

## INTEREST RATES AND FINANCIAL PERFORMANCE EFFECTS ON IDX30 MINING STOCK PRICES WITH INFLATION AS A MODERATING VARIABLE: EVIDENCE FROM 2021–2024

Sarah Ardian Hudzaifa<sup>1</sup>, Silvana Syah<sup>2</sup>

<sup>1</sup> Directorate General of Taxes, Indonesia, <sup>2</sup> Universitas Siber Asia, Indonesia

E-mail: <sup>1)</sup> [sarahardian.hudzaifa@kemenkeu.go.id](mailto:sarahardian.hudzaifa@kemenkeu.go.id), <sup>2)</sup> [silvanasyah@lecturer.unsia.ac.id](mailto:silvanasyah@lecturer.unsia.ac.id)

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### Abstract

*This study was motivated by fluctuations in the stock prices of mining sector companies listed in the IDX30 index during 2021–2024, Indonesia's mineral downstreaming policy, and inconsistencies in previous research findings. This study aimed to analyze the effects of interest rates and financial performance, as measured by the debt-to-equity ratio (DER) and earnings per share (EPS), on the stock prices of IDX30 mining companies and to examine the moderating role of inflation. The population comprised all mining sector companies listed in the IDX30 index during the year 2021–2024, while the sample was selected using purposive sampling. This study employed a quantitative explanatory approach and panel data regression with Moderated Regression Analysis. The results showed that interest rates had a negative and significant effect on stock prices, whereas EPS had a positive and significant effect. DER did not significantly affect stock prices. Furthermore, inflation did not moderate the effects of interest rates, DER, or EPS on stock prices. These findings imply that mining companies should maintain sustainable profitability and consider interest rate dynamics in financial decision-making. Investors should also consider macroeconomic conditions and company fundamentals when formulating investment strategies.*

**Keywords:** *Debt-To-Equity Ratio; Earnings Per Share; Inflation; Interest Rates; Stock Prices.*

### 1. INTRODUCTION

The capital market plays an important role in supporting economic growth by connecting companies that require long-term financing with investors who seek returns on their funds. Through share issuance, companies can obtain capital to expand production capacity, improve operational efficiency, and strengthen competitiveness. For investors, stock prices reflect market expectations regarding a company's financial performance, business prospects, and ability to generate future returns. Therefore, stock prices are dynamic and may respond to both internal financial information and external macroeconomic conditions (Heru et al., 2024).

One of the indices used to represent highly liquid shares with large market capitalization on the Indonesia Stock Exchange is the IDX30. Mining companies included

in this index have strategic importance because the mining sector contributes significantly to Indonesia's exports and foreign exchange earnings (Dedi Iskanto, 2025). This strategic role has become more relevant following the implementation of Indonesia's mineral downstreaming policy, which encourages domestic mineral processing and increases the added value of mining commodities (Hikam & Hofifah, 2025). However, the mining sector is also highly sensitive to global commodity prices, energy demand, financing costs, and domestic macroeconomic conditions. As a result, mining stock prices may fluctuate considerably even when the companies have strong liquidity and market capitalization.

During the 2021–2024 period, mining companies listed in the IDX30 experienced substantial stock price fluctuations. Stock prices generally increased in 2022, supported by rising global commodity prices and the global energy crisis, but weakened during 2023 and 2024 as commodity prices and market conditions changed. At the same time, Indonesia experienced changes in inflation and interest rates as part of the post-pandemic economic recovery and monetary-policy response. These conditions indicate that mining stock valuation during this period was influenced not only by commodity-related factors but also by macroeconomic risks and company fundamentals. Therefore, interest rates, corporate leverage, profitability, and inflation are important variables for explaining stock price movements in the IDX30 mining sector.

Interest rates represent an important macroeconomic factor that may influence stock prices. Higher interest rates make low-risk instruments, such as deposits and bonds, more attractive and may encourage investors to shift funds away from equities. Higher interest rates also increase corporate financing costs, which may reduce profitability and lower the present value of future cash flows (Alwi, 2003; Samsul, 2006). This relationship is consistent with Arbitrage Pricing Theory, which explains that stock returns and prices are affected by systematic macroeconomic risk factors, including interest rates and inflation ((Ayuning Tyas et al., 2014). In the mining sector, this issue becomes more important because mining companies are capital-intensive and require substantial financing for exploration, production facilities, infrastructure, and downstreaming projects.

In addition to macroeconomic factors, investors also assess financial performance through information contained in financial statements. Two indicators commonly used are the debt-to-equity ratio (DER) and earnings per share (EPS). DER reflects the proportion of corporate financing derived from liabilities relative to equity. A high DER may indicate higher financial risk, but it may also represent the use of debt for productive expansion, particularly in the context of mineral downstreaming. Meanwhile, EPS measures the amount of profit attributable to each outstanding share. A higher EPS generally indicates stronger profitability and may increase investor confidence and demand for shares (Al Barohin & Nasution, 2023). Based on Signaling Theory, DER and EPS provide financial signals that may influence investor decisions and stock prices.

