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ESG Credibility and Firm Profitability in An Emerging Market: Evidence from ESG Controversies and ESG Gap in Indonesia

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Abstract

ESG is an important channel for a firm's relationship with its stakeholders. The firms are required to not only focus on profit, but they should also consider environmental, social, and governance. This study examines the relationship between Environmental, Social, and Governance (ESG) performance and firm profitability in an emerging market, with a particular emphasis on ESG credibility. Using a balanced panel dataset of 58 firms listed on the Indonesia Stock Exchange (IDX) over the period 2021–2024 (232 firm-year observations), this study employs ESG data from Refinitiv/LSEG and annual financial statements to measure profitability using Return on Assets (ROA). The empirical model is estimated using fixed-effects panel regression with firm-level clustered robust standard errors. The results indicate that the direct relationship between ESG performance and profitability is not supported in the Indonesian context. However, reputational risk plays a critical role: ESG controversies are significantly associated with profitability, and when operationalized as a high-controversy indicator (Controversy High), this variable exerts a negative effect on ROA. The key finding of this study demonstrates that the ESG Gap (ESG Score − ESGC) has a negative and highly significant impact on ROA, indicating the presence of a credibility penalty when the discrepancy between headline ESG performance and controversy-adjusted ESG scores widens. Robustness tests using an alternative profitability proxy (Net Margin) and alternative ESG measures confirm that the direct effect of ESG on profitability is relatively weak, whereas ESG credibility indicators are more informative. This study contributes to the literature by reinforcing the ESG credibility perspective and providing empirical evidence of reputational penalties and potential greenwashing in emerging markets.

Keywords: *ESG credibility; ESG gap; ESG controversies; profitability (ROA); fixed effects panel regression*

Abstrak

ESG merupakan saluran penting bagi hubungan perusahaan dengan para pemangku kepentingannya. Perusahaan dituntut untuk tidak hanya berfokus pada laba, tetapi juga harus mempertimbangkan aspek lingkungan, sosial, dan tata kelola. Studi ini mengkaji hubungan antara kinerja Lingkungan, Sosial, dan Tata Kelola (ESG) dan profitabilitas perusahaan di pasar negara berkembang, dengan penekanan khusus pada kredibilitas ESG. Dengan menggunakan kumpulan data panel seimbang yang mencakup 58 perusahaan yang terdaftar di Bursa Efek Indonesia (BEI) selama periode 2021–2024 (232 observasi perusahaan-tahun), studi ini memanfaatkan data ESG dari Refinitiv/LSEG serta laporan keuangan tahunan untuk mengukur profitabilitas menggunakan Return on Assets (ROA). Model empiris diestimasi menggunakan regresi panel fixed-effects dengan robust standard error yang dikelompokkan pada tingkat perusahaan. Hasil penelitian menunjukkan bahwa hubungan langsung antara kinerja ESG dan profitabilitas tidak terbukti dalam konteks Indonesia. Namun, risiko reputasi memainkan peran krusial: kontroversi ESG memiliki hubungan yang signifikan dengan profitabilitas, dan ketika dioperasionalisasikan sebagai indikator kontroversi tinggi (Controversy High), variabel ini memberikan dampak negatif terhadap ROA. Temuan utama studi ini menunjukkan bahwa kesenjangan ESG (ESG Gap atau Skor ESG − ESGC) berdampak negatif dan sangat signifikan terhadap ROA, yang mengindikasikan adanya penalti kredibilitas ketika kesenjangan antara kinerja ESG utama dan skor ESG yang disesuaikan dengan kontroversi semakin melebar. Uji robustness menggunakan proksi profitabilitas alternatif (Net Margin) dan ukuran ESG alternatif mengonfirmasi bahwa pengaruh langsung ESG terhadap profitabilitas relatif lemah, sedangkan indikator kredibilitas ESG memberikan informasi yang lebih bermakna. Studi ini berkontribusi pada literatur dengan memperkuat perspektif kredibilitas ESG serta menyajikan bukti empiris mengenai penalti reputasi dan potensi greenwashing di pasar negara berkembang.
Kata kunci: Kredibilitas ESG; kesenjangan ESG; kontroversi ESG; profitabilitas (ROA); regresi panel efek tetap.

INTRODUCTION

In recent years, Environmental, Social, and Governance (ESG) practices have increasingly become a central focus of corporate business strategies, driven by rising stakeholder pressure and a global shift toward sustainable development. In Indonesia, ESG is no longer viewed merely as a reporting obligation but has begun to be positioned as a strategic foundation for ensuring long-term business sustainability. Industry practitioners emphasize that ESG implementation can strengthen competitive advantage, enhance adaptability to changes in the business environment, and reflect corporate responsibility in creating economic, social, and environmental value simultaneously (Anggraini, 2025; Mahreyni, 2025). ESG is even frequently claimed to contribute to business expansion and improved financial performance, including in the context of international competitiveness (Ananta, 2025).

