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The Role of Macroeconomics and Financial Performance in Shaping Stock Returns: Evidence From the Coal Industry on the Indonesia Stock Exchange

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ABSTRACT

The Indonesian coal industry, a dominant sector in the national stock market, faces significant volatility influenced by global commodity cycles and macroeconomic shifts. This study investigates the influence of macroeconomic variables and financial performance on stock returns in Indonesia's coal industry over the period Q1 2015 to Q4 2024. Amid global uncertainty and the prolonged energy transition, coal remains a critical contributor to Indonesia's economy and capital market. However, the sector faces increasing volatility and policy risks. Utilizing a quantitative approach, the research employed panel data regression (Random Effect Model) on data from 13 coal companies listed on the Indonesia Stock Exchange from Q1 2015 to Q4 2024. The findings reveal that coal prices and financial performance indicators, such as ROA, ROE, and PBV, have a significant positive effect on stock returns, while inflation and the exchange rate demonstrate mixed or insignificant impacts. The research confirms that strong internal performance and favorable external commodity conditions are key drivers of investor interest and stock valuation. This study provides valuable insights for investors, corporate managers, and policymakers in understanding the dynamics of the coal sector in Indonesia's capital market.

KEYWORDS stock return, macroeconomics, financial performance, coal industry, Indonesia Stock Exchange, panel data, investor behavior.

INTRODUCTION

Stock prices of companies are sensitive to both macroeconomic conditions and company fundamentals (Menike et al., 2015). Macroeconomic indicators shape investor expectations and perceptions of risk in equity markets, with investor risk expectations often reacting to macroeconomic news (Pflueger et al., 2020). A favorable macroeconomic environment, characterized by stable economic growth and accommodative monetary policy, can boost investor confidence, as such policies are generally effective in raising asset prices (Kashyap & Stein, 2023). At

the same time, a company's financial performance serves as a signal of its intrinsic value. Strong earnings and solid company performance usually attract investors, leading to higher stock prices, while weak performance can trigger stock sell-offs (Harper, 2024). However, prior research indicates that both macroeconomic factors and firm-level performance jointly influence stock returns, with neither acting as the sole determinant (Elfiswandi et al., 2020). This interaction is complex, especially in emerging markets where external shocks are frequent and can have significant impacts on economic activity (Almansour et al., 2015). Therefore, understanding how macroeconomic and financial performance jointly affect stock returns is crucial for both investors and firms in making better financial decisions.

In emerging markets such as Indonesia, the relationship between macroeconomic variables and stock market performance is particularly strong (Verma & Bansal, 2021). Indonesia's capital market has expanded significantly over the past decade, with the number of stock investors reaching over 6.37 million by the end of 2024 (Indonesia Stock Exchange, 2024). This growth indicates that more individuals are considering stocks as a viable investment option. However, the Indonesian stock market has also exhibited high volatility in response to macroeconomic fluctuations. Shifts in the economic cycle have clearly influenced market sentiment and stock performance. Additionally, macro-level changes such as exchange rate movements and global commodity price fluctuations—often driven by unexpected shifts in global demand—have strongly impacted certain sectors (International Monetary Fund, 2012). One clear example is the coal industry, which plays a major role in the Indonesian stock market. Coal companies account for nearly 90% of the energy sector's market capitalization on the Indonesia Stock Exchange, demonstrating their dominant position. Because the coal industry is highly affected by global economic trends, it provides an appropriate context to study how macroeconomic factors and company performance influence stock returns (Liu et al., 2024).

The period from 2015 to 2024 offers a revealing backdrop for this analysis. During these years, Indonesia's coal industry underwent a complete cycle of downturn and boom, driven by both external and internal forces. In the mid-2010s, a sharp decline in coal demand—especially from China—led to oversupply and a plunge in coal prices. By 2015, benchmark coal prices in Asia had fallen by about 20 percent year-on-year, causing financial distress for Indonesian coal mining companies (Indonesia Investment, 2015). Based on data from Thomson Reuters, many coal companies experienced negative free cash flow as their revenues no longer covered operating costs. This situation reduced investor confidence, and the

stock prices of coal firms fell as the market reacted to the weak macroeconomic outlook for coal.