Inflation is positioned as a moderating variable in this study because it may change how investors interpret macroeconomic and financial signals. High inflation may reduce purchasing power, increase production costs, and lower the real value of corporate earnings. It may also trigger tighter monetary policy and higher interest rates, thereby intensifying pressure on financing costs and stock valuation (Ayuning Tyas et al., 2014). In the context of mining companies, inflation may also interact with downstreaming-related investment needs, debt financing, and profitability. Thus, inflation may theoretically strengthen or weaken the effects of interest rates, DER, and EPS on stock prices.

Previous empirical studies have shown inconsistent findings. Heru et al. (2024) found that financial performance and macroeconomic variables affected stock prices, while Wardhani et al. (2024) reported that not all financial ratios significantly influenced stock prices. Al Barohin and Nasution (2023) found that EPS and DER significantly affected stock prices, but other studies showed that these effects varied depending on the sector, period, and economic conditions. Studies on interest rates have also produced mixed results. Halim (2020) and Setiandy and Buchory (2025) found that interest rates significantly influenced stock prices, whereas Wijayanti and Yudiantoro (2023), Heru et al. (2024) and Fatchurrochim (2021) found that interest rates did not always have a significant direct effect.

The moderating role of inflation also remains inconclusive. Listyaningsih et al. (2024) and Noviyah (2018) found that inflation could moderate the relationship between financial performance and stock prices. In contrast, Widya (2023), Siregar (2020), and Agustina (2024) concluded that inflation did not consistently moderate the effect of corporate fundamentals on stock prices. Fatchurrochim (2021) found that inflation moderated the effect of interest rates but did not consistently moderate fundamental variables such as DER. These mixed findings show that the role of inflation may depend on sectoral characteristics, research periods, and macroeconomic conditions.

Based on these empirical inconsistencies, the research gap in this study lies in the limited evidence on IDX30 mining companies using quarterly data during 2021–2024, particularly in examining inflation as a moderating variable in the relationship between interest rates, DER, EPS, and stock prices. Previous studies have generally focused on banking, property, construction, consumer goods, or broader stock indices, while the IDX30 mining sector has distinct characteristics due to its high liquidity, exposure to global commodity prices, capital-intensive operations, and relevance to Indonesia's mineral downstreaming policy. The 2021–2024 period is also important because it captures post-pandemic recovery, commodity price volatility, inflation dynamics, and rising interest-rate pressure.

Therefore, this study aims to analyze the effects of interest rates, DER, and EPS on the stock prices of mining sector companies listed in the IDX30 during the 2021–2024 period and to examine whether inflation moderates these relationships. This study uses a

quantitative explanatory approach with quarterly secondary data obtained from the Indonesia Stock Exchange, Bank Indonesia, and the companies' published financial statements. Panel data regression and Moderated Regression Analysis are applied to test the direct effects and interaction effects. The findings are expected to provide empirical evidence on the macroeconomic and financial factors affecting IDX30 mining stock prices and to support investors and corporate managers in making more informed investment and financial decisions.

## 2. RESEARCH METHOD

This study employed a quantitative method with an explanatory research design. This design was selected because the study aimed to examine the causal effects of interest rates, the debt-to-equity ratio (DER), and earnings per share (EPS) on the stock prices of mining sector companies listed in the IDX30 index and to test inflation as a moderating variable. The study used panel data that combined cross-sectional data from selected companies and time-series data covering quarterly observations from 2021 to 2024.

The research object comprised stock prices, interest rates, DER, EPS, and inflation rates observed during the research period. The population consisted of all companies included in the IDX30 index during 2021–2024. The research sample was selected using purposive sampling to ensure that the companies had complete and consistent data relevant to the research objectives. In this study, companies were required to meet specific criteria rather than merely being listed in the IDX30 at one point during the observation period. The sample-selection criteria were: (1) companies included in the mining sector and listed in the IDX30 index during the 2021–2024 research period; (2) companies that had complete quarterly financial statements during the observation period; (3) companies with complete quarterly closing-stock-price data and financial data required to calculate DER and EPS; and (4) the availability of complete inflation and Bank Indonesia interest-rate data during the research period.

