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The Impact of Inflation, Interest Rates, and Exchange Rates on The Property and Real Estate Sector Stock Price Index for The Period 2021–2024

Geraldo Apta Andhika*, Rosmita Rasyid
Universitas Tarumanagara, Indonesia
Email: geraldo.125249221@stu.untar.ac.id*, rosmitar@fe.untar.ac.id

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Abstract

The property sector plays a crucial role in Indonesia's economy, yet its stock market performance often exhibits anomalies that cannot be fully explained by conventional macroeconomic theory. This research aims to analyze the effect of inflation, interest rates, and exchange rates on the Property and Real Estate Sector Stock Price Index (IDXPROPERT) at the Indonesia Stock Exchange for the period 2021–2024. Monthly time series data of 48 observations were analyzed using multiple linear regression after passing classical assumption tests, with data transformation through the first difference method to address autocorrelation issues. The partial test results show that inflation ($t = -0.8557$, $p = 0.3969$) and interest rates ($t = -0.1946$, $p = 0.8466$) have no significant effect on IDXPROPERT, while exchange rates have a negative and significant effect ($t = -2.6222$, $p = 0.0120$). Simultaneously, all three macroeconomic variables significantly affect IDXPROPERT ($F = 2.9940$, $p = 0.0411$), with an adjusted R^2 of 11.51%. In conclusion, among the three variables examined, only the exchange rate consistently serves as a significant predictor of IDXPROPERT performance, reflecting the sensitivity of the property sector to rupiah depreciation through increased import costs and foreign debt burdens. The findings suggest that investors should closely monitor rupiah exchange rate movements in property sector investment decisions. Companies are advised to strengthen exchange rate risk management through hedging instruments.

INTRODUCTION

Capital markets are a crucial aspect of overall economic health, as they enable individuals and businesses to access long-term financing and investment opportunities. Capital markets have the ability to mediate by enabling transactions between entities with excess funds and those in need; this role highlights the importance of capital markets in supporting the economy (Tandelilin, 2017). Specifically, the Jakarta Composite Index (JCI) represents the performance of all stocks listed on the Indonesia Stock Exchange (IDX), making it an important indicator for tracking the evolution of Indonesia's investment climate.

During the 2021–2024 period, the Indonesian stock market exhibited significant fluctuations following its recovery from the pandemic. The Jakarta Composite Index (JCI) generally experienced a recovery trend, despite being pressured by various global and domestic macroeconomic factors, such as rising global interest rates and commodity volatility (OJK, 2024). The number of Indonesian capital market investors continued to increase, reaching more than 12 million Single Investor Identification (SID) holders by the end of 2023, in line with increasing financial literacy and easier digital access (IDX, 2025).

Although the JCI has generally shown a recovery trend since 2021, the performance of the Property and Real Estate Sector Stock Price Index (IDXPROPERT) on the IDX has not always been consistent. Property and real estate indexes indicated significantly weaker performance than the JCI during the 2021–2024 period. As can be seen in Figures 1.1 and 1.2 above, the JCI overall recorded a relatively stable recovery trend, even reaching an all-time high of around 7,905 in mid-2024, before finally closing at 7,079 at the end of 2024 (Damayanti, 2024). In contrast, IDXPROPERT experienced deeper and more prolonged pressure. The sharp increase in the BI Rate from 3.50% at the end of 2021 to 6.00% throughout 2023–2024 had a direct impact on rising mortgage costs and financing costs for property companies, causing IDXPROPERT to consistently weaken amidst the JCI recovery (Sidik, 2023). This condition indicates a clear divergence between the overall performance of the capital market and the property sector. Hasanah et al. (2021) emphasized that the stock price index in the property and real estate sector is sensitive to macroeconomic factors, especially inflation, interest rates, and the rupiah exchange rate.

Property sector stock prices, as reflected in IDXPROPERT, play a crucial role in measuring the collective performance of companies in the sector. IDXPROPERT is designed to reflect the aggregate stock price movements of all property and real estate issuers listed on the Indonesia Stock Exchange (IDX). The index serves as a baseline for institutional and retail investors in making stock supply and demand decisions, and reflects market expectations regarding the business prospects of property developers, including residential, apartment, and commercial area sales (Handayani & Nuswandari, 2025). A significant increase in IDXPROPERT typically indicates strong sector performance, boosting investor confidence, facilitating access to funding through the capital market, and increasing profit potential through capital gains and dividends (Bandawaty & Nurfitria, 2022).

In theory, according to the semi-strong Efficient Market Hypothesis (EMH), macroeconomic information such as a decrease or increase in Bank Indonesia's benchmark interest rate should be directly reflected in stock index movements. A BI Rate increase will raise mortgage costs, suppress property demand, suppress developer sales, and negatively impact IDXPROPERT (Tandelilin, 2017; Galuh et al., 2026). Similarly, controlled inflation and rupiah appreciation should support public purchasing power and reduce the cost of importing construction materials (such as steel, cement, ceramics, and imported building components), thereby strengthening positive sentiment towards the property sector as a whole.

