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# Journal of Sustainable Economic and Business (JOSEB)

Vol. 3 No. 1 January 2026: 129-142

ISSN (Online): 3063-0207

<https://journal.arepublisher.com/index.php/joseb>

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## Determinants of Firm Value in Indonesia's Coal Industry: ESG, Capital Structure, Commodity Prices

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### ABSTRACT

**Objectives:** This study aims to examine the effect of Environmental, Social, and Governance (ESG) disclosure, capital structure, and coal commodity prices on firm value in coal mining companies listed on the Indonesia Stock Exchange during the 2022–2024 period.

**Methodology:** The research employs a quantitative approach with a causal design using panel data from 19 companies and 57 observations. The data are analyzed through panel data regression using the Random Effect Model.

**Findings:** The results indicate that ESG disclosure and coal commodity prices do not have a significant effect on firm value, whereas capital structure shows a positive and significant influence. These findings suggest that the market responds more strongly to internal financing policies than to sustainability information or external commodity price fluctuations.

**Conclusion:** The implications of this study highlight the importance of strengthening financial fundamentals and optimizing capital structure as primary strategies for enhancing firm value. ESG disclosure, meanwhile, needs to be integrated with measurable economic performance to gain stronger market legitimacy.

**Keywords:** Environmental, Social, and Governance (ESG); Capital Structure; Coal Commodity Prices; Firm Value; Panel Data Regression.

**Article Doi:** <https://doi.org/10.70550/joseb.v3i1.350>

**How to Cite:** Rusdi, E. J., & Sihombing, P. (2026). Determinants of Firm Value in Indonesia's Coal Industry: ESG, Capital Structure, Commodity Prices. *Journal of Sustainable Economic and Business*, 3(1), 129-142. <https://doi.org/10.70550/joseb.v3i1.350>

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Submitted: 30-12-2025

Revised: 13-01-2026

Accepted: 19-01-2026

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### INTRODUCTION

Firm value in Indonesia's coal industry demonstrates dynamics that are not always aligned with operational performance or fluctuations in global commodity prices. This condition raises critical questions regarding the fundamental factors that truly shape market perceptions of firms operating in high-emission energy sectors. The coal industry remains a backbone of national energy supply and a major source of foreign exchange. Such dependence reflects the paradox of sustainable development in emerging economies. Duan et al. (2023) emphasize the dominance of fossil energy in developing economies. Hamdouni (2025) highlights growing environmental legitimacy pressures. Pujiastuti et al. (2024) underline the dilemma of energy transition.

Capital market phenomena reveal that the surge in coal prices in 2022 stimulated stock valuation increases, yet this trend was not consistently followed by improvements in the price-to-book value ratio across all firms. Several companies remained undervalued despite elevated commodity prices, indicating that coal prices are not the sole determinant of firm value. Escobar-Saldivar et al. (2025) report anomalies in commodity market valuation. Wang et al. (2025) stress the importance of internal corporate mechanisms. Sihombing et al. (2023) demonstrate the dominance of short-term investor sentiment.

The strengthening of sustainability reporting based on Environmental, Social, and Governance (ESG) principles has emerged as a response to global climate change and decarbonization pressures (Sihombing and Zakchona, 2024). In Indonesia, mandatory sustainability reporting positions non-financial information as a corporate transparency instrument. Nevertheless, domestic investor preferences remain largely driven by profitability and dividend considerations, creating a dualism between regulatory expectations and market behavior. Barontini and Gioja (2025) argue that ESG compliance does not always translate into market impact. Adamska and Dabrowski (2025) identify the predominance of financial factors. Aprullah et al. (2025) reveal weak ESG internalization among investors.

Capital structure represents a crucial variable in explaining firm value within the coal industry, which is both capital-intensive and risk-exposed. The composition of debt and equity reflects financing strategy while simultaneously signaling risk to investors. Under volatile commodity price conditions, leverage decisions can either strengthen or weaken perceptions of corporate stability. The interaction between capital structure and coal prices creates a complex valuation pattern in the market. Sihombing et al. (2023) highlight stock value sensitivity to macroeconomic factors. Adamska and Dabrowski (2025) emphasize financial risk considerations. Khiari et al. (2024) point to volatility in the energy sector.