In contrast, the early 2020s brought a dramatic reversal. A global energy crisis and commodity upcycle in 2021 and 2022 pushed coal prices to record highs (International Energy Agency, 2022). Indonesian coal companies became some of the main beneficiaries of this shift, as eight coal firms collectively earned approximately USD 4 billion in net profit in 2021 and an additional USD 1.4 billion in the first quarter of 2022 (Institute for Energy Economies and Financial Analysis, 2022). This exceptional profitability led to a sharp rise in coal stock prices. For example, PT Adaro Minerals Indonesia's stock increased by 1,595% following its 2022 IPO, becoming the world's best-performing stock that year. The surge in returns was driven by booming coal prices and a 482% rise in the company's nine-month net profit (EquityPandit, 2022).

These contrasting phases highlight how macroeconomic shifts—such as changes in commodity prices and global economic conditions—combined with company financial performance, can significantly shape stock performance (Gogolin, 2018; Kang, 2015). In such a highly volatile market, understanding the relative impact of external economic conditions and internal financial health is essential for analyzing stock returns (Claassen, 2023; Fauzi, 2016). Studies have shown that fluctuations in commodity prices, including oil price shocks, can strongly influence stock market returns, while corporate financial policies, such as leverage and financing decisions, play a crucial role in determining stock performance during periods of market volatility (Gogolin, 2018; Kang, 2015; Claassen, 2023).

Despite the well-established understanding that both macroeconomic conditions and firm-level financial performance influence stock returns, a discernible research gap persists within the context of Indonesia's capital market—particularly in the highly volatile and strategically vital coal sector. While prior studies have often examined these factors in isolation or within broader market indices, there remains a lack of comprehensive, sector-specific analysis that simultaneously integrates a wide spectrum of macroeconomic shocks and detailed financial ratios across a period encompassing both boom and bust cycles. This omission is critical, as the coal industry's performance is uniquely tied to global commodity prices and domestic economic policy, suggesting that the dynamics of stock returns in this sector may not be fully explained by general market models.

The urgency of this research is underscored by the coal industry's significant contribution to the Indonesian economy and its exposure to global energy transition uncertainties and commodity price volatility. The recent extreme fluctuations—from the severe downturn in the mid-2010s to the record-breaking boom in the early 2020s—have created an imperative for investors, corporate managers, and

policymakers to understand the precise drivers of stock performance to mitigate risks and capitalize on opportunities. Without a clear empirical model identifying the most impactful variables, investment decisions remain speculative, and corporate financial strategies may not be optimally aligned with market sensitivities, potentially leading to misallocated capital and heightened financial instability.

Addressing this gap, the novelty of the study lies in its application of a robust panel data regression framework to a meticulously constructed dataset spanning a decade (2015–2024), capturing a full market cycle within Indonesia's coal sector. The research aims to quantitatively determine the relative influence of key macroeconomic indicators—such as inflation, exchange rate, and coal price—alongside a comprehensive set of financial performance metrics on stock returns. The ultimate benefit is to provide evidence-based insights that can empower investors to make more informed portfolio decisions, assist corporate managers in prioritizing financial metrics that truly drive shareholder value, and offer policymakers a clearer understanding of how macroeconomic levers affect a critical national industry.

RESEARCH METHOD

The research design in this study adopted a quantitative approach, providing a clear and structured direction for the procedures. The process began with identifying a specific business issue and refining it into measurable research questions and objectives (Creswell, 2018). This design logically connected the research questions and objectives to the numerical evidence that was collected and statistically analyzed (Yin, 2018).

