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Determinants of Financial Performance: The Moderating Role of Institutional Ownership in Construction Firms Listed on the Indonesia Stock Exchange

Nabilah Ridhanti Zikra[1*], Augustina Kurniasih[2]

[1,2]*Universitas Mercu Buana, Jakarta, Indonesia*

[*]*Corresponding Author: Nabilaridhantizikra@gmail.com*

Abstract - *This study examines the influence of Environmental, Social, and Governance (ESG) factors, leverage (DER), Enterprise Risk Management (ERM), and firm size on financial performance (ROA) among construction companies listed on the Indonesia Stock Exchange (BEI) from 2021 to 2024, with institutional ownership as the moderating variable. The research population comprised 29 BEI-listed construction firms in 2024, from which 10 companies were selected as samples via purposive sampling, yielding 40 observations (panel data for 2021–2024). A quantitative approach was employed using panel data regression and moderated regression analysis (MRA). The results indicate that DER exerts a negative and significant effect on ROA, whereas ESG, ERM, and firm size show no significant influence on ROA. Institutional ownership moderates the effects of ERM and firm size on ROA but does not moderate the relationships between ESG or DER and ROA. These findings underscore the importance of effective capital structure management, alongside the implementation of risk management practices and business scale enhancement under institutional investor oversight, to foster sustainable financial performance in the construction sector.*

Keywords: *ESG, Leverage, Enterprise Risk Management, Firm Size, Institutional Ownership, Financial Performance.*

I. INTRODUCTION

Financial performance serves as the primary indicator for evaluating a company's effectiveness in generating profits, managing assets, and fulfilling obligations (Natalia et al., 2023). In the construction industry, pressures on financial performance have intensified due to rising costs, raw material inflation, and project delays. Capital-intensive sectors like construction are particularly vulnerable to such disruptions, especially when firms operate with high leverage that constrains financial flexibility (Carranza et al., 2003). The construction sector plays a pivotal role in Indonesia's economy, contributing 9.92% to GDP in 2023, driven by national strategic projects such as the Nusantara Capital (IKN) and extensive infrastructure developments (binakonstruksi.pu.go.id, 2024). However, persistent challenges including material price fluctuations, supply chain disruptions, skilled labor shortages, and unhealthy competition have eroded profitability. BPS data (2021) reveal a sharp decline in the industry's Return on Assets (ROA) from 1.49% in 2019 to -15.22% in 2023, underscoring the urgent need to examine determinants of financial performance.

Environmental, Social, and Governance (ESG) factors have gained prominence due to construction projects' substantial environmental and social impacts. ESG integration can enhance long-term financial performance by mitigating risks and improving efficiency (Whelan & Fink, 2020), though some studies report insignificant effects (Aziz, 2024). Leverage exerts a critical influence, as uncontrolled debt usage undermines cash flow stability (Nugroho & Prabowo, 2021) and elevates default risk (Oktaviyana et al., 2023), with mixed empirical findings (Irma, 2019; Rohmah & Imron, 2023). Enterprise Risk Management (ERM) proves essential in high-risk industries, bolstering financial resilience (Xie et al., 2020) and reducing profit volatility (Fajriah & Ghozali, 2022), yet certain research finds no significant impact (Mutaz et al., 2021). Firm size also influences outcomes, with larger firms typically benefiting from economies of scale (Bello & Ghandour, 2019; Yang et al., 2021), although operational complexities may yield negative effects (Rohmah & Imron, 2023). Institutional

ownership enhances managerial oversight and decision quality (Hutchinson et al., 2015; Suhadak et al., 2019), but its direct and moderating effects remain inconsistent (Irma, 2019; Rohmah & Imron, 2023). These inconsistencies highlight the need for further investigation. Thus, this study analyzes the effects of ESG, leverage, ERM, and firm size on financial performance in the construction sector, while testing institutional ownership as a moderating variable.