Empirical studies examining the effects of ESG disclosure, capital structure, and commodity prices on firm value continue to produce mixed and inconsistent results. Some studies identify a positive ESG effect, whereas others report weak impacts in high-emission industries. Differences in industrial context and observation periods further widen the research gap. Within Indonesia's coal sector, simultaneous examination of these three variables remains limited. Dorothy and Endri (2024) stress the importance of internal fundamentals. Duan et al. (2023) demonstrate contextual variation across developing countries. Hamdouni (2025) underscores corporate legitimacy challenges in the energy industry.

## LITERATURE REVIEW

### Legitimacy Theory

Legitimacy theory explains that firms seek social acceptance by aligning their operational activities with societal values and norms (Suchman, 1995). In high-emission industries, sustainability disclosure becomes a primary instrument to maintain the social contract and mitigate external pressure. Legitimacy is not merely symbolic but also shapes investor perceptions regarding reputational risk. Hamdouni (2025) emphasizes the importance of environmental legitimacy. Dorothy and Endri (2024) highlight the social dimension of corporate responsibility. Duan et al. (2023) demonstrate the relevance of legitimacy in developing economies.

**Stakeholder Theory**

Stakeholder theory positions the firm as an entity accountable to a broad range of stakeholders beyond shareholders alone. Strategic corporate decisions, including ESG disclosure and financing policies, are viewed as responses to diverse stakeholder expectations (Freeman, 1984). This perspective broadens the concept of firm value from short-term profitability toward long-term sustainability. Duan et al. (2023) stress decision inclusiveness. Hamdouni (2025) links stakeholder considerations with legitimacy. Dorothy and Endri (2024) reveal market implications.

**Signaling Theory**

Signaling theory posits that information disclosed by firms functions as an indicator of quality and future prospects (Spence, 1973). ESG disclosure, capital structure, and financial performance serve as signals interpreted by investors in forming investment decisions. In the coal industry, financial signals often dominate sustainability signals. Khiari et al. (2024) underline energy market responses. Adamska and Dabrowski (2025) find the predominance of financial signals. Sihombing et al. (2023) demonstrate domestic market sensitivity.

**Agency Theory**

Agency theory emphasizes the potential conflict of interest between management and shareholders that may influence financing decisions and information transparency (Jensen and Meckling, 1976). Capital structure operates as a governance mechanism through debt discipline and external monitoring. Within the ESG context, disclosure reduces information asymmetry. Dorothy and Endri (2024) highlight internal conflicts. Duan et al. (2023) stress transparency. Hamdouni (2025) associates governance with legitimacy.

**Trade-Off Theory**

Trade-off theory explains that firms attempt to balance the tax benefits of debt with bankruptcy risk and financial costs (Kraus and Litzenberger, 1973). In a volatile coal industry, leverage decisions are crucial because they directly influence investor risk perception. Optimal capital structure therefore concerns not only cost efficiency but also corporate value stability. Sihombing et al. (2023) note market sensitivity. Adamska and Dabrowski (2025) emphasize leverage risk. Khiari et al. (2024) highlight sectoral volatility.

**Firm Value**

Firm value represents market perceptions of a company's ability to generate future cash flows and sustain operations. Indicators such as the price-to-book value ratio reflect the comparison between book value and investor expectations. In the energy sector, firm value is strongly influenced by both financial and external factors. Escobar-Saldivar et al. (2025) identify valuation anomalies. Wang et al. (2025) emphasize internal mechanisms. Sihombing et al. (2023) show the dominance of market sentiment.

**Environmental, Social, and Governance (ESG) Disclosure**

ESG disclosure reflects corporate commitment to environmental sustainability, social responsibility, and sound governance. It functions as both a transparency instrument and a reputational signal. In the coal industry, ESG effectiveness is often shaped by environmental risk perceptions. Barontini and Gioja (2025) argue that formal compliance does not always

produce market impact. Adamska and Dabrowski (2025) identify financial factor dominance. Aprullah et al. (2025) reveal weak investor internalization of ESG information.

### Capital Structure

Capital structure describes the proportion of financing derived from debt and equity. Leverage decisions directly affect financial risk and investor perceptions of corporate stability. In commodity-based industries, capital structure becomes particularly important in managing price volatility. Sihombing et al. (2023) highlight stock value sensitivity. Adamska dan Dabrowski (2025) stress financial risk considerations. Khiari et al. (2024) show instability in the energy sector.