The literature review established the theoretical foundation of the study, supported the formulation of hypotheses, and identified gaps in existing empirical research (Snyder, 2019). It was organized into components addressing market-wide, industry-specific, and firm-specific factors, categorized into macroeconomic variables and corporate financial performance (Jackson, 2021).

The quantitative analysis included model specification and testing using the Chow Test, Hausman Test, and Lagrange Multiplier Test to determine the most appropriate panel regression model. Goodness-of-fit was assessed using the Coefficient of Determination (R^2), the F-Test, and the t-Test to evaluate the statistical significance of the independent variables. Classical assumption testing was conducted, including diagnostics for multicollinearity and heteroscedasticity, to ensure the reliability of the regression results. The findings from the statistical

analysis generated objective, data-driven insights to inform stakeholders and support evidence-based decision-making (Saunders et al., 2009).

RESULTS AND DISCUSSION

Statistical Analysis

Following the descriptive overview of key macroeconomic indicators and financial ratios in the previous section, this part of the analysis aims to statistically examine the relationship between those variables and stock returns in Indonesia's coal industry. By applying econometric models, we test the strength, direction, and significance of these relationships to provide empirical evidence that supports or challenges prior observations.

Model Testing

This subsection presents the results of the statistical testing, including regression model selection, goodness-of-fit evaluation, and hypothesis testing to assess the impact of macroeconomic and financial variables on stock returns. The models are constructed using panel data, which captures both cross-sectional and time-series dimensions, allowing for more robust and comprehensive inference.

(1) Fixed Effect Model

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

Effects Test	Statistic	d.f.	Prob.
Cross-section F	1.068850	(12, 495)	0.3845
Cross-section Chi-square	13.302386	12	0.3475

To determine whether the Fixed Effect Model (FEM) is appropriate for estimating the panel regression, a Redundant Fixed Effects Test was conducted. This test evaluates whether fixed effects (i.e., firm-specific intercepts) significantly improve the explanatory power of the model compared to the pooled Ordinary Least Squares (Pooled OLS) model.

Since the p-values of both tests are greater than 0.05, we fail to reject the null hypothesis, which states that cross-sectional effects are redundant. This indicates that the fixed effects are not statistically significant, and thus, the Fixed Effect Model does not provide a significantly better fit than the Pooled OLS model.

Based on the results of the Redundant Fixed Effects Test, the use of the Fixed Effect Model is not justified for this dataset. Therefore, the analysis should consider proceeding with either the Pooled OLS model or testing further for the Random Effect Model using the Hausman Test for final model selection.

(2) Random Effect Model

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effect

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	12	**1.0000**

To determine the most appropriate estimation technique between the Fixed Effect Model (FEM) and the Random Effect Model (REM), the Hausman test was performed. The null hypothesis of the Hausman test assumes that the preferred model is Random Effects, and the alternative hypothesis favors Fixed Effects if the regressors are correlated with the individual effects.

Since the p-value is greater than 0.05, we fail to reject the null hypothesis, indicating that there is no significant difference between the fixed and random effect estimators. This suggests that the assumptions underlying the Random Effect Model hold true, and therefore, Random Effects is the more appropriate model for this panel data analysis.

Based on the Redundant Fixed Effect Test, the Fixed Effect Model was not statistically significant. Furthermore, the Hausman Test supports the use of the Random Effect Model, as there is no evidence of correlation between the regressors and individual effects. Therefore, the Random Effect Model is selected as the most suitable approach for further regression analysis in this study.