Based on these criteria, five companies were selected as the research sample, namely PT Adaro Energy Indonesia Tbk (ADRO), PT Aneka Tambang Tbk (ANTM), PT Vale Indonesia Tbk (INCO), PT Merdeka Copper Gold Tbk (MDKA), and PT Bukit Asam Tbk (PTBA). The limited number of sampled companies was due to the specific focus of this study on mining sector companies within the IDX30 and the requirement for complete quarterly data on stock prices and financial performance throughout the 2021–2024 period. Companies that did not belong to the mining sector, were not included in the IDX30 according to the research criteria, or did not provide complete quarterly data were excluded from the sample. The four-year observation period consisted of 16 quarters, resulting in 80 firm-quarter observations.

**Table 1.** Sample Selection

| Description                                                     | Number |
|-----------------------------------------------------------------|--------|
| Companies included in the IDX30 index during 2021–2024          | 30     |
| Mining sector companies meeting the purposive-sampling criteria | 5      |
| Quarterly observation periods during 2021–2024                  | 16     |
| Total observations                                              | 80     |

**Source:** *Processed by the researcher, 2026.*

The variables employed in this study are presented in Table 2. Stock price data were measured using the quarterly closing price at the end of each quarter. Inflation data were obtained from monthly inflation publications issued by Statistics Indonesia and Bank Indonesia. Since this study used quarterly panel data, monthly inflation data were converted into quarterly data by calculating the average monthly inflation rate within each quarter. Thus, the inflation value for each quarter represents the average inflation rate over the three months in that quarter. The BI-7 Day Reverse Repo Rate (BI-7DRR) was also adjusted to the quarterly observation period by calculating the average monthly BI-7DRR within each quarter. This approach was used to ensure consistency between macroeconomic variables and the quarterly financial and stock-price data used in the panel dataset.

**Table 2.** Variables

| No. | Variable                  | Indicator / Formula                                                         | Scale  |
|-----|---------------------------|-----------------------------------------------------------------------------|--------|
| 1   | Stock Price (Y)           | Quarterly Closing Price (IDR) – Data source: Indonesia Stock Exchange (IDX) | Rupiah |
| 2   | Inflation (M)             | Monthly Inflation Rate (%), (M-to-M) – Data source: BPS / Bank Indonesia    | Ratio  |
| 3   | Interest Rate (X1)        | BI-7DRR (%) – Bank Indonesia Seven-Day Reverse Repo Rate                    | Ratio  |
| 4   | Debt to Equity Ratio (X2) | DER = Total Debt / Total Equity (Wardhani et al., 2024)                     | Ratio  |
| 5   | Earnings per Share (X3)   | EPS = Net Income / Outstanding Shares (Al Barohin & Nasution, 2023)         | Ratio  |

**Source:** *Processed by the researcher, 2026.*

Data analysis was performed using STATA. The analysis included descriptive statistical analysis, panel data model selection, classical assumption tests, panel data regression, and Moderated Regression Analysis (MRA). The Chow test, Hausman test, and Lagrange Multiplier test were used to determine the most appropriate panel data model among the Common Effect Model, Fixed Effect Model, and Random Effect Model. The

classical assumption tests included multicollinearity, heteroscedasticity, and autocorrelation tests.

Moderated Regression Analysis was used to examine whether inflation strengthened or weakened the effects of interest rates, DER, and EPS on stock prices. Interaction variables were formed between inflation and each independent variable.

### 3. RESULTS AND DISCUSSION

#### 3.1 Panel Data Regression Analysis

Panel data model selection was conducted to determine the most appropriate estimation model among the Common Effect Model, Fixed Effect Model, and Random Effect Model. The model-selection process involved the Chow test, Hausman test, and Lagrange Multiplier test.

##### 3.1.1 Chow Test

The Chow test was conducted to determine whether the Common Effect Model or Fixed Effect Model was more appropriate. The results of the Chow test showed a probability value below the significance level of 5%. Therefore, the null hypothesis was rejected, indicating that the Fixed Effect Model was more appropriate than the Common Effect Model.

**Table 3.** Chow Test Results

| Test      | Model Compared                            | F-statistic | Probability | Decision    | Selected Model     |
|-----------|-------------------------------------------|-------------|-------------|-------------|--------------------|
| Chow Test | Common Effect Model vs Fixed Effect Model | 45.07       | 0.0000      | H0 rejected | Fixed Effect Model |

*Source: Data Processed Using STATA, 2026.*

The significant result indicates that each mining company in the sample had individual characteristics that affected its stock price. Therefore, differences among ADRO, ANTM, INCO, MDKA, and PTBA could not be represented by a single common intercept.

##### 3.1.2 Hausman Test

The Hausman test was performed to determine whether the Fixed Effect Model or Random Effect Model was more appropriate. The test produced a Chi-square value of 52.24 with a probability value of 0.0000. Because the probability value was below 0.05, the null hypothesis was rejected and the Fixed Effect Model was selected.