### Coal Commodity Prices

Coal prices reflect global energy supply and demand dynamics and directly influence mining company revenues. Price fluctuations frequently trigger significant changes in financial performance and market valuation. However, this relationship is not always linear due to internal corporate factors. Escobar-Saldivar et al. (2025) report market response anomalies. Wang et al. (2025) emphasize internal strategic roles. Sihombing et al. (2023) demonstrate the dominance of short-term investor sentiment.

## Hypotheses Development

### Theoretical Framework and Conceptual Model

Environmental, Social, and Governance (ESG) disclosure is widely regarded as a transparency mechanism that reflects a firm's commitment to sustainability and sound governance practices, thereby potentially enhancing positive investor perceptions regarding corporate reputation and long-term risk management (Samosir and Sihombing, 2023). In high-emission industries, ESG information functions both as an instrument of social legitimacy and as a non-financial quality signal. Dorothy and Endri (2024) emphasize the role of ESG in strengthening market trust. Duan et al. (2023) demonstrate its relevance in developing economies. Hamdouni (2025) highlights the environmental legitimacy dimension.

**H1:** ESG disclosure has a positive effect on firm value.

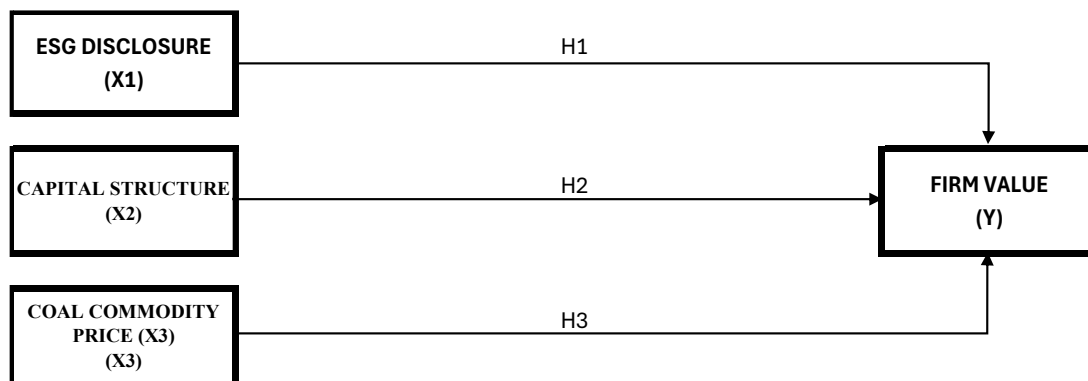
Capital structure represents a firm's strategic decision in determining the proportion of debt and equity, which directly influences financial risk and corporate stability (Sihombing, 2023). An optimal level of leverage can enhance financing efficiency and strengthen investor confidence in a firm's risk management capability. Conversely, excessive leverage may reduce firm value due to increased bankruptcy risk. Sihombing et al. (2023) report stock value sensitivity to leverage. Adamska and Dabrowski (2025) emphasize financial risk exposure. Khiari et al. (2024) underline energy sector volatility.

**H2:** Capital structure affects firm value.

Coal commodity prices represent global energy market dynamics that directly influence mining company revenues and profitability. Rising coal prices tend to increase expectations of future cash flows and strengthen market valuation. Nevertheless, this relationship is not always linear due to internal corporate conditions and market sentiment (Sihombing et al., 2025). Escobar-Saldivar et al. (2025) identify valuation response anomalies. Wang et al. (2025) stress internal corporate mechanisms. Sihombing et al. (2023) highlight the dominance of short-term investor sentiment.

**H3:** Coal commodity prices have a positive effect on firm value.

Figure 1. Conceptual Framework



**METHOD**

This study employs a quantitative method with a causal research design to examine cause–effect relationships among variables using numerical data analyzed through statistical techniques. The quantitative approach is grounded in the positivist paradigm, emphasizing objective measurement and hypothesis testing (Sugiyono, 2018). The dependent variable is firm value, while the independent variables include Environmental, Social, and Governance (ESG) disclosure, capital structure, and coal commodity prices, with financial performance positioned as a mediating variable influencing the relationship among variables.

