under information asymmetry, investors may perceive localized inflation data as a lagging, noisy indicator rather than a definitive predictor of immediate corporate cash flows. This lack of informational sensitivity indicates that market participants focused more on sector-specific variables or broader monetary actions during this highly turbulent era. This finding is empirically consistent with the study by Widodo & Fadillah (2022), which observed that inflation fails to significantly dictate aggregate market movements on the IDX, confirming that raw inflationary numbers often carry low informational content for short-term equity pricing.

2. Reconciling the Anomalous Positive Effect of the BI Rate: An Economic Signaling Approach

Conversely, the BI Rate demonstrates a significant positive influence on the stock prices of the sampled infrastructure firms, a finding that contradicts conventional macroeconomic expectations where higher interest rates

typically depress equity attractiveness due to rising borrowing costs. However, in the specific context of the Indonesian infrastructure sector during the turbulent 2019-2024 cycle, this relationship must be interpreted through a critical economic signaling lens.

First, within the framework of signaling theory, an upward adjustment of the BI Rate by Bank Indonesia during this period did not merely signal a tightening of credit; rather, it functioned as a powerful, credible signal of underlying economic resilience and proactive macroeconomic stabilization against global inflationary shocks. Institutional investors interpreted the rate hike as a guarantee of sovereign economic stability and currency defense, which are absolute prerequisites for the viability of long-term, capital-intensive infrastructure commitments.

Second, infrastructure developments often involve long-term state-backed contracts or public-private partnerships (PPPs) that possess built-in inflation-indexing or guaranteed return mechanisms. Consequently, when the central bank increases rates to curb macroeconomic volatility, it enhances institutional investor confidence regarding reduced sovereign risk and protected future real cash flows. This strategic stability outweighs the marginal pressure of short-term borrowing costs, driving net capital inflows into large-scale infrastructure equities. This highly contextual mechanism aligns with the empirical evidence presented by Jihan Mawaddah et al. (2024), who documented that interest rate hikes can generate positive stock returns within specific state-dominated and structurally robust indices, such as the IDX-MES BUMN 17.

3. The Adverse Foreign Exchange Signal on Corporate Valuation

The exchange rate exhibits a highly significant negative impact on infrastructure stock prices, confirming

that a weakening of the Indonesian Rupiah (IDR) against the US Dollar (USD) sends a severe adverse signal to the capital market. This high elasticity represents a direct economic transmission channel: Indonesian infrastructure firms are structurally vulnerable to currency depreciation due to their heavy reliance on imported capital goods, raw machinery, and specialized components.

When the Rupiah depreciates, these companies experience immediate inflation of capital expenditure costs and compressed net profit margins. Furthermore, many infrastructure emiten carry substantial foreign-currency-denominated debt on their balance sheets; a weakening domestic currency automatically expands their debt-servicing burdens in Rupiah terms without any corresponding increase in localized revenues. Rational investors, processing these asymmetric balance-sheet vulnerabilities under signaling theory, rapidly liquidate their equity holdings to prevent currency-driven asset impairment. This robust finding strongly corroborates the study by Hijrianti et al. (2024), which asserts that currency depreciation inherently triggers systemic negative valuation shocks across the broader capital market index.

4. Holistic Macroeconomic Signaling and Analytical Model Power

Simultaneously, the F-test results confirm that inflation, the BI Rate, and the exchange rate collectively exert a highly significant simultaneous influence on the stock prices of infrastructure companies. Under signaling theory and information asymmetry, this joint significance underscores that investors do not evaluate macroeconomic risks in structural isolation. Instead, they process these variables holistically as an interconnected macroeconomic ecosystem where monetary adjustments (the BI Rate) are structurally deployed to manage price stability (inflation) and capital flight



(exchange rate). This integrated macroeconomic signaling framework is empirically consistent with the holistic findings of Hijrianti et al. (2024) and Annisa et al. (2023), which both demonstrate that these three core macroeconomic levers simultaneously dictate capital allocation across major market indices.

However, the low Adjusted R-squared value of 5.7% requires transparent and critical methodological interpretation. This statistical outcome indicates that while the macroeconomic model is highly significant as a systemic baseline, it only captures a fractional share of the total variance in infrastructure stock prices during the 2019-2024 timeframe. This low explanatory power is justified by the extreme historical anomalies characterizing this specific observation window, which was heavily dominated by non-macroeconomic, idiosyncratic disruptions, such as the COVID-19 mobility restrictions, global supply chain bottlenecks, corporate debt restructurings, and volatile shifts in behavioral investor sentiment. Consequently, the remaining 94.3% of stock price variations is governed by these external, unobserved corporate dynamics and global shock waves that sit outside the fundamental scope of standard macroeconomic regressions.