**Table 4.** Hausman Test Results

| Test         | Model Compared        | Chi-square Statistic | Probability | Decision    | Selected Model     |
|--------------|-----------------------|----------------------|-------------|-------------|--------------------|
| Hausman Test | Fixed Effect Model vs | 52.28                | 0.0000      | H0 rejected | Fixed Effect Model |

|  |                     |  |  |  |  |
|--|---------------------|--|--|--|--|
|  | Random Effect Model |  |  |  |  |
|--|---------------------|--|--|--|--|

**Source:** Data Processed Using STATA, 2026.

The result indicates that the company-specific effects were correlated with the explanatory variables. Therefore, the Fixed Effect Model provided a more consistent estimation than the Random Effect Model.

### 3.1.3 Lagrange Multiplier Test

The Lagrange Multiplier test was conducted to compare the Random Effect Model with the Common Effect Model. The results showed a chibar-square value of 0.00 with a probability value of 1.0000. Because the probability value exceeded 0.05, the Random Effect Model was not considered more appropriate than the Common Effect Model.

**Table 5.** Lagrange Multiplier Results

| Test                     | Model Compared                             | Chibar-square Statistic | Probability | Decision    | Selected Model      |
|--------------------------|--------------------------------------------|-------------------------|-------------|-------------|---------------------|
| Lagrange Multiplier Test | Common Effect Model vs Random Effect Model | 0.00                    | 1.0000      | H0 accepted | Common Effect Model |

**Source:** Data Processed Using STATA, 2026.

Based on the Chow, Hausman, and Lagrange Multiplier tests, the Fixed Effect Model was selected as the most appropriate model for estimating the effects of interest rates, DER, EPS, inflation, and their interaction variables on stock prices.

## 3.2 Classical Assumption Tests

Because this study employed a Fixed Effect Model, the classical assumption tests focused on multicollinearity and heteroscedasticity. A normality test was not used as the primary requirement for panel data estimation.

### 3.2.1 Multicollinearity Test

The initial multicollinearity test showed that the interaction between interest rates and inflation had a VIF value of 37.83, while inflation had a VIF value of 31.44. The initial mean VIF was 12.57, indicating multicollinearity, particularly between the moderating variable and its interaction terms.

**Table 6.** Multicollinearity Test Results 1

| Variable                  | VIF   | 1/VIF    |
|---------------------------|-------|----------|
| Interest Rate × Inflation | 37.83 | 0.026437 |
| Inflation                 | 31.44 | 0.031805 |
| DER × Inflation           | 6.36  | 0.157265 |
| Interest Rate             | 6.22  | 0.160840 |
| DER                       | 3.63  | 0.275168 |
| EPS × Inflation           | 1.29  | 0.772473 |
| EPS                       | 1.23  | 0.814891 |
| Mean VIF                  | 12.57 | -        |

**Source:** Data Processed Using STATA, 2026

The multicollinearity occurred because interaction variables were formed by multiplying the independent variables by inflation. To address this problem, mean-centering was applied to interest rates, DER, EPS, and inflation before constructing the interaction terms. Mathematically, the mean-centering process can be expressed as follows:

$$X_c = X - \bar{X}$$

Where:

- $X_c$  = Mean Center Variable
- $X$  = Original value of the variable
- $\bar{X}$  = mean value of the variable being mean – centered

After the mean-centering process, the mean VIF decreased and the multicollinearity problem was reduced to an acceptable level.

**Table 7.** Multicollinearity Test Results 2

| Variable                  | VIF  | 1/VIF    |
|---------------------------|------|----------|
| Interest Rate × Inflation | 1.22 | 0.822568 |
| Interest Rate             | 1.18 | 0.845290 |
| Inflation                 | 1.11 | 0.900563 |
| EPS                       | 1.09 | 0.920492 |
| EPS × Inflation           | 1.09 | 0.920986 |
| DER × Inflation           | 1.04 | 0.961668 |
| DER                       | 1.04 | 0.963127 |
| Mean VIF                  | 1.11 | -        |

**Source:** Data Processed Using STATA, 2026

Based on Table 7, the multicollinearity test after mean-centering shows that the mean VIF decreased substantially from 12.57 to 1.11. This decrease indicates that the high correlation among the independent variables, the moderating variable, and the interaction variables was successfully reduced after the centering process. Before mean-centering, the

model showed a multicollinearity problem, particularly in the interaction between interest rates and inflation and in the inflation variable. After mean-centering, all VIF values were far below the threshold of 10, with the highest VIF value only 1.22 for the interaction between interest rates and inflation. Therefore, the centered variables and interaction terms could be used in the Moderated Regression Analysis without serious multicollinearity problems.

In addition, the transformation through mean-centering did not change the substance or economic meaning of the variables, but only adjusted their scale by subtracting each observation from its average value. The decrease in mean VIF to 1.11 shows that the statistical relationship among the predictors became more stable, allowing the interaction effects between inflation and each independent variable to be tested more clearly and reliably.