The research population consists of 43 coal mining companies listed on the Indonesia Stock Exchange up to 2024. The sample is determined using purposive sampling (Sugiyono, 2018) based on criteria requiring companies to be consistently listed and to provide complete data for the 2022–2024 period, resulting in 19 firms with a total of 57 observations.

Research variables are defined as attributes or characteristics with measurable variation established by the researcher to derive scientific conclusions. In this study, variables are categorized into independent, dependent, and mediating variables, each operationalized through specific definitions and measurement indicators.

Table 1. Variable Definition and Operationalization

Variable	Indicator/Proxy	Scale	Data Source
Y = Firm Value (PBV)	$PBV \text{ Ratio} = \frac{\text{Market Share Price}}{\text{Book Value per Share}}$ <p>Where:  <math display="block">\text{Book Value per Share} = \frac{\text{Total Equity}}{\text{Outstanding Shares}}</math> <math display="block">\text{Market price}</math></p>	Ratio	Annual Reports for total equity and outstanding shares; Investing.com for share price data; Market price refers to the closing share price on the last trading day of each year.
X <sub>1</sub> = ESG Disclosure (ESG)	$ESG = \frac{\sum \text{Item ESG}}{\text{Total ESG}} \times 100\%$	Ratio	Annual Reports and Sustainability Reports
X <sub>2</sub> = Capital Structure	$DER = \frac{\text{Total Debt}}{\text{Total Equity}} \times 100\%$	Ratio	Annual Reports

Variable	Indicator/Proxy	Scale	Data Source
(DER) X <sub>3</sub> = Coal Commodity Price (HBA)	Ln(HBA <sub>t</sub> <sup>Dec</sup> )	Natural Log	Ministry of Energy and Mineral Resources of the Republic of Indonesia

Source: Processed by the author (2025)

The dataset exhibits relatively high volatility, therefore, an outlier detection procedure was first performed, followed by winsorization and natural logarithm transformation to enhance distributional normality and stabilize variance (Sihombing, 2021). The empirical analysis applies panel data regression incorporating three alternative specifications, namely the common effect, fixed effect, and random effect models. The most appropriate estimation model is determined through a sequence of specification tests consisting of the Chow test, Hausman test, and Lagrange Multiplier test. Subsequently, model adequacy and hypothesis testing are evaluated using the F-statistic, the coefficient of determination ( $R^2$ ), and partial significance tests (t-tests) to ensure robustness and statistical validity of the estimated relationships (Ghozali, 2018).

## RESULTS AND DISCUSSION

### Results

#### Descriptive Statistics

Table 2. Result Characteristics

Variable	N	Mean	Median	SD	Variance	Min
ESG_Score	57	0,6937	0,6875	0,2852	0,0813	0,1042
Ln(HBA)	57	5,0712	4,8082	0,4062	0,1650	4,7654
DER	57	0,6382	0,4873	0,4769	0,2274	0,0587
PBV	57	1,9112	1,0823	1,6814	2,8270	0,5857

Source: Processed data with RStudio

Table 2 reports the descriptive statistics for 57 firm-year observations of listed coal companies in Indonesia. Overall, the distributional properties indicate substantial cross-sectional heterogeneity, particularly in leverage and market valuation, which is characteristic of firms operating in commodity-dependent sectors.

The mean ESG score of 0.6937 (median = 0.6875; SD = 0.2852) suggests a moderate level of sustainability disclosure across the sample. The close alignment between the mean and median implies a relatively symmetric distribution; however, the broad range between the minimum value (0.1042) and the maximum value (1.0000) indicates pronounced variation in disclosure intensity. The lowest score was observed for PT Bumi Resources Tbk in 2023, while PT Bukit Asam Tbk achieved a full disclosure score in 2022 and 2023. This dispersion reflects uneven integration of ESG practices, potentially attributable to differences in governance quality, resource capacity, and strategic commitment to sustainability reporting.

The logarithmic value of coal reference prices (Ln(HBA)) records a mean of 5.0712 and a standard deviation of 0.4062, with variance of 0.1650. These figures indicate that coal prices were generally elevated during the observation period, albeit subject to cyclical adjustments. The minimum value of 4.7654 in 2023 and the maximum value of 5.6400 in 2022 correspond to the documented commodity price surge followed by partial normalization. The moderate

dispersion in logarithmic terms suggests economically meaningful variation without excessive volatility within the sampled years.