Building upon the identified determinants of financial performance and research gaps in the construction sector, this study draws on established theories to frame the relationships among ESG, leverage, ERM, firm size, institutional ownership, and ROA. Agency theory elucidates conflicts between owners and managers that can impair financial performance, necessitating monitoring mechanisms such as leverage and institutional ownership to curb agency costs (Jensen & Meckling, 1976; Jensen, 1986; Nguyen & Aman, 2022). Stakeholder theory asserts that firms must address all stakeholders' interests, positioning ESG practices, ERM, and leverage management as critical for building legitimacy and long-term performance (Freeman, 1984; Khan et al., 2020; Esterhuyse et al., 2023). From the RBV perspective, internal resources like ESG capabilities, ERM systems, institutional oversight, and firm scale emerge as strategic assets driving competitive advantage and superior performance (Barney, 1991; Liang et al., 2022). Financial performance reflects asset and profit management efficacy (Agustin et al., 2013), commonly measured by ROA as an asset efficiency indicator (Stiroh & Rumble, 2006). ESG serves as a sustainability metric that may enhance performance, though empirical results vary (Lee & Isa, 2023; Aziz, 2024). Leverage fosters managerial discipline but elevates financial risk (Darsono & Azhari, 2005; Baxter, 1967), while ERM bolsters firm stability despite inconsistent implementation (COSO, 2004; Jorfi et al., 2021; Mutaz et al., 2021). Firm size influences resource access and stability, yet empirical effects diverge (Devie et al., 2020; Munjal et al., 2019). Institutional ownership strengthens governance and performance (Irma, 2019; Du et al., 2016), although some studies find no significant impact (Wang, 2025; Nel et al., 2024). Overall, ESG, leverage, ERM, firm size, and institutional ownership play pivotal roles in shaping financial performance, underpinned by complementary theoretical foundations and empirical evidence that nonetheless reveal inconsistencies warranting further investigation.

Based on the theoretical underpinnings and empirical inconsistencies identified in the literature, the following hypotheses are proposed and tested:

H1: ESG's Impact on Financial Performance.

ESG plays a crucial role in enhancing financial performance, as firms prioritizing environmental, social, and governance aspects tend to mitigate risks, build stakeholder trust, and strengthen operational efficiency. According to Stakeholder Theory (Freeman, 1984), fulfilling diverse stakeholders' interests fosters business stability and profitability. Empirically, Lee & Isa (2023) found that firms with high ESG disclosure exhibit superior ROA and ROE, while Sial et al. (2022) demonstrated that strong environmental performance yields lower cost of capital and greater investor confidence. Moreover, robust governance practices curb opportunistic behavior as explained by agency theory (Jensen & Meckling, 1976), thereby supporting financial performance improvements. Consistent with these findings, Aziz (2024) and Farihadhy & Anis (2024) also report significant positive ESG effects on financial performance. Thus, ESG emerges as a strategic driver of profitability and competitive advantage.

H2: Leverage Impact on Financial Performance.

Leverage represents a critical ratio reflecting debt utilization in a firm's capital structure, where Trade-Off Theory (Kraus & Litzenberger, 1973) posits that companies must balance debt's tax advantages against escalating financial distress risks from high debt burdens. In the capital-intensive and cyclically volatile construction industry, excessive leverage erodes profitability through rising interest expenses and cash flow instability. Empirical evidence supports this, as Rohmah and Imron (2023) found leverage exerts a significant negative effect on financial performance among Indonesian construction firms, while Irma (2019) noted that aggressive debt policies diminish ROA due to mounting financial pressures. Consistent with agency theory (Jensen & Meckling, 1976), high debt triggers conflicts between creditors and shareholders, generating agency costs and investment constraints. Thus, elevated leverage typically hinders construction firms and exacerbates financial underperformance.

H3: Enterprise Risk Management Impact on Financial Performance.

Enterprise Risk Management (ERM) constitutes an integrated framework for identifying, assessing, and managing risks holistically to support organizational objectives (COSO, 2017). In the construction industry, rife with project uncertainties and cost fluctuations, ERM emerges as a strategic capability enhancing operational and financial stability. From the Resource-Based View perspective (Barney, 1991), ERM qualifies as a valuable, inimitable resource bolstering competitive advantage.

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Empirically, Jorfi et al. (2021) found that construction firms with robust ERM implementation exhibit higher ROA and lower profit volatility, while Lestari et al. (2023) demonstrated ERM's significant positive effect on financial performance in the sector. Thus, mature ERM application mitigates risks, sustains cash flows, and elevates firm profitability.

H4: Firm Size Impact on Financial Performance.

Firm size reflects a company's resource capacity and is typically measured using total assets or the natural logarithm of total assets (Irma, 2019). In the capital-intensive construction industry, larger firms generally enjoy broader financing access, superior cash flow stability, and enhanced operational efficiency that supports profitability gains. From the Resource-Based View perspective (Barney, 1991), firm size serves as an indicator of strategic resource strength fostering competitive advantage.

Empirical evidence aligns with this view, as Oktaviyana et al. (2023) found firm size exerts a significant positive effect on ROA among Indonesian construction companies. Although some studies like Irma (2019) report insignificant results, the majority of literature supports that larger firms better withstand operational risks and sustain superior financial performance compared to smaller counterparts.