(3) Common Effect Model'

	Test Hypothesis		
	Cross-section	**Time**	**Both**
Breusch-Pagan	1.799205	31.41280	33.21200
	(0.1798)	**(0.0000)**	**(0.0000)**
Honda	−1.341344	5.604712	3.014656
	(0.9101)	**(0.0000)**	**(0.0013)**
King-Wu	−1.341344	5.604712	1.545713
	(0.9101)	**(0.0000)**	(0.0611)
Standardized Honda	−0.814166	6.251047	−1.520635
	(0.7922)	**(0.0000)**	(0.9358)
Standardized King-Wu	−0.814166	6.251047	−2.596433
	(0.7922)	**(0.0000)**	(0.9953)
Gouriéroux, et al.	–	–	31.41280
	–	–	**(0.0000)**

To determine whether the Common Effect Model (Pooled OLS) is appropriate compared to a Random Effect Model, a Lagrange Multiplier (LM) test was conducted. The null hypothesis of the LM test states that there are no panel effects—i.e., the Pooled OLS model is sufficient. The alternative hypothesis suggests the presence of significant random effects, thus favoring the Random Effect Model.

From the Breusch-Pagan test, we observe that, The cross-section p-value is 0.1798, meaning we fail to reject the null hypothesis for individual effect, But the time and both effects p-values are 0.0000, indicating significant random effects over time and jointly. Similarly, in the Honda and Gourieroux tests, the time effect is consistently significant (p-value < 0.05).

The results suggest that time-based random effects are present, and therefore, the Pooled OLS (Common Effect Model) is not appropriate. These findings support the use of the Random Effect Model, particularly due to the statistically significant variation over time across the panel dataset.

Classical Assumption Tests

Before proceeding with the interpretation of regression results, it is essential to ensure that the chosen model satisfies the fundamental assumptions of classical linear regression. Violation of these assumptions—such as multicollinearity, heteroskedasticity, or autocorrelation—can lead to biased, inconsistent, or inefficient parameter estimates, which in turn may distort the reliability of conclusions.

This subsection conducts diagnostic testing to verify the presence or absence of such violations. Because the model is Random Effect Model (REM), so the tests include the Multicollinearity Test, Heteroskedasticity Test, and (if applicable) the Autocorrelation Test, each of which ensures the robustness and validity of the Random Effect Model as the selected regression specification.

(1) Multikolinearity Test

Multicollinearity refers to a condition in which two or more independent variables in a regression model are highly correlated. This can lead to unreliable estimates of coefficients, inflated standard errors, and reduced statistical power. To detect multicollinearity, a correlation matrix was used to examine the pairwise relationships among the independent variables (X1 to X12).

From the matrix, it is evident that most of the correlation coefficients fall within the range of –0.7 to +0.7, indicating a moderate or weak correlation between variables. There is no pair of variables with a correlation coefficient exceeding ±0.8, which is commonly used as a threshold for identifying severe multicollinearity (Gujarati, 2011). For example, the highest correlation observed is approximately 0.68 between X6_ROE and X7_CR, which is still below the critical multicollinearity threshold.

(2) Heterokedasticity Test

Heteroskedasticity occurs when the variance of the error terms in a regression model is not constant across observations. This violates one of the classical linear regression assumptions and can lead to inefficient estimates and biased inference (i.e., incorrect standard errors and significance tests).

To detect heteroskedasticity, a residual plot was examined, where the residuals (Y-axis) are plotted across time and observations (X-axis). From the chart the residuals appear to be randomly and symmetrically distributed around zero, there is no clear pattern of increasing or decreasing variance over time, the spread of residuals remains relatively consistent throughout the time periods, with only minor spikes that do not indicate a systematic or persistent variance pattern.

Based on this visual inspection, there is no strong indication of heteroskedasticity in the regression model. The error terms seem to exhibit homoskedastic behavior, satisfying the assumption of constant variance.

Goodness of Fit Testing

(1) Partial (t-statistic)

This section presents the partial test results from the Random Effect Model, which assesses the individual significance of each explanatory variable on stock returns (Y). The findings indicate that several variables are statistically significant at the 5% level. Specifically, Inflation (X1), Coal Price (X2), Exchange Rate (X3), Return on Assets (X5), Debt to Asset Ratio (X8), and Price to Book Value (X10) all have a meaningful influence, with Inflation, Coal Price, ROA, DAR, and PBV showing a positive effect, while the Exchange Rate exhibits a negative effect. In contrast, Gross Profit Margin (X4), Current Ratio (X7), Debt to Equity Ratio (X9), and Price to Earnings Growth (X11) were found to be statistically insignificant, and Return on Equity (X6) was only marginally significant at the 10% level.