Regarding capital structure, the average Debt-to-Equity Ratio (DER) is 0.6382 (median = 0.4873; SD = 0.4769), indicating that firms employ, on average, a moderate degree of financial leverage. Nevertheless, the extreme maximum value of 22.4100—recorded by PT Bayan Resources Tbk in 2024—contrasts sharply with the minimum value of 0.0587 at PT Golden Energy Mines Tbk in the same year, signaling substantial heterogeneity in financing strategies. The dispersion suggests differences in risk exposure, capital market access, and managerial preferences concerning debt utilization.

The Price-to-Book Value (PBV) exhibits a mean of 1.9112 and a median of 1.0823, indicating that market valuations generally exceed book values, thereby reflecting positive growth expectations or favorable investor sentiment toward selected firms. However, the relatively high standard deviation (1.6814) and variance (2.8270) reveal considerable variability in market assessments. The minimum PBV of 0.5857, observed in 2023 at PT Golden Energy Mines Tbk, indicates market valuation below accounting equity, whereas the maximum value of 5.7700 at PT Bayan Resources Tbk in 2024 reflects strong market confidence. Collectively, these descriptive statistics confirm pronounced disparities in sustainability disclosure, leverage policy, exposure to commodity price dynamics, and market valuation across firms within Indonesia's coal industry.

### Panel Data Regression Analysis

#### Chow Test

Table 3. Chow Test Results

F-Statistics	p-value	Result
6,4119	0,0000	Fixed Effect Model

Source: Processed data with RStudio

Table 3 reports a Chow test F-statistic of 6.4119 with a p-value of 0.0000, which is below the 5 percent significance level, indicating the presence of significant individual heterogeneity across firms in the panel dataset. This result suggests that a regression specification that accounts for entity-specific effects is more appropriate, as it is better able to capture cross-sectional variation and provide a more accurate representation of the relationships among the research variables.

#### Hausman Test

Table 4. Hausman Test Results

F-Statistics	p-value	Result
0,3859	0,9431	Random Effect Model

Source: Processed data with RStudio

Table 4 presents a Hausman test statistic of 0.3859 with a p-value of 0.9431, which is substantially above the 5 percent significance threshold. This probability value indicates that there is no statistically significant difference between the fixed effect and random effect coefficient estimates. Accordingly, the random effect model is considered more appropriate, as it provides more efficient estimates while remaining consistent in representing the variation within the panel data structure.

### Lagrange Multiplier Test

Table 5. Lagrange Multiplier Test Results

F-Statistics	p-value	Result
23,6485	0,0000	Random Effect Model

Source: Processed data with RStudio

Table 5 reports a Lagrange Multiplier test statistic of 23.6485 with a p-value of 0.0000, which is below the 5 percent significance level, indicating that the random effect model is more appropriate than the common effect model for estimating the panel data. This finding confirms the presence of cross-sectional variation that cannot be ignored and suggests that the random effect specification provides more efficient and representative estimates in explaining the relationships among the research variables.

Based on the results of the Chow test, Hausman test, and Lagrange Multiplier test, the most suitable panel regression specification for this study is the Random Effect Model. This approach effectively accommodates firm heterogeneity while producing efficient and consistent parameter estimates in capturing both cross-sectional and time-series variations.

### Panel Regression Estimation Summary

Table 6. Model Summary Results

F-Statistic	4,5127
p-value	0,2112
R <sup>2</sup>	0,0785

Source: Processed data with RStudio

Table 6 presents a panel regression estimation summary with an F-statistic of 4.5127 and a p-value of 0.2112, which exceeds the 5 percent significance level, indicating that the independent variables in the model are not jointly significant in explaining variations in firm value. The R<sup>2</sup> value of 0.0785 suggests that the model explains only approximately 7.85 percent of the variation in the dependent variable, while the remaining variation is influenced by other factors outside the scope of the research model.