Nevertheless, such normative optimism is not fully aligned with empirical evidence, particularly in emerging markets. In Indonesia, institutional evaluations indicate that ESG disclosure does not necessarily translate into consistent improvements in firm profitability. Sulistyoningsih (2025) finds that ESG disclosure does not always exert a significant effect on Return on Assets (ROA), while firms with larger market capitalization tend to exhibit superior financial performance regardless of their ESG level. This phenomenon suggests a gap between ESG claims as a value-creation strategy and heterogeneous empirical realities. It raises a fundamental question as to whether ESG truly reflects substantive sustainability practices or instead functions as a symbolic signal whose credibility in influencing profitability remains limited.

International literature provides relatively positive yet inconclusive evidence. Several studies report that ESG combined scores are positively and significantly associated with profitability and firm value (Aydoğmuş et al., 2022). ESG disclosure is also argued to enhance financial performance through increased investor trust, operational efficiency, and improved risk management (Chen & Xie, 2022; Malik & Kashiramka, 2025). Machine learning approaches further suggest that ESG can serve as a competitive predictor of profitability relative to traditional accounting variables (D'Amato et al., 2024). However, Huang (2021) emphasizes that the overall impact of ESG is generally moderate, indicating that ESG is not always a primary determinant of short-term profitability.

More recent studies highlight that the ESG–profitability relationship is highly contextual and shaped by sectoral heterogeneity and ESG dimensions. Taddeo et al. (2024) document trade-offs and substitution effects among the E, S, and G dimensions, which may generate non-linear effects on profitability. Evidence from emerging markets also indicates substantial cross-industry variation, suggesting that ESG effects cannot be uniformly generalized (Mugova et al., 2025). Research in ASEAN+3 economies supports a positive relationship between ESG and ROA/ROE, although the correlations are relatively weak (Purbasari & Rokhim, 2024). In Indonesia, empirical findings remain inconsistent: some studies report a positive impact of ESG on profitability (Rizqo & Qadri, 2024), while others find that ESG disclosure is insignificant for ROA in specific sectors, such as banking (Ferli et al., 2025). This inconsistency underscores a clear research gap regarding the effectiveness of ESG in enhancing firm profitability in Indonesia.

Consistent with these developments, recent research has emphasized the limitations of relying solely on aggregate ESG scores. The structure and composition of ESG differ across industries, implying that ESG analysis should account for internal patterns across pillars and subcategories. ESG mapping based on Refinitiv/LSEG data in Indonesia demonstrates that ESG quality is determined not only by the total score but also by the consistency and composition of implementation across dimensions (Carolina et al., 2025). This perspective is important because it suggests that a high aggregate ESG score does not necessarily reflect robust and credible sustainability practices.

Within this context, ESG credibility has become an increasingly critical issue. Firm ESG value is shaped not only by disclosure levels or scores but also by reputational risk perceptions formed through corporate behavior. One key indicator of ESG credibility is ESG controversies—negative events related to environmental, social, or governance issues that attract public attention, media scrutiny, and investor responses. Prior literature shows that ESG controversies can erode stakeholder trust and adversely affect firm performance (Jucá et al., 2024). Treepongkaruna et al. (2024) argue that ESG controversies signal governance failures and can undermine corporate legitimacy, thereby threatening long-term economic sustainability. Moreover, controversies may reduce firm value through declining productivity, weakened green innovation, and increased financing constraints (Ma & Ma, 2025).

Beyond their direct impact on profitability, ESG controversies may also function as credibility shocks that weaken the benefits of ESG itself. As controversy levels rise, stakeholders may perceive corporate ESG activities as symbolic or merely impression management, thereby diminishing ESG's signalling function in supporting financial performance. Consistent with legitimacy theory and stakeholder theory, involvement in controversial activities can destabilize organizational legitimacy and increase scepticism toward corporate sustainability claims (Treepongkaruna et al., 2024). Carreira et al. (2025) further show that controversies are associated with declining ESG ratings and reduced credibility of sustainability reporting. Consequently, analysing the ESG–profitability relationship becomes more comprehensive when controversies are considered as a factor that modifies ESG effectiveness.

In addition to controversies, this study introduces the concept of the ESG Gap, defined as the difference between the ESG Score and the ESG Combined Score (ESGC). In the Refinitiv database, ESGC represents ESG performance adjusted for the impact of controversies (LSEG Data & Analytics, 2024). A larger ESG Gap therefore reflects a reputational penalty or inconsistency between sustainability claims and actual corporate practices. ESG Gap serves as a quantitative proxy for ESG credibility by capturing the distance between apparently high ESG disclosure and ESG performance discounted by controversies, thereby offering a potential explanation for why ESG does not always translate into higher profitability.

Based on the foregoing discussion, this study addresses four main research questions: (1) whether ESG Combined Score positively affects firm profitability in Indonesia; (2) whether ESG controversies negatively affect profitability; (3) whether ESG controversies moderate the relationship between ESG Combined Score and profitability by weakening the ESG effect when controversies increase; and (4) whether ESG Gap negatively affects firm profitability.