### 3.2.2 Heteroscedasticity Test

The heteroscedasticity test was conducted to determine whether the residual variance was constant across observations. The results indicated a heteroscedasticity problem in the panel data model. Therefore, the final Fixed Effect Model was estimated using robust standard errors clustered at the company level.

**Table 8.** Heteroscedasticity Test Results

| Test                             | Assumption        | Chi-square Statistic | Probability | Decision    | Conclusion                  |
|----------------------------------|-------------------|----------------------|-------------|-------------|-----------------------------|
| Breusch–Pagan/Cook–Weisberg Test | Constant variance | 5.42                 | 0.0199      | H0 rejected | Heteroscedasticity detected |

*Source: Data Processed Using STATA, 2026*

The use of clustered robust standard errors was intended to produce more reliable standard errors and hypothesis-testing results despite the presence of heteroscedasticity and possible correlations among observations within the same company.

### 3.3 Moderated Regression Analysis Results

Moderated Regression Analysis was conducted to examine the direct effects of interest rates, DER, EPS, and inflation on stock prices, as well as to determine whether inflation strengthened or weakened the relationships between the independent variables and stock prices. The analysis included three interaction terms, namely the interaction between interest rates and inflation, DER and inflation, and EPS and inflation. Moderated Regression Analysis model is specified as follows:

$$\begin{aligned} \text{StockPrice}_{it} = & \beta_0 + \beta_1 c\text{InterestRate}_{it} + \beta_2 c\text{DER}_{it} + \beta_3 c\text{EPS} + \beta_4 c\text{Inflation}_{it} \\ & + \beta_5 (c\text{InterestRate}_{it} \times c\text{Inflation}_{it}) + \beta_6 (c\text{DER}_{it} \times c\text{Inflation}_{it}) \\ & + \beta_7 (c\text{EPS}_{it} \times c\text{Inflation}_{it}) + \varepsilon_{it} \end{aligned}$$

where  $c$  denotes mean-centered variables, and  $\varepsilon_{it}$  is the idiosyncratic error term.

In this model, interest rates, DER, EPS, and inflation were included to examine their direct effects on stock prices, while the interaction terms between interest rates and inflation, DER and inflation, and EPS and inflation were included to test the moderating role of inflation. A moderating effect is indicated when the interaction variable has a statistically significant probability value below the 5% significance level. The coefficients were interpreted based on their direction and significance level, where a positive coefficient indicates a positive relationship with stock prices, while a negative coefficient indicates the opposite relationship. The inclusion of interaction variables allows this study to examine whether inflation changes the effect of interest rates and financial performance on stock prices. The results of the Moderated Regression Analysis are presented in Table 9.

**Table 9.** Moderated Regression Analysis Results

| Variable                  | Coefficient | Robust Std. Error | t-statistic | Probability | 95% Confidence Interval | Decision        |
|---------------------------|-------------|-------------------|-------------|-------------|-------------------------|-----------------|
| Interest Rate             | −12,183.09  | 5,892.949         | −2.07       | 0.043       | −23,942.29 to −423.8947 | Significant     |
| DER                       | −342.8372   | 602.3961          | −0.57       | 0.571       | −1,544.9 to 859.2254    | Not significant |
| EPS                       | 1.462691    | 0.7007704         | 2.09        | 0.041       | 0.0643256 to 2.861057   | Significant     |
| Inflation                 | 30,825.29   | 4,722.61          | 6.53        | 0.000       | 21,401.47 to 40,249.12  | Significant     |
| Interest Rate × Inflation | 266,591.4   | 485,295.4         | 0.55        | 0.585       | −701,800.5 to 1,234,983 | Not significant |
| DER × Inflation           | −664.499    | 15,472.79         | −0.04       | 0.966       | −31,539.97 to 30,210.98 | Not significant |
| EPS × Inflation           | 8.096826    | 27.59038          | 0.29        | 0.770       | −46.95892 to 63.15257   | Not significant |
| Constant                  | 3,135.469   | 69.64755          | 45.02       | 0.000       | 2,996.489 to 3,274.448  | Significant     |

**Source:** Data Processed Using STATA, 2026.

The interaction between interest rates and inflation produced a coefficient of 266,591.40 with a probability value of 0.585. Because the probability value was greater than 0.05, inflation did not moderate the effect of interest rates on stock prices.

The interaction between DER and inflation produced a coefficient of −664.499 with a probability value of 0.966. This result indicates that inflation did not strengthen or weaken the effect of DER on stock prices.

The interaction between EPS and inflation produced a coefficient of 8.097 with a probability value of 0.770. Therefore, inflation did not moderate the effect of EPS on stock prices.