REFERENCES

- Adam, A. M., & Tweneboah, G. (2008). Macroeconomic Factors and Stock Market Movement: Evidence from Ghana. *MPRA Paper No. 11161*. <https://doi.org/10.48550/arXiv.0810.3335>
- Al-Awadhi, A. M., Alsaifi, K., Al-Awadhi, A., & Alhammadi, S. (2020). Death and Contagious Infectious Diseases: Impact of the COVID-19 Virus on Stock Market Returns. *Journal of Behavioral and Experimental Finance*, 27, 100326. <https://doi.org/10.1016/j.jbef.2020.100326>
- Annisa, P., Sirat, A. H., & Hadady, H. H. (2023). Dampak Inflasi, BI Rate, Dan Kurs Rupiah Terhadap Performa Saham Indeks Syariah Jakarta Islamic Index (JII) Di Bursa Efek Indonesia (BEI) Periode 2018-2022. *Jurnal Mutiara Manajemen*, 8(2), 1–12. <https://doi.org/10.51544/jmm.v8i2.4660>
- Baker, S. R., Bloom, N., Davis, S. J., Kost, K., Sammon, M., & Viratyosin, T. (2020). The Unprecedented Stock Market Impact of COVID-19. *National Bureau of Economic Research Working Paper Series*, No. 27203. <https://doi.org/10.3386/w27203>
- Balaka. M. Y. (2022). Metodologi Penelitian Kuantitatif. Widina Bhakti Persada.
- Baltagi, B. H. (2021). *Econometric Analysis of Panel Data*. Springer Nature Switzerland AG. <http://www.springer.com/series/10099>
- Fadilla, A. S., & Purnamasari, A. (2021). Pengaruh Inflasi Terhadap Pertumbuhan Ekonomi Indonesia. *Ekonomika Sharia: Jurnal Pemikiran dan Pengembangan Ekonomi Syariah*, 7(1), 17–27. www.bps.go.id
- Fitri, C. K. N. (2024). Pengaruh Pertumbuhan Ekonomi, Suku Bunga (Bi Rate), Nilai Tukar (Kurs) Dan Inflasi Terhadap Harga Saham Sektor Perbankan Yang Terdaftar Di Bursa Efek Indonesia Pada Tahun 2019-2023. Politeknik Negeri Jakarta.
- Gozgor, G., Lau, M. C. K., Lu, Z., & Yan, C. (2022). Macroeconomic announcements and stock market volatility: Evidence from global financial markets. *International Review of Financial Analysis*, 81, 100326.

102086.
<https://doi.org/10.1016/j.irfa.2022.102086>
- Greene, W. H. . (2018). *Econometric Analysis*. Pearson.
- Gujarati, D. N. (2009). *Basic Econometric*. McGraw-Hill/Irwin.
- Hijrianti, I., Fadilah, F. M., Shamurti, J. S., Kustina, L., & Junaedi. (2024). Pengaruh Inflasi, Suku Bunga, dan Nilai Tukar Terhadap IHSG di BEI. *Margin : Jurnal Lentera Manajemen Keuangan*, 21–31.
- Mawaddah, J., Susanto, E., & Amri, A. (2024). Pengaruh Inflasi, Suku Bunga dan Nilai Tukar terhadap Return Saham yang Terdaftar di IDX-MES BUMN 17 Periode 2018-2022. *Jurnal Simki Economic*, 7(2), 478–488.
<https://jipied.org/index.php/JSE>
- Sugiyono, P. D. (2020). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Penerbit Alfabeta.
- Sukesti, F., Ghozali, I., & Khaddafi, M. (2021). Determinants of Stock Return: The Role of Macroeconomic and Financial Performance. *Investment Management and Financial Innovations*, 18(1), 135-143.
[https://doi.org/10.21511/imfi.18\(1\).2021.12](https://doi.org/10.21511/imfi.18(1).2021.12)
- Utami, T., & Sutiadi, A. (2023). Moderation of The Rupiah Exchange Rate on The Influence of Sharia Stock and Inflation on Economic Growth in IDX-MES Companies 17. *EAJ (Economics and Accounting Journal)*, 6(2), 89–97.
<https://doi.org/10.32493/eaj.v6i2.y2023.p89-97>
- Widodo, A., & Fadillah, T. S. (2022). Pengaruh Inflasi, Bi Rate Dan Kurs Terhadap Indeks Harga Saham Gabungan (Ihsg) Periode Tahun 2011 – 2021. *Swara MaNajemen (Keuangan*
- Pemasaran, dan Source Daya Manusia), 2(4), 415–425.