This study contributes to the literature in three keyways. First, it extends ESG–financial performance research by positioning ESG credibility, rather than ESG scores alone, as the core analytical focus. Second, it strengthens the empirical approach by examining ESG controversies as a credibility shock that moderates the ESG–profitability relationship. Third, it proposes ESG Gap as a quantitative measure of credibility penalty, offering insights for investors, regulators, and managers that

ESG influences profitability only when it is credible, consistent, and characterized by minimal controversies.

ESG, Profitability, and the Emerging Market Context

Environmental, Social, and Governance (ESG) has evolved into a central framework for assessing corporate sustainability quality as well as a signal of governance strength and non-financial risk management. ESG has become increasingly relevant in modern business competition because it shapes stakeholder perceptions of corporate legitimacy, managerial quality, and firms' adaptive capacity in response to regulatory and social pressures. However, the relationship between ESG and financial performance is not uniformly consistent. Huang (2021) emphasizes that while empirical evidence generally suggests a positive association between ESG and corporate financial performance, the economic magnitude of this relationship is often modest, indicating that ESG does not always serve as a primary determinant of profitability, particularly in the short run.

In emerging markets, heterogeneity in empirical findings is more pronounced due to differences in regulatory maturity, disclosure quality, monitoring intensity, and investor responses. Evidence from the ASEAN+3 region indicates that ESG ratings exert a statistically significant effect on ROA and ROE, yet the correlations remain relatively weak, suggesting that the financial benefits of ESG in developing economies are not yet strong or stable (Purbasari & Rokhim, 2024). This condition underscores the need for research that moves beyond treating ESG as a purely aggregate score and instead incorporates credibility-related dimensions that may explain why ESG performance does not consistently translate into higher profitability.

ESG Combined Score (ESGC) and Profitability

From a theoretical perspective, ESG performance can enhance firm profitability through several channels, including improvements in operational efficiency, strengthening of corporate reputation, mitigation of litigation and regulatory risks, and the creation of investor and customer trust. Aydoğmuş et al. (2022) demonstrate that the ESG combined score is positively and significantly associated with profitability, suggesting that ESG investments may generate economic returns. These findings reinforce the argument that ESG can function as a strategic resource capable of supporting medium- to long-term profit generation.

Moreover, ESG disclosure is widely argued to improve financial performance by enhancing corporate legitimacy and reducing information asymmetry. Chen & Xie (2022) provide evidence that ESG disclosure has a positive impact on corporate financial performance, with stronger effects observed among firms characterized by higher ESG-oriented investor attention, longer operating histories, and greater media coverage. Within the emerging economy context, Malik & Kashiramka (2025) similarly find that firms with superior ESG performance tend to exhibit higher profitability compared to otherwise comparable firms.

Nevertheless, empirical evidence from Indonesia remains mixed. For instance, Ferli et al. (2025) report that ESG disclosure in the Indonesian banking industry does not exert a significant effect on either ROA or ROE, with only the environmental dimension showing a partial effect on ROE. This inconsistency underscores the importance of adopting a more precise empirical approach when examining the ESG–profitability relationship in Indonesia, including the consideration of ESG credibility and unobserved firm-specific characteristics.

ESG Controversies as Reputational Risk and Financial Performance

Beyond ESG scores, the dynamics of corporate sustainability credibility are also shaped by the presence of ESG controversies, defined as negative events related to environmental, social, and governance issues that may trigger public pressure and investor reactions. ESG controversies can generate reputational costs, increase operational risk, induce market penalties, and create uncertainty regarding the quality of corporate management. Treepongkaruna et al. (2024) emphasize that ESG controversies signal failures in governance mechanisms and may undermine firms' economic sustainability by damaging reputation, legitimacy, and stakeholder relationships.

Empirical evidence provided by Jucá et al. (2024) indicates that ESG controversies exert a negative impact on corporate financial performance, particularly within specific industry clusters and

developed economies, suggesting that ESG violations are not merely reputational concerns but also translate into tangible economic costs.
Furthermore, Ma & Ma (2025) find that ESG controversies significantly reduce firm value, with underlying mechanisms including declines in green innovation, lower productivity, and tighter financing constraints. Although their analysis focuses on firm value, these findings offer strong support for the argument that controversies reflect fundamental risks capable of eroding firm profitability. Accordingly, ESG controversies can be reasonably positioned as a negative determinant of firm profitability in the context of emerging markets.

Controversies as a "Credibility Shock": Moderating ESGC and Profitability
ESG research has predominantly examined the direct effect of ESG scores on firm profitability; however, this relationship may critically depend on perceived ESG credibility. ESG controversies are not only expected to reduce profitability directly but may also weaken the ability of ESG Combined Scores (ESGC) to generate economic benefits. As controversy levels increase, stakeholders may perceive corporate ESG activities as symbolic or inconsistent, thereby diminishing the signalling power of ESGC. Treepongkaruna et al. (2024) show that ESG controversies generate substantial reputational pressure and disrupt stakeholder perceptions, ultimately reducing the effectiveness of ESG as a signal of governance quality and sustainability commitment.