Overall, the MRA results indicate that none of the interaction variables had a statistically significant effect on stock prices. Thus, inflation did not act as a moderating variable in the relationships between interest rates, DER, EPS, and stock prices during the 2021–2024 period.

### 3.4 Hypothesis Test Results

#### 3.4.1 Simultaneous Test

The simultaneous F-test was conducted to determine whether interest rates, DER, EPS, inflation, and the interaction variables jointly affected stock prices. The test showed a probability value below 0.05. Therefore, the regression model was statistically significant.

**Table 10** Simultaneous Test Results

| Indicator              | Value  |
|------------------------|--------|
| Number of observations | 80     |
| F-statistic            | 12.37  |
| Probability > F        | 0.0000 |

*Source: Data Processed Using STATA, 2026.*

Based on Table 10, the simultaneous test produced an F-statistic value of 12.37 with a probability value of 0.0000. Since the probability value was lower than the significance level of 5% (0.05), the regression model was statistically significant. This means that interest rates, DER, EPS, inflation, and the interaction variables simultaneously had a significant effect on the stock prices of mining sector companies listed in the IDX30 during the 2021–2024 period.

#### 3.4.2 Coefficient of Determination

The coefficient of determination was used to measure the explanatory power of the Fixed Effect Model in explaining stock-price variations. The results are presented in Table 11.

**Table 11** Coefficient of Determination Results

| Indicator              | Value  |
|------------------------|--------|
| Number of observations | 80     |
| R-squared              | 0.8264 |
| Adjusted R-squared     | 0.7983 |
| Within R-squared       | 0.4636 |

*Source: Data Processed Using STATA, 202*

Based on Table 11, the R-squared value was 0.8264, indicating that 82.64% of the variation in stock prices could be explained by interest rates, DER, EPS, inflation, and the

interaction variables included in the model. The adjusted R-squared value was 0.7983, meaning that after adjusting for the number of variables in the model, 79.83% of the variation in stock prices could still be explained by the model. Meanwhile, the within R-squared value was 0.4636, indicating that 46.36% of the changes in stock prices within each company over time could be explained by changes in the explanatory variables. The remaining variation was explained by other factors outside this research model.

### 3.4.3 Partial Test

The partial t-test was conducted at a significance level of 5% to examine the individual effects of interest rates, DER, EPS, and the interaction variables on stock prices.

**Table 12** Partial Test Results

| Variable                  | Coefficient | Robust Std. Error | t-statistic | Probability | 95% Confidence Interval | Decision        |
|---------------------------|-------------|-------------------|-------------|-------------|-------------------------|-----------------|
| Interest Rate             | −12,183.09  | 5,892.949         | −2.07       | 0.043       | −23,942.29 to −423.8947 | Significant     |
| DER                       | −342.8372   | 602.3961          | −0.57       | 0.571       | −1,544.9 to 859.2254    | Not significant |
| EPS                       | 1.462691    | 0.7007704         | 2.09        | 0.041       | 0.0643256 to 2.861057   | Significant     |
| Inflation                 | 30,825.29   | 4,722.61          | 6.53        | 0.000       | 21,401.47 to 40,249.12  | Significant     |
| Interest Rate × Inflation | 266,591.4   | 485,295.4         | 0.55        | 0.585       | −701,800.5 to 1,234,983 | Not significant |
| DER × Inflation           | −664.499    | 15,472.79         | −0.04       | 0.966       | −31,539.97 to 30,210.98 | Not significant |
| EPS × Inflation           | 8.096826    | 27.59038          | 0.29        | 0.770       | −46.95892 to 63.15257   | Not significant |
| Constant                  | 3,135.469   | 69.64755          | 45.02       | 0.000       | 2,996.489 to 3,274.448  | Significant     |

**Source:** Data Processed Using STATA, 2026.

The interest-rate variable produced a coefficient of −12,183.09 with a probability value of 0.043. Because the probability value was below 0.05, H1 was accepted. Thus, interest rates had a negative and significant effect on stock prices.

DER produced a probability value above 0.05. Therefore, H2 was rejected, indicating that DER did not have a significant effect on the stock prices of mining companies listed in the IDX30.

EPS produced a positive coefficient with a probability value below 0.05. Therefore, H3 was accepted, indicating that EPS had a positive and significant effect on stock prices.

The interaction between interest rates and inflation produced a probability value of 0.585, resulting in the rejection of H4. The interaction between DER and inflation produced a probability value of 0.966, resulting in the rejection of H5. The interaction between EPS and inflation produced a probability value of 0.770, resulting in the rejection of H6.

These findings indicate that inflation did not significantly strengthen or weaken the effects of interest rates, DER, or EPS on stock prices during the research period.