H5: The Moderating Effect of Institutional Ownership on the ESG-Financial Performance Relationship.

Institutional ownership plays a pivotal role in strengthening the impact of ESG on financial performance, as institutional investors possess superior monitoring capabilities that compel management to implement sustainability practices more effectively. According to Agency Theory (Jensen & Meckling, 1976), institutional investors reduce agency costs and ensure ESG programs transcend symbolic gestures, genuinely contributing to long-term value creation.

Empirically, Lee and Isa (2023) demonstrate that higher institutional ownership intensifies the positive relationship between ESG disclosure and firm profitability, while Farihadhy & Anis (2024) affirm that institutional investors act as catalysts enhancing transparency, sustainability implementation, and ultimately financial performance. Thus, institutional ownership is posited to amplify ESG's effectiveness as a corporate strategy for improving financial outcomes.

H6: The Moderating Effect of Institutional Ownership on the Leverage-Financial Performance Relationship.

Leverage represents debt utilization to expand firm investment capacity, yet excessive levels heighten financial risk and depress performance due to mounting obligations (Putri, 2024). From an Agency Theory perspective, debt serves as a disciplinary tool, but overly high leverage prompts suboptimal investment decisions and escalates conflicts between managers and creditors (Jensen & Meckling, 1976).

In this context, institutional ownership functions as a vital monitoring mechanism that curbs excessive debt usage and promotes more conservative capital structure policies. Empirically, Oktaviyana et al. (2023) found that firms with high institutional ownership exercise greater caution in leverage application, yielding superior performance adjusted for risk. Thus, institutional ownership potentially strengthens the negative leverage-financial performance relationship by ensuring prudent debt management aligned with long-term corporate objectives.

H7: The Moderating Effect of Institutional Ownership on the ERM-Financial Performance Relationship.

Enterprise Risk Management (ERM) provides an integrated approach that enables firms to balance risks and opportunities more effectively, particularly in the uncertainty-laden construction industry, thereby enhancing decision-making quality and financial performance (Florio & Leoni, 2020). From an Agency Theory perspective (Jensen & Meckling, 1976), ERM implementation often faces obstacles due to divergent risk preferences between managers and shareholders, making institutional investors essential as a monitoring mechanism that compels disciplined ERM adoption aligned with long-term strategies. Empirically, Jorfi et al. (2021) found that firms with high institutional ownership exhibit superior ERM integration, more stable earnings quality, and higher ROA. Similar results from Holly et al. (2023) indicate that institutional pressure fosters ERM maturity, yielding lower profit variability and better risk-adjusted performance. Thus, institutional ownership serves as a moderator that strengthens the positive ERM-financial performance link by promoting accountable governance and consistent risk management implementation.

H8: The Moderating Effect of Institutional Ownership on the Firm Size-Financial Performance Relationship.

Firm size holds potential to enhance financial performance, as larger companies typically achieve greater economies of scale, broader capital access, and more organized operational capabilities, enabling them to withstand external pressures and manage large-scale projects—particularly in construction (Anandamaya & Hermanto, 2021; Oktaviyana et al., 2023). However, large firms also face organizational complexity,

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inefficiencies, and poor coordination risks, meaning size advantages do not automatically yield higher profitability, as evidenced by Rohmah & Imron (2023). In this context, institutional ownership serves as a monitoring mechanism ensuring efficient resource utilization in larger firms. Empirical evidence indicates institutional ownership strengthens the positive firm size-financial performance relationship, as institutional investors promote disciplined governance, effective organizational structures, and prudent strategic decisions (Gerged et al., 2022). Thus, institutional ownership potentially acts as a moderator amplifying firm size's impact on financial performance through enhanced oversight and operational efficiency drives.

According to Sekaran & Bougie (2016) theoretical framework is the foundation that underlies the whole research project. From the theoretical framework, hypothesis that could be tested is formulated to find out whether the formulated theory is valid or not. Then, this theory will be measured by the correct statistical analysis. Referring to the theory and previous researches, there is relationship found between variables, which include: managerial coaching, psychological capital and performance. Then, the author has made the research model as shown below in Figure 1:

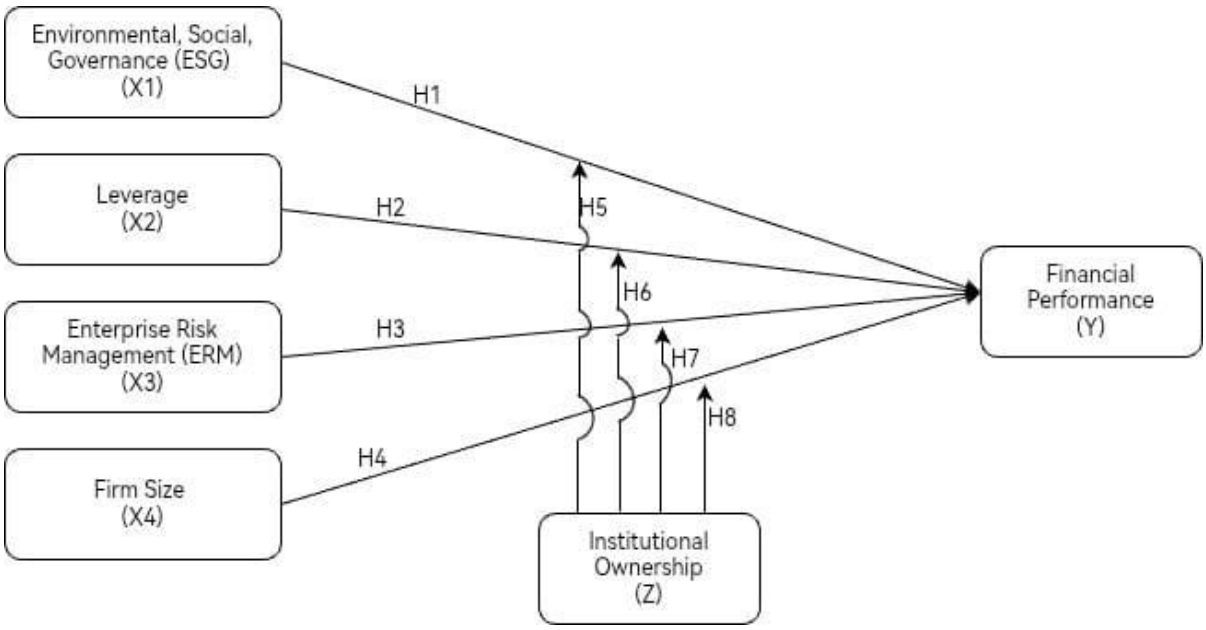

Figure 1. Framework

II. METHOD

This study employs a quantitative design with a causal approach to analyze the effects of ESG, leverage, ERM, and firm size on financial performance, with institutional ownership as the moderating variable. All variables are precisely defined and operationalized: financial performance proxied by Return on Assets (ROA) profitability ratio (Sihombing, 2018); ESG measured via GRI disclosure standards; leverage assessed through the debt-to-equity ratio (Kasmir, 2021); ERM evaluated using a dichotomous disclosure checklist (COSO, 2017); firm size calculated as the natural logarithm of total assets (Irma, 2019); and institutional ownership representing the proportion of shares held by non-bank financial institutions (Alvionita et al., 2021). The research population comprises 29 construction firms listed on the Indonesia Stock Exchange (BEI) in 2024. A purposive sampling method selected 10 firms as the sample, based on consistent publication of sustainability reports during 2021–2024, yielding 40 panel observations. Secondary data were sourced from annual reports and sustainability reports published on the official BEI website and individual company sites. Analysis utilized panel data regression via EViews 12 software to test causal relationships, empirically validate hypotheses, and assess moderation effects objectively.

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III. RESULT AND DISCUSSION

A. Result

Descriptive statistics are used to provide a general overview of the research data, including ESG, leverage, ERM, firm size, financial performance, and institutional ownership in construction companies listed on the Indonesia Stock Exchange for the 2021–2024 period. Through descriptive statistics, the maximum, minimum, mean, and standard deviation values of each variable can be identified. The complete results of the descriptive statistical analysis are presented in the following table.

Table 1. Descriptive statistics

	ESG	DER	ERM	UK (Juta)	ROA	KI
Mean	0,5228	0,4886	0,4988	28.578.864	0,0067	0,6978
Maximum	0,9931	0,9906	0,8500	103.601.611	0,3060	1,5190
Minimum	0,2621	0,1129	0,3500	776.987	-0,2820	0,2418
Std. Dev.	0,1801	0,2400	0,1726	32.514.781	0,1001	0,2290
Observations	**40**	**40**	**40**	**40**	**40**	**40**

Source: Processed data using EViews 12.