However, the actual phenomenon in the 2021–2024 period shows an interesting anomaly between interest rate movements and IDXPROPERT's response. Theoretically, when Bank Indonesia began lowering the BI Rate by 25 basis points to 3.50% in February 2021, the market, within the EMH framework, should have responded immediately and positively through a significant and sustained increase in IDXPROPERT (Bank Indonesia, 2021; Tandelilin, 2017). In fact, although IDXPROPERT briefly strengthened to around 917 in February 2021 in line with expectations of a rate cut, the index weakened again and closed lower at the end of 2021 (Google Finance, 2021). This phenomenon indicates that the transmission of interest rate policy to the property sector is slow and not immediate as assumed by the EMH. The decrease in the BI Rate was not immediately followed by a decrease in mortgage interest rates by banks due to banks' caution in disbursing credit, so the benefits of the interest rate reduction have not been directly felt by the property sector (Brilian, 2024). This situation is contrary to the predictions

of the theory, which explains that efficient markets will absorb monetary policy information quickly and directly reflect it in sectoral stock prices (Tomar & Kesharwani, 2022).

A similar phenomenon is also found in the exchange rate variable. In theory, rupiah appreciation should have a positive impact on IDXPROPERT by lowering construction material import costs and reducing property companies' foreign exchange debt burden. However, the property sector stock price index could decline due to rupiah depreciation, which drives up the cost of imported building materials and reduces company profitability (Handayani & Nuswandari, 2025). Empirically, after the BI Rate cut in April 2021, the rupiah briefly strengthened to IDR 14,453 per USD. This positive trend continued until December 2021, when it strengthened to IDR 14,278 per USD (Bank Indonesia, 2021). This condition should have been a double positive signal for the property sector. However, IDXPROPERT did not show proportional and sustainable strengthening in line with these theoretical expectations. Even throughout 2022–2024 as a whole, the average USD/IDR exchange rate increased from IDR 14,269 in 2021 to IDR 16,162 in 2024 (Bank Indonesia, 2024), but this depreciation was not always reflected consistently and immediately in the weakening of IDXPROPERT in each period, which shows that the relationship between the exchange rate and IDXPROPERT is not as simple as assumed by theory.

The most obvious anomaly is seen in the inflation variable. Theory states that controlled and low inflation should support public purchasing power, stabilize construction costs, and have positive implications for IDXPROPERT (Tandelilin, 2017). Indonesia's annual inflation has indeed fallen sharply from a peak of 5.95% in September 2022 to just 1.57% in December 2024 (Bank Indonesia, 2024). Within the EMH framework, this low and controlled inflation should have immediately prompted the market to strengthen IDXPROPERT. However, the opposite occurred: despite low inflation throughout late 2023–2024, IDXPROPERT failed to recover significantly and even closed lower at the end of 2024 compared to its mid-year peak (IDX, 2024). This fact shows a gap between theoretical predictions and empirical reality, where factors outside of inflation, such as investor sentiment, global conditions, and policy transmission delays, actually have a more dominant influence on IDXPROPERT movements (Galuh et al., 2026; Pratiwi & Dwiridhotjahjono, 2023).

The anomaly between macroeconomic conditions and IDXPROPERT's performance is also confirmed by several facts published by national media. First, Indonesia's annual inflation declined to 3.52% in June 2023 (down from 4.35% in June 2022), but the property sector did not provide a comparable positive response; monetary policy transmission was not effective because Bank Indonesia continued to maintain high interest rates amid global uncertainty, so investor expectations towards IDXPROPERT did not improve even though inflation data was already supportive. This condition contradicts the EMH, which emphasizes that information on declining inflation should be directly reflected in rising property stock prices (Nityakanti, 2023). Second, after the BI Rate increase to 6.25% in April 2024, the performance of the IDX Sector Properties & Real Estate was recorded to have decreased 13.25% since the beginning of the year (year-to-date); the weakening of the rupiah also exacerbated the situation for property issuers with US dollar debt. Anomalous was the fact that the decline coincided with the implementation of the Government-Paid VAT (PPN DTP) incentive, which should have boosted property demand, proving that the impact of high interest rates far outweighed the driving force of existing fiscal incentives (Nityakanti, 2024). Third, on August 29, 2024, the rupiah

strengthened to IDR 15,410 per USD, its strongest level since December 2023. However, this strengthening was not accompanied by a proportional and sustainable increase in IDXPROPERT. This fact contradicts the theory that rupiah appreciation should reduce construction material import costs and foreign exchange debt burdens, thus positively impacting the performance of property sector stocks (CNBC Indonesia, 2024). Fourth, throughout 2023, the property and real estate index only grew 0.41%, a very low achievement amidst controlled inflation and market optimism regarding the planned BI interest rate cut in the second half of 2024. This fact further confirms that the anomalous performance of IDXPROPERT cannot be explained solely through the framework of conventional macroeconomic theory (Setiawati, 2024).

This discrepancy between theory and reality is further reinforced by the inconsistency of previous research findings over the past five years. According to Pratiwi & Dwiridhotjahjono (2023), stock prices in the property subsector were found to be significantly negatively affected by interest rates, while the exchange rate proved to have no effect. According to Galuh et al. (2026), IDXPROPERT returns were negatively affected by interest rates and exchange rates, while inflation had no effect. Interest rates and exchange rates are the most important variables in many studies conducted by Budiman et al. (2023), but the impact of inflation is not constant. Differences in study timeframes, analytical approaches, and the evolution of macroeconomic conditions after the COVID-19 pandemic may explain this discrepancy. There is a lack of studies integrating all three macroeconomic variables (inflation, interest rates, and exchange rates) simultaneously for the period 2021–2024, and even fewer that focus on IDXPROPERT as a measure of aggregate sector performance.