## **Discussion**

### **Effect of Interest Rates on Stock Prices**

The results showed that interest rates had a negative and significant effect on the stock prices of mining sector companies listed in the IDX30. The interest-rate coefficient was  $-12,183.09$  with a probability value of 0.043. This means that an increase in interest rates was associated with a decline in stock prices, assuming that the other variables remained constant.

This finding indicates that mining stock prices are sensitive to monetary-policy changes. When interest rates increase, investors tend to compare stock returns with returns from relatively safer instruments, such as deposits and government bonds. Higher interest rates make these instruments more attractive, thereby reducing investor interest in stocks. In addition, higher interest rates increase the cost of capital and borrowing costs for companies. This condition is particularly relevant for mining companies because the mining sector is capital-intensive and requires substantial funding for exploration, infrastructure, production facilities, and downstreaming projects.

The finding is consistent with Halim (2020) and Setiandy and Buchory (2025), who found that interest rates significantly affected stock prices. This result also supports the Arbitrage Pricing Theory, which explains that stock prices respond to systematic macroeconomic risk factors. In this study, interest rates acted as an external factor that influenced investor expectations, discount rates, and the valuation of mining companies.

### **Effect of the Debt-to-Equity Ratio on Stock Prices**

The results indicated that DER did not have a significant effect on the stock prices of mining companies listed in the IDX30. The DER coefficient was negative, but its probability value was greater than 0.05. Therefore, changes in the proportion of debt to equity were not strong enough to directly influence stock prices during the research period.

This insignificant result may occur because investors do not assess mining companies only from the amount of debt used, but also from the purpose, structure, and productivity of the debt. In the mining sector, debt is often used to finance long-term investment, infrastructure development, production expansion, and mineral downstreaming projects. Therefore, a higher DER does not always give a negative signal to investors if the debt is considered productive and capable of generating future cash flows. Conversely, a lower DER does not automatically increase stock prices if it is not accompanied by strong profitability and growth prospects.

Another possible explanation is that the companies in this study are mining companies included in the IDX30, which generally have relatively high liquidity, large market capitalization, and stronger market recognition. Investors may perceive these companies as having better access to financing and greater ability to manage long-term obligations. As a result, leverage risk reflected by DER may be less dominant in investor decision-making compared with profitability indicators, commodity-price expectations, and macroeconomic conditions.

This finding is consistent with Heru et al. (2024) and Wardhani et al. (2024), who found that DER did not significantly affect stock prices. From the perspective of Signaling Theory, DER may provide an ambiguous signal. A high DER can indicate financial risk, but it can also indicate that management is using external financing to support expansion and long-term growth. Because the signal can be interpreted differently by investors, DER did not become a statistically significant determinant of stock prices in this study.

### **Effect of Earnings per Share on Stock Prices**

The results showed that EPS had a positive and significant effect on stock prices. The EPS coefficient was 1.462691 with a probability value of 0.041. This means that an increase in earnings per share was followed by an increase in the stock prices of mining companies listed in the IDX30.

EPS is an important indicator because it directly reflects the amount of profit attributable to each outstanding share. Higher EPS indicates that the company is able to generate greater earnings for shareholders. This condition can increase investor confidence, strengthen expectations of future dividends or capital gains, and encourage demand for the company's shares. As demand increases, stock prices tend to rise.

This finding supports Signaling Theory, which states that financial information provides signals to investors regarding company performance and future prospects. EPS sends a clearer and more direct signal than DER because it is closely related to profitability and shareholder returns. Therefore, investors in IDX30 mining companies appeared to place greater emphasis on earnings performance than on the capital structure of the company.

The result is consistent with Heru et al. (2024), Inest et al. (2025), and Sari et al. (2022), who found that EPS had a significant positive effect on stock prices. This finding confirms that profitability remains one of the main considerations for investors in evaluating

mining stocks, even when the sector is also affected by commodity-price fluctuations and macroeconomic pressure.

### **The Role of Inflation in Moderating the Effect of Interest Rates on Stock Prices**

The interaction between interest rates and inflation produced a probability value of 0.585, which was greater than 0.05. Therefore, inflation did not moderate the effect of interest rates on stock prices.

This insignificant moderating effect indicates that the relationship between interest rates and stock prices did not depend on the level of inflation during the research period. One possible explanation is that investors responded more directly to interest-rate changes than to the interaction between interest rates and inflation. Interest rates immediately affect investment alternatives, discount rates, and corporate financing costs, while inflation may already be reflected in monetary-policy decisions. Therefore, once interest rates were included in the model, inflation did not provide additional moderating power.

In addition, the 2021–2024 period was marked by monetary-policy adjustments following post-pandemic recovery and global commodity-price pressures. Market participants may have anticipated inflationary pressure through changes in interest rates. As a result, inflation did not significantly strengthen or weaken the effect of interest rates on mining stock prices. This suggests that interest rates functioned as a more dominant macroeconomic signal than inflation in explaining stock-price movements.