Similarly, Carreira et al. (2025) find that ESG controversies are associated with declines in ESG ratings, indicating that negative incidents can impair both ESG perceptions and assessed ESG quality. These findings reinforce the argument that controversies may act as a "credibility shock" that disrupts the transmission mechanism from ESG to financial performance. Accordingly, examining the moderating effect of ESG controversies is essential to understanding why high ESGC may yield heterogeneous profitability outcomes across firms, particularly in environments characterized by elevated reputational risk.

ESG Gap as an Indicator of ESG Credibility
This study introduces the ESG Gap as a more explicit measure of ESG credibility, defined as the difference between the ESG Score and the ESG Combined Score. In data providers such as Refinitiv/LSEG, the ESG Combined Score represents ESG performance adjusted to account for reputational penalties arising from ESG controversies (LSEG Data & Analytics, 2024). A larger ESG Gap therefore reflects a greater reputational penalty associated with negative ESG incidents, indicating a misalignment between reported ESG scores and actual ESG practices.

Conceptually, a high ESG Gap may lead to lower profitability as firms incur reputational costs, experience diminished investor trust, and face heightened financing risk. This mechanism is consistent with evidence showing that ESG controversies can worsen access to external financing and reduce productivity (Ma & Ma, 2025), as well as undermine corporate ESG credibility (Carreira et al., 2025). Accordingly, ESG Gap is expected to exert a negative effect on ROA and offers a novel perspective on ESG credibility within the context of emerging markets.

Hypothesis Development
Based on the preceding literature review, ESG Combined Score is expected to enhance firm profitability through reputational benefits, operational efficiency, and improved risk management (Aydoğmuş et al., 2022; Chen & Xie, 2022; Malik & Kashiramka, 2025). Accordingly, the first hypothesis is formulated as follows:
H1: ESG Combined Score (ESGC) has a positive effect on firm profitability.
Furthermore, ESG controversies are viewed as sources of reputational risk and non-financial costs that can adversely affect firms' economic performance (Jucá et al., 2024; Ma & Ma, 2025; Treepongkaruna et al., 2024). Thus, the second hypothesis is stated as:

H2: ESG controversies have a negative effect on firm profitability.
Because ESG controversies can undermine ESG credibility and increase stakeholder scepticism, the profitability-enhancing effect of ESGC is expected to weaken under conditions of high controversy (Carreira et al., 2025; Treepongkaruna et al., 2024). Therefore, the third hypothesis is proposed as follows:

H3: ESG controversies moderate the relationship between ESGC and firm profitability, such that the positive effect of ESGC on profitability becomes weaker as controversy levels increase.
Finally, ESG Gap, as a proxy for reputational and credibility penalties, is expected to reduce profitability by signalling ESG inconsistency that may adversely affect market trust (Carreira et al., 2025; Ma & Ma, 2025). Hence, the fourth hypothesis is formulated as follows:

H4: ESG Gap has a negative effect on firm profitability.

METHOD

Research Design

This study employs a quantitative approach with an explanatory research design to examine the relationships between ESG performance, ESG controversy risk, ESG credibility, and firm profitability. Panel data regression is utilized to capture both cross-sectional variation across firms and temporal dynamics over the observation period.

Data, Population, and Sample Selection

The study uses a balanced panel dataset covering the period 2021–2024, with the population consisting of all firms listed on the Indonesia Stock Exchange (IDX) during the observation period. The sample is selected using purposive sampling based on the following criteria: (1) firms that were listed and actively traded throughout 2021–2024; (2) availability of ESG data in the Refinitiv/LSEG database, including ESG Score, ESG Combined Score (ESGC), and ESG controversies; and (3) availability of complete annual financial data required to compute profitability (ROA) and control variables. Observations with missing values in key variables are excluded from the final sample.

ESG data are obtained from the Refinitiv/LSEG ESG database, while firm-level financial data are sourced from annual financial statements and used to calculate ROA and control variables. All financial variables are constructed consistently across firms and years. The 2021–2024 period is selected because it represents a recent phase of accelerated ESG adoption in Indonesia, ensures consistent availability of ESG data from Refinitiv/LSEG, and captures post-pandemic dynamics relevant to examining the ESG–profitability relationship during the recovery and normalization of business activities. The final sample comprises 58 firms, yielding a total of 232 firm-year observations.