Based on various actual phenomena, empirical facts, and inconsistencies in existing study findings, there is a clear research gap regarding the simultaneous influence of inflation, interest rates, and exchange rates on IDXPROPERT for the 2021–2024 period. Therefore, this study was conducted to fill this gap, entitled "The Effect of Inflation, Interest Rates, and Exchange Rates on the Property and Real Estate Sector Stock Price Index (IDXPROPERT) for the 2021–2024 Period."

This research focuses on evaluating the influence of inflation, interest rates, and exchange rates on IDXPROPERT. The independent variables examined in this study are inflation, interest rates, and exchange rates. Furthermore, this study employs one dependent variable, IDXPROPERT. The study period is limited to 2021–2024.

Based on the background of the problems and various anomalous phenomena that have been described, this study formulates three main questions, namely whether inflation, interest rates, and exchange rates individually have a significant effect on the Property and Real Estate Sector Stock Price Index (IDXPROPERT) during the 2021–2024 period. In line with the formulation of the problem, the purpose of this study is to empirically analyze the partial influence of each macroeconomic variable—namely inflation, interest rates (BI Rate), and the rupiah exchange rate against the US dollar (USD/IDR)—on the movement of IDXPROPERT, in order to test the consistency of the Efficient Market Hypothesis (EMH) theory in the Indonesian capital market and identify which variables are the most dominant in influencing the performance of the property sector. This research provides benefits as follows. For investors, the results of this research can be a reference in investment decision-making, especially by observing the movement of the rupiah exchange rate, which has proven to be the most dominant

macro factor, so that investors can manage market entry and exit strategies in the property sector more wisely. For property and real estate companies, these findings underscore the urgency of implementing a strong hedging strategy and effective exchange rate risk management to mitigate the impact of rupiah depreciation on imported raw material costs and foreign exchange debt burdens. As for policymakers, especially Bank Indonesia and the Financial Services Authority (OJK), this study provides empirical input in formulating monetary and fiscal policies that support the stability of the property sector, such as maintaining exchange rate stability and designing targeted incentive schemes, so that it can ultimately strengthen the resilience of the national capital market and encourage sustainable economic growth.

METHOD

A. Research Design

The study design applied in this study is a quantitative descriptive study using a causal associative approach. According to Sekaran and Bougie (2010), descriptive research aims to identify and understand the characteristics of the variables in the study. The causal associative approach is applied to examine the causal relationship or influence between the independent and dependent variables.

This study employs quantitative *time series data. The time series approach* was chosen because the dependent variable in this study is IDXPROPERT, which is a periodically available sectoral index. The data used is monthly secondary data for the 2021–2024 period. The use of *time series data* allows researchers to examine the development of macroeconomic variables and the movement of IDXPROPERT over time.

B. Population, Sampling Techniques, and Sample Size

According to Sugiyono (2013), a population is all objects or subjects that meet specific criteria. In the context of this study, the population is all monthly *time series data* related to inflation, interest rates, the rupiah exchange rate, and IDXPROPERT for the period 2021–2024.

Because this study employs a time series approach, no company sampling technique is required. Instead, purposive sampling based on time periods is used. All monthly data from January 2021 to December 2024 will serve as the research sample.

The total number of observations obtained was 48 (4 years × 12 months). The 2021–2024 period was chosen because it reflects the post- COVID-19 pandemic recovery, significant interest rate fluctuations, and relatively high rupiah exchange rate volatility.

C. Operationalization of Variables and Instruments

The variables examined in this study consist of independent and dependent variables. The independent variables are inflation, interest rates, and exchange rates. The dependent variable used in this study is IDXPROPERT.

1. Independent Variables

a. Inflation

When prices of goods and services rise consistently over a period of time, inflation can be considered. The Central Statistics Agency (BPS) publishes the national consumer price index inflation rate every month, which is used to assess this statistic. The inflation data in this study is taken from the monthly inflation rates in Indonesia provided by BPS or BI.

Inflation (X_1) = Inflation month-t

b. Interest rate

The BI Rate, also known as the BI *7-Day Reverse Repo Rate*, is a public indicator of the monetary policy stance of the Indonesian central bank. *The BI Rate*, a percentage found on the BI website (www.bi.co.id), is used as the interest rate in this study.

Interest Rate (X_2) = Monthly BI Rate (%)

c. Exchange rate

The price of a foreign currency expressed in domestic currency is called the exchange rate. For the purposes of this analysis, the rupiah/dollar (USD/IDR) exchange rate is used. This information is based on the mid-day rate officially released by Bank Indonesia each business day.

Exchange Rate (X_3) = Monthly USD/IDR middle rate

2. Dependent Variable

a. Property and Real Estate Sector Stock Price Index (IDXPROPERT)

IDXPROPERT is a sectoral index published and managed by the IDX to measure the aggregate stock price performance of all companies classified in the Property & Real Estate sector based on the IDX *Industrial Classification* (IDX-IC).