These results collectively imply that macroeconomic factors—Inflation, Coal Price, and the Exchange Rate—along with the valuation ratio PBV and the financial performance indicators ROA and DAR, have a direct and significant impact on stock returns in the Indonesian coal sector. Conversely, the other tested variables, including GPM, CR, DER, and PEG, do not individually exert a statistically significant effect, suggesting their contributions to explaining variations in stock returns are not strong, though they may still play a role within the model's collective explanatory power.

(2) Simultaneous (F-test)

The Simultaneous F-test is used to assess the overall significance of the regression model. It tests the null hypothesis that all regression coefficients are equal to zero, meaning the independent variables jointly have no explanatory power for the dependent variable.

From the regression output is F-statistic at 6.2422 and p-value (Prob F-statistic): 0.0000. The p-value is less than 0.05, indicating that we reject the null

hypothesis. Therefore, it can be concluded that the independent variables jointly have a statistically significant effect on the dependent variable (stock return). In other words, the regression model is significant overall.

(3) Coefficient Determination (Adjusted R Squared)

The coefficient of determination, or R-squared, measures the proportion of the variance in the dependent variable (stock return) that is explained by the independent variables in the model. However, R-squared tends to increase with the addition of more variables, even if they are not significant. Therefore, the Adjusted R-squared provides a more reliable measure by adjusting for the number of predictors in the model.

From the regression output is R-squared at 0.1287 and Adjusted R-squared 0.1081. This means that approximately 10.81% of the variation in stock returns across the 13 coal companies over the 2015Q1–2024Q4 period can be explained by the macroeconomic and financial performance variables included in the model. Although the adjusted R-squared is relatively low, this is common in models involving financial market returns, where a large portion of variation is often driven by external, behavioral, or unpredictable factors (such as investor sentiment, geopolitical shocks, and speculation) that are not included in the model.

Effect of Macroeconomics on Stock Return

Effect of Inflation on Stock Return

The panel data regression using the Random Effect Model reveals that inflation has a statistically significant and negative impact on stock returns in Indonesia's coal sector, with a coefficient of -6.5712 and a p-value of 0.0000. This finding aligns with established macroeconomic theory, which suggests that inflation erodes the real value of future corporate earnings and reduces purchasing power, thereby dampening market confidence. Furthermore, rising inflation often prompts central banks to increase interest rates, which raises the discount rate used in equity valuation and consequently lowers stock prices.

This inverse relationship is consistently supported by empirical studies across various sectors, including telecommunications, consumer goods, and the broader mining industry, indicating the effect is systemic rather than isolated. For the capital-intensive coal sector specifically, inflation introduces added vulnerabilities by increasing production and logistics costs, which can suppress profitability and global demand. Consequently, this understanding of the inflation-stock return nexus is crucial for investors and policymakers to anticipate market adjustments and formulate resilient financial strategies in a volatile economic environment.

Effect of Coal Price on Stock Return

The regression analysis confirms that coal price exerts a statistically significant and positive influence on stock returns in the Indonesian coal sector, with the strong relationship highlighted by a p-value of 0.0001. This finding is consistent with economic theory, as higher coal prices directly enhance the revenue, profitability, and operating margins of coal companies, which in turn boosts investor confidence and leads to higher stock prices.

This commodity-driven dynamic is supported by empirical evidence, with studies confirming that rising coal prices boost profitability and stock returns, while price declines contribute to market weakness. As a proxy for global commodity cycles, coal price movements signal shifts in international demand, making the industry's performance tightly coupled with these trends. Consequently, monitoring coal prices is essential for investors conducting risk-return assessments in this sector.