Operational Definitions and Variable Measurement

The following table 1 presents the operational definitions and measurement of the variables used in this study:

Table 1. Operational Definitions of Variables

Variable	Symbol	Operational Definition	Measurement	Scale	Source
Profitability (DV)	ROA_{it}	The firm's ability to generate profits from its assets.	$ROA_{it} = \frac{Net\ Income_{it}}{Total\ Assets_{it}}\ x\ 100\%$	Ratio	Financial Statements
ESG Combined Score (IV)	$ESGC_{it}$	An aggregate ESG score reflecting overall ESG performance adjusted for reputational effects arising from controversies.	ESG Combined Score value (generally 0–100)	Ratio	Refinitiv/LSEG
ESG Controversies (IV)	$Cont_{it}$	ESG controversy score assessing the incidence of ESG-related events/issues. Higher values indicate fewer controversies (i.e., better performance).	ESG Controversies Score (0–100).	Ratio	Refinitiv/LSEG
ESG Controversies (transformasi) (IV)	$ContHigh_{it}$	A transformed measure of controversy intensity to allow more intuitive interpretation: higher	$ContHigh_{it} = 100 - ContScore_{it}$	Ratio	Refinitiv/LSEG

Variable	Symbol	Operational Definition	Measurement	Scale	Source
		values indicate higher controversy.			
ESG Gap (IV)	$ESGGap_{it}$	An ESG credibility penalty reflecting the difference between the raw ESG score and the controversy-adjusted ESG score.	$ESGGap_{it} = ESGScore_{it} - ESGC_{it}$	Ratio	Refinitiv/LSEG
ESGC × Controversies Interaction (Moderating Variable)	$Interaction_{it}$	The moderating effect of ESG controversies on the relationship between ESGC and ROA (credibility shock).	$Interaction_{it} = ESGC_{it}\ x\ ContHigh_{it}$	Ratio	Refinitiv/LSEG
Firm Size (Control)	$Size_{it}$	Proxy for firm scale..	$Size_{it} = \ln(Total\ Assets_{it})$	Ratio	Financial Statements
Leverage (Control)	Lev_{it}	The extent of debt usage relative to equity	$Lev_{it} = \frac{Total\ Debt_{it}}{Common\ Equity_{it}}$	Ratio	Financial Statements
Liquidity (Control)	Liq_{it}	The firm's ability to meet short-term obligations.	$Liq_{it} = \frac{Current\ Assets_{it}}{Current\ Liabilities_{it}}$	Ratio	Financial Statements

Source: Authors

Econometric Model Specification

This study employs panel data regression using Stata software, with the econometric model specification formulated as follows:

Model 1:

$$ROA_{it} = \alpha_i + \beta_1 ESGC_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 LIQ_{it} + \lambda_t + \varepsilon_{it}$$

Model 2:

$$ROA_{it} = \alpha_i + \beta_1 ESGC_{it} + \beta_2 CONT_{it} + \beta_3 SIZE_{it} + \beta_4 LEV_{it} + \beta_5 LIQ_{it} + \lambda_t + \varepsilon_{it}$$

Model 3:

$$ROA_{it} = \alpha_i + \beta_1 ESGC_{it} + \beta_2 ContHigh_{it} + \beta_3 (ESGC_{it} \times ContHigh_{it}) + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \beta_6 LIQ_{it} + \lambda_t + \varepsilon_{it}$$

Model 4:

$$ROA_{it} = \alpha_i + \beta_1 ESG_GAP_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 LIQ_{it} + \lambda_t + \varepsilon_{it}$$

where *i* denotes the firm and *t* denotes the year; α_i captures unobserved firm heterogeneity, λ_t represents time effects, and ε_{it} is the error term. Multicollinearity is evaluated using Pearson correlation analysis and the Variance Inflation Factor (VIF). Low VIF values indicate the absence of multicollinearity problems that could bias coefficient estimates.

Panel Model Selection

Panel model selection is conducted through three sequential tests: (1) the Chow test to evaluate pooled OLS versus fixed effects; (2) the Breusch–Pagan Lagrange Multiplier test to compare pooled OLS and random effects; and (3) the Hausman test to determine the appropriate choice between fixed effects and random effects.

The test results indicate that pooled OLS is inadequate and that firm-specific effects are statistically significant. Although the Hausman test does not statistically reject the random effects model, this study adopts the fixed effects specification as the primary estimator to control for unobserved firm heterogeneity. All main models are therefore estimated using fixed effects (within estimator) with firm-level clustered robust standard errors. This approach is employed to address potential heteroskedasticity and within-firm serial correlation.

Robustness Checks

This study conducts robustness tests to evaluate the consistency of the results.

1. Robustness A (alternative dependent variable): ROA is replaced with Net Margin in Model 1 and Model 4.
   Model 1 (Alternative):

$$NetMargin_{it} = \alpha_i + \beta_1 ESGC_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 LIQ_{it} + \lambda_t + \varepsilon_{it}$$

Model 4 (Alternative):

$$NetMargin_{it} = \alpha_i + \beta_1 ESG_GAP_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 LIQ_{it} + \lambda_t + \varepsilon_{it}$$

2. Robustness B (alternative independent variable): ESG Combined Score (ESGC) is replaced with ESG Score in Model 1 and Model 3.