Property issuers, such as developers of apartment complexes, shopping malls, industrial estates, and residential and commercial properties, are reflected in the stock price fluctuations of the overall property and real estate index. For investors gauging the health and future of the real estate market, this index is a critical metric. Several macroeconomic variables, including interest rates, inflation, and currency exchange rates, as well as the supply and demand processes of the stock market, influence the movement of the real estate and property stock price index.

In the context of this study, the data used is the closing *price* of IDXPROPERT at the end of the month. The use of monthly data aims to capture both short-term fluctuations and medium-term trends during the study period.

IDXPROPERT (Y) = monthly closing value *of* IDXPROPERT

D. Data analysis

1. Descriptive Statistical Test

This analysis is used to present an initial overview or summary of research data. According to Ghozali (2016), this analysis presents data using basic measurements such as mean, maximum, minimum, and standard deviation. Its primary purpose is to describe the characteristics of the research sample as they are, without conducting inferential analysis or drawing more in-depth conclusions from the research results.

2. Coefficient of Determination (R^2) Test

The purpose of the R^2 test R-squared is a measure of the extent to which a model's independent variables explain the dependent variable. According to Ghozali (2016), the R-squared value indicates the extent of the independent variable's impact. A value of around 1 indicates that the dependent variable can be explained by the independent variable to a large extent. Conversely, a value approaching zero indicates that the independent variable does not significantly explain the dependent variable.

3. F Statistical Test (ANOVA)

To assess the suitability of the regression model and determine whether all independent variables collectively (simultaneously) significantly influence the dependent variable, the F-statistical test (ANOVA) was used. A 5% significance criterion was used in this test.

According to Ghozali (2016), a model is considered feasible and independent variables are proven to have a simultaneous effect if the F significance score is ≤ 0.05. If the F significance score is > 0.05, the regression model is considered inadequate and the independent variables simultaneously have no significant effect.

4. t-Statistic Test (Partial Parameter Hypothesis Test)

To examine the impact of each independent variable on the dependent variable separately, the t-statistic test, also called the partial hypothesis test, is used (Ghozali, 2016). An independent variable is considered to have a partial and significant effect with a significance threshold of 5% if the t-score is ≤ 0.05. Each independent variable does not have a significant effect if the t-score is > 0.05.

5. Interpretation of Regression Model

Estimating the strength and direction of the relationship between research variables is the goal of regression model analysis (Ghozali, 2016). This study uses multiple linear regression analysis to predict one dependent variable (Y) from a series of independent variables (X1, X2, X3). The following equation forms the basis of this model, which is used to assess the research hypotheses:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

Information :

Y : Property and Real Estate Sector Stock Price Index

α : Constant

β : Inflation Regression Coefficient

1

β : Interest Rate Regression Coefficient

2

β : Exchange Rate Regression Coefficient

3

X : Inflation

1

X : Interest rate

2

X : Exchange rate

3

e : *Error*

E. Data Analysis Assumptions

Eviews 13 software will be used to process the data obtained for this study. Classical assumption tests, such as normality, heteroscedasticity, multicollinearity, and autocorrelation, are run before the regression analysis.

1. Normality Test

The purpose of this test is to evaluate whether the residuals of the regression model follow a normal distribution. Multiple linear regression relies on the assumption of a normal residual distribution to ensure credible results from hypothesis tests (t-test and F-test) (Ghozali, 2016). In this study, researchers applied the *Jarque-Bera test* to check for normality.

The Jarque-Bera probability value is used as the basis for decision-making. It can be concluded that the residuals do not follow a normal distribution if *the Jarque-Bera probability score* is less than or equal to 0.05. On the other hand, a regularly distributed residual set is indicated by a *Jarque-Bera probability value* greater than 0.05.

2. Heteroscedasticity Test

This test can be applied to determine whether the residual variances of two observations are unequal, as explained by Ghozali (2016). The absence of heteroscedasticity in the residual variance is an indicator of a high-quality regression model.

The significance value serves as the basis for the decision-making process in the *Glejser test* in this study. When the significance score is ≥ 0.05, heteroscedasticity is absent; however, if the significance score is < 0.05, heteroscedasticity is indicated by the data.

3. Multicollinearity Test

When conducting a regression model, a multicollinearity test is used to identify correlations or relationships between independent variables (Ghozali, 2016). Multicollinearity is something that should not be present in a good regression model. This test is carried out by reviewing *the Variance Inflation Factor* (VIF) and *Tolerance values*. If the Tolerance and VIF scores are $\leq$ 0.10, the model is said to not exhibit multicollinearity. The presence of multicollinearity in the model is indicated by a Tolerance value ≤ 0.10 or a VIF ≥ 10.

4. Autocorrelation Test

To determine whether the nuisance errors in the current period (t) and the previous period (t-1) are correlated, the autocorrelation test is used (Ghozali, 2016). The presence of autocorrelation is undesirable in a high-quality regression model.

Autocorrelation was identified in this study using *the Breusch-Godfrey* LM Serial Correlation Test. For *the Breusch-Godfrey* (LM) serial correlation test, a model is considered autocorrelation-free if the p-score is > 0.05. Conversely, if the p-value of *the Breusch-Godfrey serial correlation test* is < 0.05, it can be concluded that there is an autocorrelation problem.