The descriptive statistics indicate that the average ESG score is 0.5228, reflecting a moderate level of ESG implementation with substantial variation across firms. The leverage (DER) variable has a mean of 0.4886, suggesting moderate debt usage but with high dispersion, indicating that some firms are highly dependent on debt. The mean ERM score of 0.4988 also points to a moderate level of risk management implementation, with noticeable differences between companies. Firm size exhibits substantial disparity, with average assets of IDR 28.58 billion and a very high standard deviation, indicating the presence of both very large and very small firms within the construction sector. Financial performance measured by ROA has an average of 0.0067, signalling low profit efficiency and a wide range of outcomes, including loss-making firms. Meanwhile, institutional ownership has a mean of 0.6978, showing that most firms are predominantly institutionally held, although the level of ownership varies considerably across companies.

Table 2. Model 1 Estimation Selection

Test	Criterion	Result	Decision
Chow Test	Cross-section Chi-square	0.4387 > 0.05	CEM
Hausman Test	Cross-section random	0.6969 > 0.05	REM
LM Test	Breusch-Pagan	0.5294 > 0.05	CEM

Source: Processed data using EViews 12.

The model selection results in Table 2 show that the Chow test (p-value 0.4387 > 0.05) and the LM test (p-value 0.5294 > 0.05) both fail to reject H0, thereby supporting the use of the Common Effect Model (CEM). Although the Hausman test yields a p-value of 0.6969 > 0.05, which points to the Random Effect Model (REM), the other two tests more consistently favor CEM. Therefore, the CEM is chosen as the most appropriate specification for Model 1.

Table 3. Model 2 Estimation Selection

Test	Criterion	Result	Decision
Chow Test	Cross-section Chi-square	0.5582 > 0.05	CEM
Hausman Test	Cross-section random	0.7629 > 0.05	REM
LM Test	Breusch-Pagan	0.3509 > 0.05	CEM

Source: Processed data using EViews 12.

Based on Table 3, the Chow test (p-value 0.5582 > 0.05) and the LM test (p-value 0.3509 > 0.05) both fail to reject H0, thereby supporting the use of the Common Effect Model (CEM). Meanwhile, the Hausman test (p-value 0.7629 > 0.05) points toward the Random Effect Model (REM), but the other two tests more consistently favor CEM. Therefore, the CEM is selected as the most appropriate specification for Model 2.

Table 4. Model 3 Estimation Selection

Test	Criterion	Result	Decision
Chow Test	Cross-section Chi-square	0.5911 > 0.05	CEM
Hausman Test	Cross-section random	0.8974 > 0.05	REM
LM Test	Breusch-Pagan	0.2548 > 0.05	CEM

Source: Processed data using EViews 12.

Based on Table 4.5, the Chow test (p-value 0.5911 > 0.05) and the LM test (p-value 0.2548 > 0.05) both fail to reject H0, thereby supporting the use of the Common Effect Model (CEM). Meanwhile, the Hausman test (p-value 0.8974 > 0.05) points toward the Random Effect Model (REM), but the other two tests more consistently favor CEM. Therefore, the CEM is chosen as the best specification for Model 3.

The Chow and Hausman test results indicate that the appropriate specification is the Common Effect Model (CEM). Referring to Basuki and Yuliadi (2015), classical assumption testing in panel regression only requires multicollinearity and heteroskedasticity tests, because autocorrelation tests are not relevant for panel data and normality testing is not a prerequisite for satisfying the BLUE criteria.

Table 5. Multicollinearity Test for Model 1

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
ESG	0.00784	2.315	1.742
DER	0.00908	3.482	5.965
ERM	0.00707	2.156	1.521
Firm Size (UK)	0.00025	2.984	1.684

Source: Processed secondary data, 2025.

The selected model is the Common Effect Model (CEM). In panel data regression, only multicollinearity and heteroskedasticity tests are required, because autocorrelation is not relevant and normality is not a prerequisite for meeting the BLUE criteria (Basuki & Yuliadi, 2015).

Table 6. Multicollinearity Test for Model 2

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
ESG	0.00784	2.871	1.732
DER	0.01273	3.926	2.104
ERM	0.00694	2.317	1.589
Firm Size (UK)	0.00030	2.775	1.665
Institutional Ownership (KI)	0.00565	3.241	1.912

Source: Processed secondary data, 2025.

In Table 6 for Model 2, all VIF values for ESG, DER, ERM, firm size, and institutional ownership are well below the threshold of 10, indicating the absence of multicollinearity. The institutional ownership variable also does not introduce any additional multicollinearity issues, so the second regression model is considered stable and suitable for interpretation.

The descriptive results for Model 3's multicollinearity test are as follows.