Model 1 (Alternative):

$$ROA_{it} = \alpha_i + \beta_1 ESGScore_{it} + \beta_2 SIZE_{it} + \beta_3 LEV_{it} + \beta_4 LIQ_{it} + \lambda_t + \varepsilon_{it}$$

Model 3 (Alternative):

$$ROA_{it} = \alpha_i + \beta_1 ESGScore_{it} + \beta_2 ContHigh_{it} + \beta_3 (ESGScore_{it} \times ContHigh_{it}) + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \beta_6 LIQ_{it} + \lambda_t + \varepsilon_{it}$$

RESULT AND DISCUSSION

Result

Descriptive Statistics

Table 2 presents the descriptive statistics for all study variables based on a total of 232 firm-year observations (58 firms over the 2021–2024 period). The mean ROA is 0.0699 with a standard deviation of 0.0982, indicating substantial variation in profitability across firms and over time. The minimum ROA value of −0.2797 suggests that some firms experienced losses during the observation period, while the maximum value of 0.5834 reflects pronounced heterogeneity in financial performance within the sample.

As an alternative profitability proxy, Net Margin has a mean of 0.1152 (SD = 0.1838), with values ranging from −0.6960 to 1.6500. This wide range confirms considerable variation in profit margins and the presence of extreme observations with exceptionally high margin profitability.

Regarding ESG variables, the average ESG Combined Score (ESGC) is 52.1211 (SD = 17.3828), while the mean ESG Score is 52.2381 (SD = 17.3630), indicating a moderate level of ESG performance with substantial cross-firm dispersion. Meanwhile, the ESG Controversies Score exhibits a very high mean of 98.8238 (SD = 7.7594), with values ranging from 11.1100 to 100.0000. This suggests that most firms have no recorded ESG controversies, although a small subset experienced relatively severe controversy incidents. This pattern is further reflected in the transformed variable *ContHigh*, which has a mean of 1.1763 (SD = 7.7594), a minimum of 0.0000, and a maximum of 88.8900, indicating that high controversy levels are concentrated in a limited number of observations.

For the control variables, the mean firm size (log of total assets) is 21.5053 (SD = 1.2884), with values ranging from 16.5301 to 24.1040, reflecting substantial differences in firm scale. Leverage (total debt to common equity) has a mean of 1.4925 (SD = 7.8634) and a maximum value of 117.1400, indicating the presence of extreme outliers in capital structure for a small number of firms. To mitigate potential estimation distortions caused by extremely high leverage values, the study applies winsorization at the extreme percentiles. As a result, the winsorized leverage variable (*leverage_w*) has a mean of 1.0076 (SD = 1.7983) with a maximum value of 12.3100.

Liquidity exhibits a mean of 2.1897 (SD = 1.8261), with a minimum of 0.1822 and a maximum of 10.6754, indicating variation in firms' ability to meet short-term obligations. Overall, these descriptive statistics demonstrate sufficient variation in profitability, ESG indicators, and firm fundamentals, thereby supporting empirical testing of the relationships among ESG credibility, controversies, and profitability for Indonesian firms over the 2021–2024 period.

Table 2. Descriptive Statistics (N = 232)

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	232	0.0699	0.0982	-0.2797	0.5834
Net Margin	232	0.1152	0.1838	-0.6960	1.6500
ESGC	232	52.1211	17.3828	11.2200	89.1800
ESG Score	232	52.2381	17.3630	11.2200	89.1800
ESG Controversies Score	232	98.8238	7.7594	11.1100	100.0000
Controversy High (100 – score)	232	1.1763	7.7594	0.0000	88.8900

Variable	Obs	Mean	Std. Dev.	Min	Max
Size (ln Total Assets)	232	21.5053	1.2884	16.5301	24.1040
Leverage (raw)	232	1.4925	7.8634	0.0000	117.1400
Leverage (winsorized)	232	1.0076	1.7983	0.0000	12.3100
Liquidity (Current Ratio)	232	2.1897	1.8261	0.1822	10.6754

Source: Author

Correlation and Multicollinearity Diagnostics

Table 3 reports the Pearson correlation matrix among the study variables. The correlation results show that ROA is positively and significantly associated with the ESG Combined Score (ESGC) ($r = 0.260$; $p < 0.01$), providing preliminary evidence that firms with stronger ESG performance tend to exhibit higher profitability. The correlation between Net Margin and ESG variables also displays a positive, albeit relatively weak, pattern: Net Margin is positively correlated with ESGC ($r = 0.126$; $p < 0.10$) and ESG Score ($r = 0.133$; $p < 0.05$). In addition, firm size (Size) is positively and significantly correlated with ROA ($r = 0.147$; $p < 0.05$) and Net Margin ($r = 0.259$; $p < 0.01$), indicating that larger firms tend to achieve superior profitability performance.