RESULTS AND DISCUSSION

The analysis was conducted on secondary data in the form of a monthly *time series* , covering the period from January 2021 to December 2024. The variables analyzed included the property sector stock price index, inflation rate, interest rate, and exchange rate. The results of this data processing were applied to identify whether the variables of inflation, interest rate (*BI*

rate), and exchange rate (exchange rate) had a significant effect on the dependent variable, namely the property sector stock price index on the IDX during the study period.

In line with the problem formulation, research model, and the needs of hypothesis testing, the analytical methods applied in this study context consist of descriptive and statistical analysis. Statistical analysis is conducted based on numerical data processing with the aid of *EViews 13* software. Meanwhile, descriptive analysis is applied to describe the phenomena present in each research variable to strengthen the results obtained from the statistical analysis.

A. Data Analysis Assumption Test Results

It's standard practice to evaluate classical assumptions before running a multiple linear regression analysis. To ensure the regression analysis is reliable and doesn't lead to biased conclusions, researchers perform these tests. Tests for heteroscedasticity, autocorrelation, multicollinearity, and normality are among the methods used.

1. Initial Data Test

Classical assumption testing on the original research data revealed that the data were normal, free from heteroscedasticity, and showed no signs of multicollinearity. However, the test results indicated that the data did not meet the autocorrelation assumption.

Table 1. Autocorrelation Test Results

Breusch-Godfrey Serial Correlation LM Test: Null hypothesis: No setial correlation at up to 2 lags				
F-statistic	35.59722	0.0000	F(2, 42)	0.0000
Obs*R-squared	30.18994	0.0000	Chi-Square (2)	0.0000

Source: *Eviews Output 13*, processed (2026)

From the findings of the Breusch-Godfrey Serial Correlation LM Test on level data (Table 1), an F-statistic score of 35.597 was obtained with a Prob. F(2,42) value = 0.0000, and an Obs*R-squared score of 30.190 with a Prob. Chi-Square(2) = 0.0000. The Chi-Square probability score (0.0000) < significance level of 0.05. Therefore, H0 (no autocorrelation) is rejected, which indicates there is serious serial autocorrelation in the regression model with level data. This condition indicates that the model does not meet the classical assumption of being autocorrelation-free, which requires further treatment.

As a solution to the autocorrelation problem, data transformation was carried out using the first difference method. The first difference method is a time series data transformation technique that is carried out by calculating the difference between the observation value in period t and the observation value in the previous period (t–1), thus producing new data in the form of changes between periods ($\Delta Yt = Yt - Yt\text{-}1$). This transformation is commonly used in time series data analysis to overcome the problem of autocorrelation while changing non-stationary data at the level to be stationary, so that the resulting regression model avoids spurious regression (Gujarati & Porter, 2009; Enders, 2015). According to Enders (2015), the first differentiation effectively eliminates deterministic and stochastic trends in time series data, so that serial correlation between residuals originating from data non-stationarity can be eliminated. In line with this, Gujarati and Porter (2009) emphasized that if a variable is not stationary at the level but is stationary after being differentiated once, the variable is said to be integrated in the first order, or I(1), and the use of the first difference is the appropriate procedure for obtaining a BLUE (Best Linear Unbiased Estimator) estimate.

2. Normality Test

The distribution of residual values from the regression model was examined using a normality test. To ensure all data were normally distributed, the Jarque-Bera test was applied in this study. The normality assumption was met if the test criterion, namely the Jarque-Bera probability score, was > 0.05, indicating a normally distributed residual.

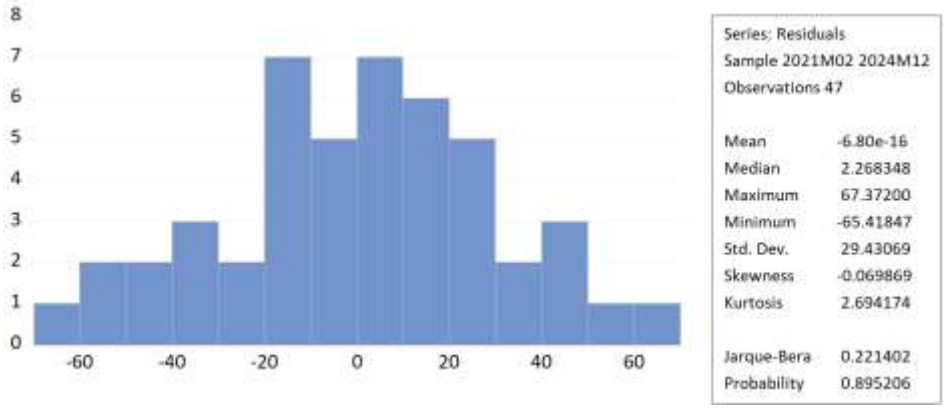

Figure 1Normality Test

Source: Eviews Output 13, processed (2026)

The likelihood value is 0.895206, and the Jarque-Bera statistic value is 0.221402, according to the normality test findings shown in Figure 1. The residuals of the regression model follow a normal distribution because the probability value of 0.8952 is significantly higher than the 0.05 (5%) significance level. Therefore, H0 cannot be rejected. The residual histogram also indicates a pattern close to a normal distribution (bell *-shaped*) with a skewness score of -0.069869 (close to 0) and a kurtosis of 2.694174 (close to 3). Therefore, the assumption of residual normality in this study is met.