### Partial Test Results (t-Test)

Table 7. Model Statistics

Variable	Coef	Std.Err	t	p
(Intercept)	1,1824	1,9269	0,6136	0,5395
ESG_Score	-0,1169	0,7806	-0,1497	0,8810
DER	1,0535	0,4724	2,2302	0,0257
LnHBA	0,0271	0,3343	0,0812	0,9353

Source: Processed data with RStudio

$$PBV = 1,1824 - 0,1169 \text{ ESG\_Score} + 1,0535 \text{ DER} + 0,0271 \text{ Ln(HBA)}$$

### Hypothesis Test

The partial hypothesis testing results, as presented in Table 7, indicate heterogeneous effects across the explanatory variables. The ESG\_Score variable yields a coefficient of  $-0.1169$  with a p-value of 0.8810, indicating that ESG disclosure does not exert a statistically significant effect on firm value. The magnitude of the coefficient is economically small and statistically indistinguishable from zero, suggesting that variations in sustainability disclosure are not systematically priced by the market within the observed period. Likewise, Ln(HBA) produces

a positive but negligible coefficient of 0.0271 ( $p = 0.9353$ ), implying that fluctuations in coal commodity prices do not significantly translate into differences in market valuation. This finding may reflect the market's anticipatory behavior, where commodity price movements are already embedded in investor expectations. In contrast, the Debt-to-Equity Ratio (DER) demonstrates a positive and statistically significant coefficient of 1.0535 with a  $p$ -value of 0.0257, confirming that leverage has a meaningful impact on firm value at the 5 percent significance level. Economically, this result suggests that capital structure decisions constitute a salient valuation signal, where the use of debt may be interpreted as an indicator of growth prospects or financing efficiency. Accordingly, the hypothesis concerning the positive effect of capital structure on firm value is supported, whereas the hypotheses related to ESG disclosure and commodity prices are not empirically substantiated.

## Discussion

### ESG disclosure has a positive effect on firm value.

The empirical results indicate that ESG disclosure does not have a statistically significant effect on firm value in the Indonesian coal industry over the 2022–2024 period. The estimated coefficient of  $-0.1169$  with a  $p$ -value of 0.8810 is substantially above the conventional 5 percent significance level, indicating that the null hypothesis cannot be rejected. Statistically, this finding implies that variations in ESG disclosure are not systematically associated with changes in firm value as proxied by Price-to-Book Value (PBV). Moreover, the magnitude of the coefficient is economically negligible, suggesting that the market does not meaningfully price ESG information within the observed sample.

From a theoretical perspective, this result can be interpreted through signaling theory and legitimacy theory. Signaling theory (Spence, 1973) posits that capital markets respond to information that conveys credible signals regarding future cash flow prospects. In a commodity-based industry such as coal, where firm performance is closely linked to operational efficiency, cost structure, and price cycles, investors may prioritize financial indicators with direct implications for profitability. In this context, ESG disclosure may not yet constitute a sufficiently strong or credible signal of future economic benefits. Legitimacy theory (Suchman, 1995) further suggests that ESG reporting may primarily serve to maintain social acceptance and regulatory compliance rather than to directly enhance shareholder value. Consequently, while ESG disclosure may strengthen stakeholder relationships, its valuation relevance remains limited unless accompanied by demonstrable improvements in financial performance.

This finding is consistent with recent empirical studies in environmentally sensitive sectors. Dorothy and Endri (2024) report that ESG disclosure does not directly increase firm value without concurrent improvements in financial fundamentals. Similarly, Duan et al. (2023) find that in high-emission industries, ESG initiatives affect firm value indirectly through their impact on profitability and operational performance. Additional empirical evidence also shows that ESG does not exert a significant direct effect on market outcomes when financial performance improvements are absent, reinforcing the limited immediate valuation impact of sustainability disclosure (Desmita and Sihombing, 2024). Market performance is primarily driven by broad market factors (Pardomuan et al., 2025). Taken together, the evidence suggests that in capital-intensive and cyclical industries, sustainability disclosure alone is insufficient to influence market valuation in the absence of measurable economic outcomes.

**Capital structure affects firm value.**

The empirical results indicate that capital structure has a positive and statistically significant effect on firm value in the Indonesian coal industry over the 2022–2024 period. The Debt-to-Equity Ratio (DER) reports a coefficient of 1.0535 with a p-value of 0.0257, thereby achieving statistical significance at the 5 percent level. This evidence suggests that higher leverage is associated with an increase in Price-to-Book Value (PBV), implying that, within the observed range, debt utilization is positively evaluated by the market. The magnitude and direction of the coefficient indicate that capital structure constitutes a substantive determinant of firm valuation relative to the other explanatory variables included in the model.