In contrast, winsorized leverage exhibits a negative and significant correlation with both ROA ($r = -0.182$; $p < 0.01$) and Net Margin ($r = -0.227$; $p < 0.01$), suggesting that more aggressive debt-based financing structures may exert downward pressure on profitability. Liquidity shows a positive correlation with Net Margin ($r = 0.159$; $p < 0.05$) but does not display a significant relationship with ROA. Meanwhile, the ESG Controversies Score is not significantly correlated with profitability measures, indicating that at the bivariate correlation stage, the impact of controversies is not yet pronounced within the sample. This result may be attributed to the distributional characteristics of the controversies variable, which is heavily concentrated at high values (close to 100), thereby limiting variation and reducing the sensitivity of bivariate correlations.

Tabel 3. Pearson Correlation Matrix

Variable	ROA	Net Margin	ESGC	ESG Score	ESG Controv	Cont_ High	Size	Leverage _ w	Liquidity
ROA	1								
Net Margin	0.652***	1							
ESGC	0.260***	0.126*	1						
ESG Score	0.260***	0.133**	0.996***	1					
ESG Controversies Score	0.004	0	0	-0.025	1				
Controversy High (100 – score)	-0.004	0	0	0.025	-1.000***	1			
Size (ln Total Assets)	0.147**	0.259***	0.392***	0.401***	0	0.107	1		
Leverage (raw)	-0.182***	-0.227***	0	-0.102	0.053	-0.053	-0.04	1	
Leverage (winsorized)	0.099	0.159**	0	0.053	0.006	-0.006	-0.077	-0.268***	1

Notes: Values reported are Pearson correlation coefficients (r); *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$).
Source: Authors

To ensure that the panel regression models are not biased by multicollinearity, this study conducts Variance Inflation Factor (VIF) tests as reported in Table 4. The results indicate that all VIF values fall within a low range (maximum VIF of approximately 1.53), with a mean VIF of 1.28. These values are well below commonly accepted thresholds of 5 or 10, suggesting that multicollinearity does not pose a concern in the main models. However, the correlation between ESGC and ESG Score is extremely high ($r = 0.996$; $p < 0.01$), and the ESG Controversies Score exhibits a nearly perfect negative correlation with its transformed variable (Cont_High) ($r = -1.000$; $p < 0.01$). Accordingly, these variable pairs are

not included simultaneously within the same model specification to avoid informational redundancy and estimation instability. Overall, the Pearson correlation results provide preliminary evidence that ESG performance tends to be positively associated with profitability, whereas leverage is negatively associated, and the VIF diagnostics confirm that the variable structure of the panel regression models is suitable for subsequent estimation.

Table 4. Multicollinearity Test Results (VIF)

Variable	VIF
ESG Combined Score (ESGC)	1.22
ESG Controversies Score	1.05
Size	1.22
Leverage (winsorized)	1.10
Liquidity	1.09
Year FE (2022)	1.51
Year FE (2023)	1.53
Year FE (2024)	1.52
Mean VIF	1.28

Source: Authors

Panel Model Selection

The selection of the panel data regression model in this study is conducted sequentially using three main tests—the Chow test, the Breusch–Pagan Lagrange Multiplier (LM) test, and the Hausman test—to determine the most appropriate specification among pooled OLS, fixed effects (FE), and random effects (RE). First, the Chow test based on the fixed effects estimation is employed to assess whether firm-specific individual effects (u_i) are statistically significant. The table 5 show that F-statistic of F(57, 166) = 12.35 with Prob > F = 0.0000, leading to the rejection of the null hypothesis that all firm-specific effects are jointly zero ($u_i = 0$). This finding indicates the presence of unobserved firm heterogeneity affecting ROA, implying that a panel data model is more appropriate than pooled OLS, and specifically that the fixed effects specification dominates pooled OLS.

Second, to evaluate whether the random effects approach is also suitable, the study applies the Breusch–Pagan LM test comparing random effects with pooled OLS. The results show a test statistic of chibar²(01) = 179.25 with Prob > chibar² = 0.0000, leading to the rejection of the null hypothesis that no random effects are present (Var(u) = 0). This result indicates that the random effects model is statistically superior to pooled OLS and confirms that the panel structure of the data is relevant for estimation using individual-effects models.

Subsequently, the Hausman test is employed to determine the appropriate choice between fixed effects and random effects by examining whether firm-specific effects are correlated with the independent variables. The Hausman test yields $\chi^2(8) = 10.77$ with Prob > χ^2 = 0.2154, indicating a failure to reject the null hypothesis that the random effects estimator is consistent and efficient. However, the Hausman output also reports a warning that the difference matrix $(V_b - V_B)$is not positive definite. To address this issue, an additional Hausman test using the *sigmamore* option is conducted. Under this specification, the test statistic becomes $\chi^2(5) = 10.00$ with Prob > χ^2 = 0.0753, which remains statistically insignificant at the 5% level but is marginally significant at the 10% level.