3. Multicollinearity Test

The purpose of the multicollinearity test is to determine whether the independent variables in a regression model have a perfect or nearly perfect linear relationship. The VIF technique is used to perform this test. Researchers can rule out multicollinearity if the VIF values for all independent variables are <10.

Table 2. Multicollinearity Test (VIF)

Variance Inflation Factors
Date: 04/15/26 Time: 09:58
Sample: 2021M01 2024M12
Included observations: 47

		Uncentered VIF	**Centered VIF**
C	21.94670	1.113209	NA
D(X1)	131.9417	1.035831	1.035830
D(X2)	914.4241	1.171901	1.065603
D(X3)	0.000290	1.086895	1.058288

Source: *Eviews Output 13* , processed (2026)

The following are the centered VIF values *for* each independent variable in the form of first differences (D): D(X1) = 1.035830, D(X2) = 1.065603, and D(X3) = 1.058288, in accordance

with the findings of the multicollinearity test in Table 4.3. No VIF data approaches the critical number of 10. This rules out the possibility of a major multicollinearity problem in the independent variables that make up the regression model of this study. Thus, the assumption of freedom from multicollinearity is met.

4. Heteroscedasticity Test

The purpose of this test is to evaluate whether the residual variance of one observation differs from other observations in the regression model. Homoscedasticity is a condition where the residual variance remains constant across observations. If the *Chi-Square probability score* is > 0.05, then there is no issue with heteroscedasticity. This test applies the *Glejser test technique* .

Table 3. Heteroscedasticity Test Results

Heteroskedasticity Test: Glesjer **Null hypothesis: Homoskedasticity**			
F-statistic	0.747147	F(3,43)	0.5300
Obs*R-squared	2.328568	Chi-Square(3)	0.5071
Scaled explained SS	2.129002	Chi-Square(3)	0.5461

Source: *Eviews Output 13* , processed (2026)

The probability of F(3,43) = 0.5300 and the probability of Chi-Square(3) = 0.5071 are obtained from the *Obs*R-squared data* in Table 4.4, which are the findings of the Glejser Test. The significance criterion of 0.05 is significantly exceeded by both probability values. Therefore, the absence of heteroscedasticity in the regression model means that H0 (homoscedasticity) cannot be ignored. Since the residual variance is homoscedastic, which means constant, this assumption is met .

5. Autocorrelation Test

The purpose of running an autocorrelation test is to evaluate whether the residuals from one observation period are correlated with the residuals from the previous observation period. Time series data often exhibits this behavior. If the Chi-Square probability score is >0.05, then it is determined that there is no autocorrelation problem. This test is based on the *Breusch-Godfrey* LM Serial Correlation Test.

Table 4. Autocorrelation Test Results

Breusch-Godfrey Serial Correlation LM Test: **Null hyphothesis: No serial correlation at up to 2 lags**			
F-statistic	2.168497	Prob. F(2, 41)	0.1273
Obs*R-squared	4.496079	Prob. Chi-Square (2)	0.1056

Source: *Eviews Output 13* , processed (2026)

The Prob. F (2,41) score of 0.1273 and the Prob. *Chi-Square* (2) score of *Obs*R-squared* of 0.1056 were obtained from *the Breusch-Godfrey* LM Serial Correlation Test, as shown in Table 4.5. With a score of 0.1056, the *Chi-Square probability* is higher than the 0.05 significance level. Therefore, the researcher can conclude that the regression model has no serial autocorrelation and therefore H0 (no autocorrelation) cannot be rejected.

B. Data Analysis Results

1. Multiple Linear Regression Analysis

After all classical assumption tests are met, multiple linear regression analysis is conducted to test the effect of Inflation (X1), Interest Rate (X2), and Exchange Rate (X3) on IDXPROPERT (Y). Considering that the applied time series data has a stationary nature in *the first difference,* the regression model is estimated using the first difference data (D) to avoid spurious regression. The following are the results of the regression estimation:

Table 5. Results of Multiple Linear Regression Analysis

Dependent Variable: D (Y) **Method: Least Squares** **Date: 04/15/26 Time: 09:30** **Sample (adjusted): 2021M02 2024M12** **Include observations: 47 after adjust**		
C	-0.392467	4.684730
D(X1)	-9.829664	11.48659
D(X2)	-5.885628	30.23945
D(X3)	-0.044648	0.017027

Source: *Eviews Output 13* , processed (2026)

From the regression output in Table 4.6, the equation formed is as follows:

$$D(Y) = -0.3925 - 9.8297 \cdot D(X1) - 5.8856 \cdot D(X2) - 0.0446 \cdot D(X3)$$

Where :

D(Y) = IDXPROPERT

D(X1) = Inflation

D(X2) = Interest Rate

D(X3) = Exchange Rate

If the inflation, interest rate, and exchange rate variables remain unchanged, the change in IDXPROPERT tends to decrease by 0.3925, as indicated by the constant score of -0.3925. If all other variables remain constant, the regression coefficient of -9.8297 for the inflation variable means that for every one-unit increase in inflation, the change in IDXPROPERT will decrease by 9.8297. Furthermore, with all other factors held constant, the interest rate regression coefficient of -5.8856 indicates that a one-unit increase in interest rates will cause a 5.8856-unit decrease in the property sector stock index. The exchange rate regression coefficient of -0.0446 indicates that, assuming all other factors remain constant, a one-unit change in the exchange rate will result in a 0.0446-unit decrease in IDXPROPERT. All independent variables are negatively correlated with the change in IDXPROPERT, according to the regression equation.