From a theoretical perspective, this finding is consistent with Trade-Off Theory (Kraus and Litzenberger, 1973), which posits that firm value is maximized when companies balance the tax advantages of debt against the expected costs of financial distress. In capital-intensive industries such as coal mining, firms typically hold substantial tangible assets that can serve as collateral, thereby reducing borrowing costs and mitigating default risk. Under these conditions, moderate leverage may enhance firm value through tax shield benefits without generating disproportionate financial instability. The positive and statistically significant coefficient suggests that sampled firms operate within a leverage range perceived as efficient rather than excessive.

Agency Theory (Jensen and Meckling, 1976) provides additional explanatory support. Debt obligations impose fixed payment commitments that constrain managerial discretion and reduce agency costs arising from free cash flow. By increasing monitoring from creditors and limiting opportunistic behavior, leverage may strengthen corporate governance mechanisms and enhance investor confidence. Consequently, higher DER levels may function as a credible signal of financial discipline and expected cash flow stability.

These findings are aligned with prior empirical evidence in the Indonesian capital market. Endri et al. (2021) report that leverage positively influences firm value, particularly in asset-intensive sectors. Similarly, Prabawati and Rahmawati (2022) demonstrate that capital structure contributes positively to firm valuation when firms maintain prudent risk management and sustainable debt levels. Consistent empirical evidence also indicates that an optimal capital structure has a significant positive effect on firm value, implying that firms that manage their debt proportion appropriately are more likely to achieve higher market valuation (Sihombing et al., 2025). Taken together, the results underscore the strategic importance of capital structure decisions in shaping market valuation within Indonesia's coal industry.

**Coal commodity prices have a positive effect on firm value.**

The empirical results indicate that coal commodity prices do not exert a statistically significant effect on firm value during the 2022–2024 period. The coefficient of Ln(HBA) is 0.0271 with a p-value of 0.9353, which is substantially above the 5 percent significance threshold. Accordingly, fluctuations in coal reference prices are not statistically associated with variations in Price-to-Book Value (PBV) within the sample. Although the estimated coefficient is positive, its magnitude is economically negligible and statistically indistinguishable from zero, suggesting that short-term commodity price dynamics are not directly capitalized into firm valuation.

From a theoretical standpoint, this finding can be interpreted through the theory of exhaustible resources (Hotelling, 1931), which posits that commodity prices primarily reflect

intertemporal scarcity rents and long-run equilibrium expectations rather than immediate firm-level value creation. In this framework, price movements signal adjustments in resource scarcity and global demand conditions, but they do not automatically translate into proportional changes in corporate valuation, particularly when firms employ hedging strategies or long-term supply contracts.

Furthermore, signaling theory suggests that market participants differentiate between internal and external signals. Commodity prices constitute exogenous macroeconomic variables that are largely beyond managerial control. As such, they may be perceived as environmental factors rather than firm-specific indicators of operational quality or strategic capability. Investors may therefore place greater weight on financial performance metrics, cost efficiency, and capital structure decisions, which more directly reflect managerial effectiveness and sustainable cash flow generation.

This result is consistent with recent empirical evidence. Sihombing et al. (2023) document that coal price fluctuations influence firm value indirectly through their impact on profitability rather than through direct market revaluation. Similarly, Endri et al. (2021) find that commodity prices affect valuation primarily when mediated by improvements in financial performance indicators. Additional evidence also shows that coal prices do not exert a direct significant effect on firm value in the absence of supporting financial performance improvements, reinforcing the indirect transmission mechanism between commodity dynamics and valuation (Sihombing dan Priambhodo, 2024). Collectively, the findings suggest that, within Indonesia's coal industry, commodity price movements alone are insufficient to explain firm value without concurrent changes in fundamental financial outcomes.

## CONCLUSION

The conclusion of this study confirms that ESG disclosure does not have a significant effect on firm value in Indonesia's coal industry, indicating that sustainability-related information has not yet been fully incorporated into investors' valuation considerations. In contrast, capital structure demonstrates a positive and significant influence on firm value, suggesting that financing decisions and leverage management remain key determinants in enhancing market valuation. Furthermore, coal commodity prices are found to have no significant effect on firm value, implying that external price fluctuations are not directly reflected in firm valuation within the observed context. Overall, the findings highlight that internal financial factors, particularly capital structure, exert a more substantial influence on firm value than sustainability disclosure or commodity price dynamics in the sector examined.

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