Effect of Exchange Rate on Stock Return

The regression analysis reveals that the exchange rate has a statistically significant and negative impact on stock returns in Indonesia's coal sector, indicating that a depreciation of the Rupiah is associated with a decline in stock performance. This finding contradicts the potential benefit for exporters, suggesting that the market perceives currency depreciation as a broader risk factor that introduces financial uncertainty and raises operational costs, such as for imported equipment and foreign-denominated debt servicing, which ultimately undermines profitability.

This conclusion is strongly supported by empirical research, which consistently shows that exchange rate volatility adversely affects stock returns across various sectors, including mining and energy. The negative impact implies that the risks associated with macroeconomic instability and increased costs outweigh any potential export revenue gains. Therefore, managing exposure to currency volatility is essential for sustaining investor confidence and firm value in this globally interconnected industry.

Effect of Financial Performance on Stcok Return

Effect of Gross Profit Margin (GPM) on Stock Return

The regression analysis reveals that while the Gross Profit Margin (GPM) shows a positive coefficient, its effect on stock returns in the Indonesian coal sector is not statistically significant. This indicates that, although higher gross margins are

theoretically beneficial, they do not play a dominant role in shaping investor expectations or directly influencing stock valuations within this industry.

This lack of significance can be attributed to the nature of the coal sector, where investors likely prioritize external macroeconomic factors such as global coal prices and exchange rates, which have more immediate impacts on revenue. Furthermore, investors may consider comprehensive profitability metrics like net income or earnings per share as more telling indicators of a company's financial health than GPM alone, which primarily reflects operational efficiency.

Consequently, while GPM remains a valuable internal measure of cost control and operational discipline, it does not directly translate into stock return variation without being part of a broader improvement in financial performance that is visible to the market. This underscores that in commodity-sensitive industries, macroeconomic conditions and bottom-line profitability are often more influential on investment decisions than gross margin figures.

Effect of Return on Assets (ROA) on Stock Return

The regression analysis confirms that Return on Assets (ROA) has a positive and statistically significant effect on stock returns in Indonesia's coal sector, demonstrating that companies which generate higher profits relative to their asset base tend to provide better returns to investors. This aligns with financial theory, where a higher ROA signals strong operational efficiency and effective asset management, making such firms more attractive to investors and leading to improved market valuations.

Empirical evidence generally supports this relationship, particularly in capital-intensive industries like mining, where studies have shown ROA to be a more substantial influence on stock prices than other financial ratios. While the strength of this relationship may vary across different sectors, ROA remains a reliable indicator of future return potential and a key metric for investment decisions in the coal industry, where efficient asset utilization is crucial for profitability.

Effect of Return on Equity (ROE) on Stock Return

The regression analysis indicates that Return on Equity (ROE) has a negative and marginally significant impact on stock returns in Indonesia's coal sector, a counterintuitive finding that suggests investors may perceive a high ROE as a risk signal rather than a strength. This inverse relationship likely stems from the view that an elevated ROE in this capital-intensive industry is driven by increased financial leverage and debt financing, which raises financial risk, rather than by sustainable operational earnings.

This cautious interpretation of ROE is reflected in mixed empirical evidence, where its influence on stock prices varies significantly across sectors and contexts. Consequently, while ROE remains a standard profitability metric, its negative effect in this study implies that investors in the coal sector scrutinize how it is achieved, viewing it with suspicion when it appears to be fueled by leverage instead of genuine, sustainable profitability.

Effect of Current Ratio (CR) on Stock Return

The regression analysis indicates that the Current Ratio (CR), represented by variable X7, has a positive but statistically insignificant effect on stock return in Indonesia's coal sector. The coefficient of 0.0093 suggests that firms with higher short-term liquidity tend to experience marginally higher stock returns. However, the t-statistic of 1.0971 and a p-value of 0.2737 indicate that this relationship is not significant at the 5% level, implying limited explanatory power.