2. Coefficient of Determination

One way to evaluate a model's ability to explain variation in the dependent variable is to examine the Adjusted R-squared score, which is derived from the coefficient of determination (Adjusted R^2). The extent to which the independent variables explain the dependent variable is directly proportional to the Adjusted R-squared value. Findings from testing the coefficient of determination yield the following conclusions:

Table 6. Results of the Determination Coefficient Test

Dependent Variable: D (Y) **Method: Least Squares** **Date: 04/15/26 Time: 09:30** **Sample (adjusted): 2021M02 2024M12** **Include observations: 47 after adjust**	
Variable	**Coefficient**
C	-0.392467
D(X1)	-9.829664
D(X2)	-5.885628
D(X3)	-0.044648
R-squared	0.172790
Adjusted R-squared	0.115078
S.E. of regression	30.44004
Sum squared residual	39843.62
Log likelihood	-225.1405
F-statistic	2.993997
Prob(F-statistic)	0.041129

Source: *Eviews Output 13* , processed (2026)

The R-squared value of the regression model is 0.172790, or 17.28%, and the adjusted R-squared value is 0.115078, or 11.51%. The combined influence of inflation, interest rates, and currency exchange rates accounts for 11.51% of the variance in IDXPROPERT movements; other variables account for the remaining 88.59%. Given the many other factors that influence stock index movements, including market sentiment, fiscal policy, geopolitical conditions, and company fundamentals, it is not surprising that the relatively low Adjusted R-squared value is found in regression models using monthly time series data.

3. Simultaneous Test Results (F Test)

X1, X2, and X3 are tested simultaneously to see if they affect IDXPROPERT, the dependent variable. The results of these tests can be seen in the following table:

Table 7. 1Test Results (F Test)

Dependent Variable: D (Y) **Method: Least Squares** **Date: 04/15/26 Time: 09:30** **Sample (adjusted): 2021M02 2024M12** **Include observations: 47 after adjust**	
Variable	**Coefficient**
C	-0.392467
D(X1)	-9.829664
D(X2)	-5.885628
D(X3)	-0.044648
R-squared	0.172790
Adjusted R-squared	0.115078
S.E. of regression	30.44004
Sum squared residual	39843.62
Log likelihood	-225.1405
F-statistic	2.993997

Prob(F-statistic)	0.041129

Source: *Eviews Output 13* , processed (2026)

To determine whether the independent variables significantly influence the dependent variable simultaneously, the F test is used. The Prob(F-statistic) value of 0.041129 and the F-statistic value of 2.993997 are obtained from the regression findings. The researcher rejects H0 because the F-statistic probability score (0.0411) is less than the 5% significance level. This indicates that changes in IDXPROPERT are significantly influenced by variables X1, X2, and X3 simultaneously. Stock price fluctuations reflect macroeconomic news simultaneously, as stated in the EMH model, which is in line with this finding.

4. Partial Test Results (t-Test)

This test was conducted to evaluate whether the variables of inflation, interest rates, and exchange rates have an effect on IDXPROPERT.

Table 8. Partial Test Results (t-Test)

Dependent Variable: D (Y)
Method: Least Squares
Date: 04/15/26 Time: 09:30
Sample (adjusted): 2021M02 2024M12
Include observations: 47 after adjustm ents

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.392467	4.684730	-0.083776	0.9336
D(X1)	-9.829664	11.48659	-0.855751	0.3969
D(X2)	-5.885628	30.23945	-0.194634	0.8466
D(X3)	-0.044648	0.017027	-2.622216	0.0120

Source: *Eviews Output 13* , processed (2026)

Based on the results of data processing in Table 8, it can be explained as follows:

a. Variable D(X1)

With a t-statistic score of -0.855751 and a probability of 0.3969 (> 0.05), it can be concluded that D(X1) has no significant impact on D(Y). Thus, H1 is rejected while H0 is accepted. These results indicate that partially, changes in variable X1 are not strong enough to influence the dependent variable during the study period.

b. Variable D(X2)

The probability value of D(X2) is 0.8466 (> 0.05) and *the t-statistic* is -0.194634, indicating that D(X2) has no significant effect on D(Y). Therefore, H0 is accepted and H2 is rejected. These findings indicate that the X2 variable individually does not provide a statistically significant contribution to explaining the variation in D(Y).

c. Variable D(X3)

t-statistic value of -2.622216 with a probability of 0.0120 (<0.05) proves that D(X3) has a significant effect on D(Y) at the 95% confidence level. Therefore, H0 is rejected and H3 is accepted. Variable X3 is the only independent variable that has a partial significant effect in this model.