Table 7. Multicollinearity Test for Model 3

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
ESG	0.336	3.21	1.85
DER	0.105	4.65	2.10
ERM	1.289	2.81	1.45
Firm Size (UK)	0.016	3.92	1.98
Institutional Ownership (KI)	23.94	5.14	2.54

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
ESG*KI	0.594	4.89	1.97
DER*KI	0.181	3.72	2.11
ERM*KI	2.157	2.64	1.73
UK*KI	0.025	5.51	2.06

Source: Processed secondary data, 2025.

In Table 7 for Model 3, all VIF values both for the main variables and the interaction terms well below the threshold of 10, indicating the absence of multicollinearity. Although KI and its interaction terms exhibit slightly higher VIF values, they remain within a safe range, so Model 3 can be considered free from multicollinearity and valid for further analysis.

Heteroskedasticity testing is conducted to ensure that the variance of the residuals is constant across all levels of the independent variables. In this study, the test employs the Glejser method with the absolute value of the residuals (ABS_RES) as the dependent variable.

Table 8. Heteroskedasticity Test for Model 1

Statistic	Value	Probability
F-statistic	2.049895	Prob. F(4,5) = 0.2255
Obs*R-squared	6.212001	Prob. Chi-Square(4) = 0.1839
Scaled explained SS	2.899425	Prob. Chi-Square(4) = 0.5748

Source: Processed secondary data, 2025.

The Breusch–Pagan–Godfrey test results in Table 8 for Model 1 show that all probability values are greater than 0.05, so H0 is not rejected. Therefore, Model 1 is free from heteroskedasticity and the residuals have constant variance, allowing the regression results to be interpreted reliably.

Table 9. Heteroskedasticity Test for Model 2

Statistic	Value	Probability
F-statistic	2.389158	Prob. F(5,4) = 0.2096
Obs*R-squared	7.491501	Prob. Chi-Square(5) = 0.1866
Scaled explained SS	0.784875	Prob. Chi-Square(5) = 0.9780

Source: Processed secondary data, 2025.

In Table 9 for Model 2, all Breusch–Pagan–Godfrey test probability values are greater than 0.05, indicating that heteroskedasticity is not present. Consequently, the residual variance is homogeneous and Model 2 satisfies the homoskedasticity assumption, so its estimates are considered efficient.

Table 10. Heteroskedasticity Test for Model 3

Statistic	Value	Probability
F-statistic	1.842317	Prob. F(5,4) = 0.1092
Obs*R-squared	13.24758	Prob. Chi-Square(5) = 0.1045
Scaled explained SS	12.01457	Prob. Chi-Square(5) = 0.1492

Source: Processed secondary data, 2025.

The results in Table 9 for Model 3 show that all probability values are greater than 0.05, indicating the absence of heteroskedasticity. Accordingly, Model 3 satisfies the homoskedasticity assumption, and the regression estimates remain stable even with the inclusion of the moderating variables.

All three models (Models 1, 2, and 3) were specified using the Common Effect Model after applying the Chow, Hausman, and Lagrange Multiplier tests. Accordingly, the panel regression analysis of the effects of ESG, DER, ERM, and firm size on ROA, as well as the moderating role of institutional ownership, is conducted under the CEM approach.

Table 11. Panel Regression Results for Model 1

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.190363	0.431776	-0.440885	0.6621
ESG	-0.050657	0.088571	-0.571930	0.5711

DER	-0.248563	0.095307	-2.608017	0.0134
ERM	0.017708	0.084063	0.210647	0.8344
UK	0.011351	0.015847	0.716299	0.4787
R-squared	0.270211			
Adjusted R-squared	0.184353			
F-statistic	3.147201			
Prob(F-statistic)	0.026427			

Source: Processed secondary data, 2025.

The regression equation for Model 1 based on Table 11 is:

ROA = -0.190363 – 0.050657ESG – 0.248563DER + 0.017708ERM + 0.011351UK.

The results indicate that ESG, DER, ERM, and firm size (UK) exert different effects on ROA, where DER has a negative and statistically significant impact, while ESG, ERM, and UK are not statistically significant. The R^2 value of 0.2702 shows that 27.02% of the variation in ROA is explained by the variables in the model, and the F-test p-value of 0.0264 indicates that the independent variables jointly have a significant effect on financial performance.