Theoretically, the Current Ratio reflects a company's ability to meet its short-term obligations, and a higher CR is typically seen as a sign of financial stability and sound working capital management (Gitman & Zutter, 2012). In many industries, strong liquidity may provide a buffer against financial distress and thus be viewed positively by investors. However, in the context of the coal industry—a capital-intensive and highly cyclical sector—short-term liquidity may be a secondary concern compared to other financial indicators such as profitability, debt structure, or sensitivity to macroeconomic shocks.

Empirical studies also reflect this ambivalence. While Simorangkir and Wardhani (2021) found a positive and significant relationship between CR and stock prices in the coal sub-sector, other studies such as Endri et al. (2020) and Safitri and Yulianto (2015) concluded that CR has no significant effect on stock return in the energy and manufacturing sectors, respectively. This inconsistency suggests that investors may interpret liquidity differently depending on the industry, market conditions, and broader economic outlook.

Furthermore, in commodity-driven sectors like coal, investor attention is often directed toward external variables such as global coal prices, exchange rate fluctuations, and geopolitical risks, which tend to have a more immediate and pronounced effect on revenue and valuation. As such, while CR remains a relevant measure of operational resilience, it may not be viewed as a key performance indicator that drives stock price movements in this particular sector.

In conclusion, the Current Ratio has a positive but statistically insignificant effect on stock return in Indonesia's coal sector. This finding suggests that although

liquidity contributes to a company's financial health, it is not a primary determinant of stock performance during the study period, likely overshadowed by profitability and external market variables.

Effect of Debt to Assets Ratio (DAR) on Stock Return

The regression analysis reveals that the Debt to Assets Ratio (DAR), represented by variable X8, has a statistically significant and positive effect on stock return in Indonesia's coal sector. With a coefficient of 0.1939, a t-statistic of 2.3552, and a p-value of 0.0189, the relationship is significant at the 5% level. This indicates that higher leverage—measured by the proportion of total assets financed by debt—is associated with improved stock performance during the observed period.

This finding aligns with the financial theory of capital structure, which suggests that judicious use of debt can amplify shareholder returns through financial leverage, especially when the cost of debt is lower than the return on assets. In capital-intensive industries such as coal mining, access to debt financing can support large-scale investments in production capacity, equipment, and infrastructure—thereby enabling firms to benefit from economies of scale and respond more effectively to commodity price booms.

Empirical evidence supports this interpretation. Artika et al. (2023) found that DAR has a significant positive effect on stock prices in listed coal sub-sector companies, attributing this to effective debt utilization for value creation. Similarly, Soraya et al. (2023) demonstrated that DAR significantly enhances investor returns, particularly when debt is used to fund profitable expansion. These findings suggest that investors perceive leverage not purely as a risk factor, but as a strategic tool—provided it is managed prudently within the firm's operational capacity.

However, it is important to interpret this result with caution. While higher DAR may signal growth potential and capital access, excessive leverage can increase financial distress risk, particularly during periods of declining commodity prices or rising interest rates. The positive relationship observed here likely reflects a context in which debt was employed efficiently and market conditions—such as strong coal prices—were favorable.

In conclusion, the Debt to Assets Ratio has a positive and statistically significant effect on stock return in Indonesia's coal industry. This suggests that investors may reward companies that strategically utilize debt to enhance operational and financial performance, especially in bullish commodity cycles where the returns from investment outweigh the associated risk of leverage.

Effect of Debt to Equity Ratio (DER) on Stock Return

The regression results indicate that the Debt to Equity Ratio (DER), represented by variable X9, has a negative but statistically insignificant effect on stock return in Indonesia's coal sector. The coefficient of –0.0211 suggests an inverse relationship, where increased financial leverage corresponds to lower stock returns. However, the t-statistic of –0.8781 and a p-value of 0.3801 indicate that the result lacks statistical significance at conventional confidence levels.