1. The Effect of Inflation on the Property Sector Stock Price Index

The first hypothesis (H1) confirms that inflation has a negative effect on IDXPROPERT. From the regression results, the inflation variable D(X1) has a regression coefficient of -9.829664 and a t-statistic score of -0.855751 and a probability of 0.3969. Because the probability score of 0.3969 is greater than the 0.05 significance level, H1 is rejected. Therefore, inflation does not have a partial significant effect on IDXPROPERT in the 2021–2024 period.

Although the negative coefficient (-9.8297) aligns with the hypothesis that rising inflation tends to depress IDXPROPERT, this effect was not statistically significant. This result can be explained from the perspective of *the Efficient Market Hypothesis* (EMH), where investors in the Indonesian capital market may have anticipated inflationary movements early, so that its impact was reflected in the stock prices of IDXPROPERT before inflation data was published. On the other hand, in some periods, rising inflation can actually reflect stronger economic growth, so its negative impact on the property sector is not immediately felt significantly in the short term.

Inflation does not significantly affect stock *returns* in the property and real estate sectors, according to this study and Galuh *et al* . (2026). Nisak and Budiman (2023) reached a similar conclusion, stating that the value of stocks in the IDX property sector is not affected by inflation.

2. The Influence of Interest Rates on I DXPROPERT

The second hypothesis (H2) explains that interest rates have a negative effect on IDXPROPERT. Based on the regression results, the interest rate variable D(X2) has a regression coefficient score of -5.885628 and a t-statistic score of -0.194634 and a probability of 0.8466. Because the probability score of 0.8466 is > 0.05 significance level, H2 is rejected. This indicates that interest rates do not have a partial significant effect on IDXPROPERT in the 2021–2024 period.

The negative coefficient on the interest rate variable (-5.8856) is consistent with the theory that rising interest rates can increase property companies' cost of capital and increase mortgage installments, thereby suppressing property demand and leading to a decline in IDXPROPERT. However, this relationship was not statistically significant. This finding may be due to *the time lag* between changes in the BI Rate and their impact on property demand and share prices in this sector. Furthermore, in the 2021–2024 period, government incentive policies such as property tax relaxation (PPnBM) and mortgage subsidies through the FLPP (Housing Financing Liquidity Facility) program may have mitigated the negative impact of rising interest rates on IDXPROPERT.

The existing findings are relevant to the findings of a study conducted by Nisak and Budiman (2023) which found that interest rates did not have a significant effect on stock prices in the property and real estate sector.

3. The Effect of Exchange Rates on I DXPROPERT

The third hypothesis (H3) states that the exchange rate has a negative effect on IDXPROPERT. Based on the regression results, the exchange rate variable D(X3) has a regression coefficient score of -0.044648 and a t-statistic score of -2.622216 and a probability of 0.0120. Because the probability score of 0.0120 < the significance level of 0.05, H3 is

accepted. This indicates that the exchange rate (USD/IDR exchange rate) has a negative and partially significant effect on IDXPROPERT in the 2021–2024 period.

The regression coefficient of -0.044648 can be interpreted as every 1 rupiah increase in the exchange rate (rupiah depreciation) per US dollar will result in a 0.044648 point decrease in IDXPROPERT, assuming other variables remain constant. Although the coefficient appears small, considering the rupiah depreciation that occurred during the 2021–2024 period reached thousands of rupiah (from Rp14,084 to Rp16,394), its cumulative impact on the decline in IDXPROPERT is very significant.

The significant negative impact of the exchange rate on IDXPROPERT is consistent with economic theory. Most building materials used by property businesses are imported, and as a result, the cost of these goods increases due to the depreciation of the rupiah. A weakening rupiah will also make it difficult for many large property companies to pay interest and principal on their foreign currency debt. This situation could directly depress property companies' profitability and increase investor perceptions of risk, which could drive down stock prices and IDXPROPERT. Consistent with the semi-strong Efficient Market Hypothesis (EMH), information regarding rupiah depreciation as public data will be immediately responded to by market participants and reflected in a decline in IDXPROPERT.

Consistent with previous research, this study confirms that the exchange rate significantly reduces stock *returns* in the Indonesian property and real estate sector (2026). Boimau *et al* . (2023) reached a similar conclusion, stating that the property sector stock price index was significantly and negatively affected by the exchange rate.

CONCLUSION

Based on data analysis for the period January 2021 to December 2024, this study concludes that inflation and interest rates do not have a partial significant effect on the Property and Real Estate Sector Stock Price Index (IDXPROPERT), which indicates that investors tend to have anticipated inflation movements and the slowdown in the transmission of interest rate policy to the property sector, while the rupiah exchange rate against the US dollar has been proven to have a negative and significant influence. Where the depreciation of the rupiah increased the cost of importing construction raw materials and the foreign exchange debt burden of property companies, thus depressing the performance of the index. Simultaneously, these three macroeconomic variables have a significant effect on IDXPROPERT, although the model's predictive ability is relatively low with a contribution of only 11.51%. Based on these findings, it is suggested that investors pay more attention to the movement of the rupiah exchange rate in making investment decisions in the property sector, property companies need to strengthen hedging strategies to mitigate exchange rate risks, and for Bank Indonesia and the Financial Services Authority, it is important to maintain exchange rate stability and design targeted incentive policies to support the resilience of the property sector and the national capital market.

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