Table 12. Panel Regression Results for Model II

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.562956	0.502579	-1.120135	0.2707
ESG	-0.030688	0.088523	-0.346670	0.7310
DER	-0.335736	0.112850	-2.975059	0.0054
ERM	0.029083	0.083313	0.349084	0.7292
UK	0.022199	0.017455	1.271805	0.2123
KI	0.104891	0.075128	1.396167	0.1720
R-squared	0.310915			
Adjusted R-squared	0.206508			
F-statistic	2.977913			
Prob(F-statistic)	0.025118			

Source: Processed secondary data, 2025.

The regression equation for Model II based on Table 12 is:

ROA = –0.562956 – 0.030688ESG – 0.335736DER + 0.029083ERM + 0.022199UK + 0.104891KI.

DER shows a negative and significant effect on ROA, while ESG, ERM, firm size (UK), and institutional ownership (KI) have effects that are not statistically significant. The R^2 value of 0.3109 indicates that 31.09% of ROA variation is explained by the model variables, and the F-test p-value of 0.0251 confirms that all variables jointly significantly influence construction company financial performance.

Table 13. Panel Regression Results for Model III

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-11.71152	3.994048	-2.932244	0.0065
ESG	-0.12850	0.579619	-0.221706	0.8261
DER	-0.76836	0.324670	-2.366614	0.0248
ERM	3.87006	1.135286	3.408881	0.0019
UK	0.34194	0.126000	2.713831	0.0111
KI	12.70037	4.893604	2.595299	0.0147
ESG_KI	0.12152	0.770689	0.157680	0.8758
DER_KI	0.39262	0.425952	0.921744	0.3643
ERM_KI	-4.96120	1.469078	-3.377081	0.0021
UK_KI	-0.35210	0.157938	-2.229365	0.0337
R-squared	0.530801			
Adjusted R-squared	0.385187			
F-statistic	3.645269			
Prob(F-statistic)	0.003777			

Source: Processed secondary data, 2025.

The regression equation for Model III based on Table 13:

ROA = –11.71152 – 0.12850 ESG – 0.76837 DER + 3.87006 ERM + 0.34194 UK + 12.70037 KI + 0.12152 ESG·KI + 0.39262 DER·KI – 4.96120 ERM·KI – 0.35210 UK·KI.

DER exerts a negative and significant effect on ROA, while ERM, firm size (UK), and institutional ownership (KI) have positive and significant impacts; ESG shows no significant effect. Moderation analysis reveals that ESG·KI and DER·KI interactions are insignificant, indicating KI does not moderate those relationships, whereas ERM·KI and UK·KI have negative significant effects, suggesting KI weakens the positive influences of ERM and firm size on ROA. The R^2 value of 0.5308 means the model explains 53.08% of ROA variation, and the significant F-test ($p = 0.0038$) confirms all variables jointly affect financial performance.

Table 14. Summary of Hypothesis Testing Results

Hypothesis	Statement	Test Result	Status
H1	ESG affects ROA	Insignificant	Rejected
H2	DER affects ROA	Negative significant	Accepted
H3	ERM affects ROA	Insignificant	Rejected
H4	Firm Size affects ROA	Insignificant	Rejected
H5	KI moderates ESG on ROA	Insignificant	Rejected
H6	KI moderates DER on ROA	Insignificant	Rejected
H7	KI moderates ERM on ROA	Significant (strengthens)	Accepted
H8	KI moderates Firm Size on ROA	Significant (strengthens)	Accepted

Source: Processed data by researcher, 2024.

From the eight research hypotheses, two are significant and accepted (H2 and H7-H8), while six are rejected due to insignificance. Leverage (DER) negatively and significantly impacts financial performance (ROA), and institutional ownership (KI) acts as a moderating variable that strengthens the relationships between ERM, firm size, and ROA.

B. Discussion

H1 — Effect of ESG on Financial Performance (Not Significant)

Research results indicate that ESG has no significant effect on ROA. In the construction sector, ESG primarily serves as administrative compliance rather than generating financial benefits. This aligns with stakeholder theory (Freeman, 1984) and the resource-based view (Barney, 1991), which assert that ESG impacts performance only when implemented as a strategic initiative, not symbolically. These findings are consistent with Aziz (2024) and Mutaz et al. (2021), who reported insignificant ESG effects in emerging markets. In contrast, Lee and Isa (2023) found a positive ESG influence in different contexts, highlighting variations across industries and countries.

H2 — Effect of Leverage on Financial Performance (Significantly Negative)

Leverage has a significantly negative effect on ROA. High debt levels increase interest burdens and financial risk, particularly in the construction industry with its unstable cash flows. This supports trade-off theory (Myers, 1977) and pecking order theory (Myers & Majluf, 1984), which explain that excessive debt reduces profitability. Empirically, these results align with Sari and Yanti (2021) and Kurniawan (2022), who found leverage lowers profitability in capital-intensive industries.