This outcome implies that DER does not serve as a consistent or decisive indicator for investors when evaluating stock performance in the coal industry. Although DER is widely used to assess financial risk and solvency—by comparing the proportion of debt to shareholder equity—its relevance in determining investor returns appears limited in this context. One possible explanation is that investors may prioritize other financial performance indicators, such as profitability (e.g., ROA or ROE), or macroeconomic factors like coal prices and exchange rate movements, which may have a more immediate and visible effect on valuation.

Furthermore, in a capital-intensive industry such as coal mining, the presence of debt is often expected and may not, in itself, deter investor interest unless leverage reaches levels that signal distress. As Gitman and Zutter (2012) explain, while financial leverage can magnify returns, it also increases earnings volatility, and its impact on stock valuation depends on investor perception of how well the firm manages this trade-off. In line with this, Endri et al. (2023) and Ramadhani and Ratnasari (2022) found that DER had no significant effect on stock returns in energy sector firms, suggesting that capital structure indicators may be secondary to profitability and market-driven metrics in these industries.

In conclusion, the Debt to Equity Ratio has a negative but statistically insignificant effect on stock return in the Indonesian coal sector. This finding highlights that while DER remains an important indicator of capital structure, it does not independently explain variations in investor returns during the study period—potentially due to the dominance of external variables and investor focus on other aspects of financial health.

Effect of Price to Book Value (PBV) on Stock Return

The regression results show that the Price to Book Value (PBV), represented by variable X10, has a positive and statistically significant effect on stock return in Indonesia's coal sector. The coefficient of 0.0127, accompanied by a t-statistic of 2.2072 and a p-value of 0.0277, confirms the significance of this relationship at the

5% level. This suggests that companies with higher PBV ratios tend to experience stronger stock returns during the observed period.

Theoretically, PBV captures the market's valuation of a company relative to its accounting-based net worth. A higher PBV typically reflects investor confidence in the firm's future growth, earnings potential, or intangible assets not captured by the balance sheet, such as managerial quality, resource reserves, or strategic positioning (Gitman & Zutter, 2012). From a valuation standpoint, the market premium over book value is interpreted as an indicator of investor expectations for superior performance.

In the coal industry, where tangible assets dominate but commodity cycles significantly influence investor sentiment, a high PBV ratio may signal optimism about future earnings resilience, pricing power, or the firm's capacity to capitalize on rising coal demand. This is supported by the findings of Rosdiana et al. (2021), who reported that PBV has a positive and significant effect on stock prices in the coal sub-sector, suggesting that investors use PBV as a proxy for firm quality and long-term prospects. Similarly, Mulyono (2015) and Yuliarti & Diyani (2018) found that PBV is a reliable predictor of stock performance in manufacturing and pharmaceutical sectors, respectively—further reinforcing the broader relevance of this ratio in market-based valuation.

In conclusion, the Price to Book Value ratio has a positive and statistically significant impact on stock return in Indonesia's coal sector. This finding affirms that investors view PBV as a meaningful valuation metric when assessing future return potential, particularly in industries where both tangible assets and market sentiment play critical roles in shaping firm valuation.

CONCLUSION

This study analyzed the influence of macroeconomic variables and financial performance indicators on stock returns in Indonesia's coal sector using a panel data regression with the Random Effect Model. The results showed that inflation and exchange rate had a significant negative effect on stock returns, while coal price had a significant positive effect, highlighting the sector's sensitivity to macroeconomic and commodity price fluctuations. Among firm-level indicators, Return on Assets (ROA), Debt to Assets Ratio (DAR), and Price to Book Value (PBV) positively affected stock returns, reflecting investor preference for efficient asset use, balanced leverage, and strong valuation. Other financial metrics did not show significant effects, implying contextual influences. These findings underline that coal stock performance in Indonesia was shaped by both external economic conditions and selected internal financial metrics. Future research could expand the analysis by incorporating environmental, social, and governance (ESG) factors or

comparing results across different energy sectors to explore how sustainability and policy transitions influence market performance.

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