This result is consistent with Heru et al. (2024), who found that inflation did not significantly moderate the relationship between interest rates and stock prices. Although the Arbitrage Pricing Theory recognizes both inflation and interest rates as systematic macroeconomic factors, the findings of this study show that their interaction did not create an additional effect on IDX30 mining stock prices.

### **The Role of Inflation in Moderating the Effect of DER on Stock Prices**

The interaction between DER and inflation produced a probability value of 0.966, which was greater than 0.05. Therefore, inflation did not moderate the relationship between DER and stock prices.

This result indicates that inflation did not change investors' assessment of corporate leverage. Since DER itself did not have a significant direct effect on stock prices, its interaction with inflation also did not produce a significant moderating effect. In other words, even when inflation changed, investors did not respond differently to the debt structure of mining companies.

The insignificant moderating effect may be related to the characteristics of mining companies. Debt in this sector is often long-term and used to support productive investment, including downstreaming projects, mining infrastructure, and production capacity expansion. Therefore, the impact of inflation on DER may not be immediately reflected in

stock prices. Investors may require more detailed information, such as debt maturity, interest-rate structure, currency exposure, cash-flow strength, and the expected return from debt-financed projects, rather than relying only on the DER value.

Furthermore, mining companies may be able to offset part of inflationary pressure through commodity-price adjustments, export revenues, or operational efficiency. As a result, inflation did not substantially change the risk signal conveyed by DER. From the perspective of Signaling Theory, DER remains an ambiguous signal because it may represent either financial risk or productive expansion. This ambiguity explains why inflation did not significantly moderate the effect of DER on stock prices.

### **The Role of Inflation in Moderating the Effect of EPS on Stock Prices**

The interaction between EPS and inflation produced a probability value of 0.770, which was greater than 0.05. Therefore, inflation did not moderate the relationship between EPS and stock prices.

This finding indicates that the positive effect of EPS on stock prices occurred directly and was not dependent on the level of inflation. Investors continued to regard EPS as an important profitability signal even when inflation fluctuated. This means that higher EPS was still interpreted as a positive indication of company performance, regardless of whether inflation increased or decreased.

The insignificant moderating effect may occur because mining company earnings are strongly influenced by factors beyond domestic inflation, such as global commodity prices, export demand, exchange-rate movements, production volume, and operational efficiency. These factors may have a stronger influence on investor perception of EPS than domestic inflation. Therefore, although inflation can affect production costs and purchasing power, it did not significantly change how investors responded to EPS in the sampled mining companies.

This result suggests that EPS is a relatively strong internal signal for investors. The market responded to profitability information directly, while inflation did not significantly alter the relationship between EPS and stock prices. Thus, the effect of profitability on stock prices was more strongly explained by the company's financial performance itself than by the interaction between profitability and inflation.

Overall, the study shows that stock prices of mining companies listed in the IDX30 were influenced by both macroeconomic and company-specific information. Interest rates represented a significant external factor, while EPS represented a significant internal factor. DER did not significantly affect stock prices because investors may interpret debt based on its purpose and productivity rather than merely its ratio. Inflation did not moderate the effects of interest rates, DER, or EPS because market responses were more directly shaped by interest-rate movements, profitability signals, commodity-price dynamics, and company-specific characteristics. These findings imply that investors should pay particular attention to monetary-policy developments and corporate profitability when evaluating mining shares,

while companies should maintain sustainable earnings performance and carefully manage financing costs and debt utilization.

#### 4. CONCLUSION

Based on the results and discussion of this study, which aimed to determine the effects of interest rates and financial performance on stock prices and to examine the moderating role of inflation in mining sector companies listed in the IDX30 during the 2021–2024 period, several conclusions can be drawn: (1) Interest rates have a negative and significant effect on the stock prices of mining sector companies listed in the IDX30. (2) The Debt-to-Equity Ratio (DER) has no significant effect on the stock prices of mining sector companies listed in the IDX30. (3) Earnings per Share (EPS) has a positive and significant effect on the stock prices of mining sector companies listed in the IDX30. (4) Inflation is unable to moderate the effect of interest rates on the stock prices of mining sector companies listed in the IDX30. (5) Inflation is unable to moderate the effect of DER on the stock prices of mining sector companies listed in the IDX30. (6) Inflation is unable to moderate the effect of EPS on the stock prices of mining sector companies listed in the IDX30.

The findings indicate that investors should pay greater attention to interest-rate movements and corporate profitability, particularly EPS, when assessing mining stocks. Future studies are recommended to extend the research period, increase the number of observations, and include additional variables such as commodity prices, exchange rates, company size, and trading volume to provide a more comprehensive explanation of stock-price movements.

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