H3 — Effect of ERM on Financial Performance (Not Significant)

ERM has no significant effect on ROA. While ERM offers long-term benefits, its impact on short-term profitability remains unseen, especially in the construction sector burdened by external risks. This is consistent with the resource-based view (Barney, 1991) and agency theory, which state that ERM benefits emerge only with full strategic integration. The findings match Pagach and Warr (2010) and Tahir and Razali (2011), who also reported insignificant effects. Conversely, Florio and Leoni (2017) and Wulandari (2022) showed positive effects, underscoring that ERM's influence depends on implementation maturity.

H4 — Effect of Firm Size on Financial Performance (Not Significant)

Firm size has no significant effect on ROA. Although larger firms have more resources, organizational complexity and inefficiencies hinder profitability gains. This aligns with the resource-based view (Barney, 1991), which posits that resources are effective only if managed without inefficiencies. Results are consistent with Bello and Ghandour (2019) and Adi and Suwarti (2022), who found firm size does not always significantly impact profitability, particularly in high-project-risk industries like construction.

H5 — Institutional Ownership Moderates ESG Effect on Financial Performance (Not Significant)

Institutional ownership does not moderate the relationship between ESG and ROA. Institutional investor monitoring is not yet strong enough to drive ESG as a profitability-enhancing strategy. This supports agency theory (Jensen & Meckling, 1976) and stakeholder theory (Freeman, 1984), emphasizing the need for effective oversight to yield economic value from ESG. Findings align with Rustam and Ardiansyah (2021) and Faller and Knyphausen-Aufseß (2018). However, they differ from Khan et al. (2016), who found institutional investors strengthen ESG effects in developed markets.

H6 — Institutional Ownership Moderates Leverage Effect on Financial Performance (Not Significant)

Institutional ownership does not moderate the effect of leverage on ROA. Investor oversight is insufficient to curb excessive debt usage. This is consistent with agency theory (Jensen & Meckling, 1976) and trade-off theory (Myers, 1977), noting that construction industry financial risks make debt persistently negative despite monitoring. Results match Rustam and Ardiansyah (2021) and Faller and Knyphausen-Aufseß (2018), but contrast with Bathala et al. (1994), who identified a strong institutional role in advanced markets.

H7 — Institutional Ownership Moderates ERM Effect on Financial Performance (Significantly Negative)

Institutional ownership significantly moderates the ERM-ROA relationship but weakens it. Over-monitoring leads to overly conservative management, undermining ERM effectiveness. This aligns with agency theory (Jensen & Meckling, 1976) and the resource-based view (Barney, 1991), explaining how oversight pressure can diminish ERM's strategic benefits. Empirically, it matches Pagach and Warr (2010) and McShane et al. (2011), who noted negative ERM impacts when overly bureaucratic. It differs from Florio and Leoni (2017), who found positive effects in other contexts.

H8 — Institutional Ownership Moderates Firm Size Effect on Financial Performance (Significantly Negative)

Institutional ownership significantly moderates the firm size-ROA relationship, weakening it. In larger firms, institutional monitoring creates over-control, reducing managerial flexibility and suboptimal scale economies. This is consistent with agency theory (Jensen & Meckling, 1976) and the resource-based view (Barney, 1991), which state that size benefits require supportive governance for strategy. Results align with Rustam and Ardiansyah (2021) and Claessens and Yafeh (2012), but differ from Lee and Isa (2023), who found positive moderation in more mature markets.

IV. CONCLUSION

Based on the analysis and discussion, this study concludes that ESG has a negative but insignificant effect on financial performance, indicating that its implementation in the construction sector remains a compliance cost without yet generating profitability. Leverage exerts a significantly negative effect, signaling that high debt usage suppresses ROA due to interest burdens and cash flow risks. ERM shows a positive but insignificant influence, as risk management benefits are not fully reflected in earnings amid high external risks. Firm size also has a positive but insignificant effect, since larger firms enjoy better resource access yet face operational complexity that hinders profitability gains.

Regarding moderation, institutional ownership does not strengthen the effects of ESG or leverage on financial performance, despite their positive direction, suggesting suboptimal monitoring by institutional investors. Conversely, institutional ownership significantly weakens the effects of ERM and firm size on financial performance. This indicates an over-monitoring effect in construction firms, reducing managerial flexibility and underutilizing strategic potentials like ERM effectiveness and economies of scale—ultimately pressuring profitability.

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