Based on the overall test results, pooled OLS is deemed inadequate, while both fixed effects and random effects are statistically viable. Although the Hausman test at the 5% significance level supports the use of random effects, the marginal significance observed in the Hausman (*sigmamore*) test suggests that potential correlation between firm-specific effects and the explanatory variables cannot be fully ruled out. Given that ESG-related analyses are particularly sensitive to unobserved but time-invariant firm characteristics—such as governance culture, managerial quality, sustainability strategy orientation, and corporate reputation—this study adopts the fixed effects model as the primary estimation approach to obtain more conservative and robust estimates that are less susceptible to unobserved heterogeneity bias. As an additional robustness check, the random effects model is also estimated for comparison to assess the consistency of the results.

Table 5. Model Selection Summary

Test	*Statistic*	*p-value*	*Preferred model*
Chow test (FE vs pooled OLS)	*F(57, 166) = 12.35*	*0.0000*	*Fixed Effects (FE)*
LM test Breusch–Pagan (RE vs pooled OLS)	*chibar2(01) = 179.25*	*0.0000*	*Random Effects (RE)*
Hausman test (FE vs RE)	*$\chi^2(8) = 10.77$*	*0.2154*	*Random Effects (RE)*
Hausman test (sigmamore)	*$\chi^2(5) = 10.00$*	*0.0753*	*Fixed Effects (FE)**

*Note: * The Hausman (sigmamore) test yields marginal significance at the 10% level; therefore, this study adopts the fixed effects model as the primary estimation approach to obtain more conservative and robust estimates that account for unobserved firm heterogeneity.*
Source: Authors.

Regression Results
Model 1:

$$ROA_{it} = \alpha_i - 0.000741\, ESGC_{it} - 0.010565\, SIZE_{it} - 0.005515\, LEV_{it} - 0.009521\, LIQ_{it} + \lambda_t + \varepsilon_{it}$$

After determining the panel model specification, this study estimates Model 1 as the baseline model to examine the direct relationship between ESG Combined Score (ESGC) and firm profitability, proxied by Return on Assets (ROA). The estimation is conducted using the fixed effects (within) estimator with firm-level clustered robust standard errors to ensure reliable inference in the presence of potential heteroskedasticity and within-firm serial correlation. The table 6 indicate that ESGC does not have a statistically significant effect on ROA (β = −0.000741; p = 0.466). Although the coefficient is negative, its lack of statistical significance suggests that during the 2021–2024 period, improvements in ESGC do not consistently translate into higher asset profitability efficiency.

This finding is consistent with prior literature emphasizing that the ESG–profitability relationship is not always strong and may be highly context-dependent, particularly in emerging markets where ESG benefits may be lagged, indirect, or contingent on sectoral and firm-specific characteristics (Huang, 2021; Mugova et al., 2025; Purbasari & Rokhim, 2024). Moreover, the result aligns with empirical evidence from Indonesia showing that ESG does not necessarily exert a significant effect on ROA in certain contexts, such as the banking sector (Ferli et al., 2025), although other studies report positive effects in different samples (Rizqo & Qadri, 2024). Accordingly, the Model 1 results reinforce the argument that evidence on the ESG–profitability nexus in Indonesia remains inconclusive and calls for analytical approaches that explicitly consider ESG credibility.

Regarding the control variables, firm size (β = −0.010565; p = 0.533), winsorized leverage (β = −0.005515; p = 0.154), and liquidity (β = −0.009521; p = 0.130) do not exhibit statistically significant effects on ROA at the 5% significance level. Although insignificant, the negative signs on leverage and liquidity suggest that more debt-intensive financing structures and relatively high levels of current assets are not necessarily associated with higher asset profitability efficiency in the short run. In terms of time effects, the year dummy for 2022 shows a marginally positive effect on ROA (β = 0.010588; p = 0.086), while the dummies for 2023 and 2024 are not statistically significant. This pattern indicates intertemporal variation in profitability that may be driven by external factors beyond the model, such as post-pandemic economic recovery dynamics, macroeconomic policy changes, or industry cycles during the observation period.

Overall, the baseline model yields a within R^2 of 0.072, indicating that the independent variables explain approximately 7.2% of the within-firm variation in ROA over time. Although the ESGC coefficient is individually insignificant, the joint significance test confirms that the model is statistically significant as a whole (Prob > F = 0.0145), suggesting that the model specification retains explanatory power for changes in ROA. In terms of hypothesis testing, Model 1 evaluates H1, which posits a positive effect of ESGC on firm profitability (ROA). However, the results indicate that H1 is not supported in the baseline specification.

These findings provide a critical foundation for extending the analysis to subsequent models that incorporate ESG controversies as reputational penalties (Model 2) and interaction mechanisms (Model 3). From a theoretical perspective, these extensions are expected to shed light on the conditions under which ESG benefits weaken when corporate credibility is compromised by ESG-related controversies (Carreira et al., 2025; Jucá et al., 2024; Ma & Ma, 2025). Accordingly, the focus of the study shifts from simply testing whether “higher ESG leads to higher profitability” to examining whether credible

ESG—ESG performance untainted by controversies—is more relevant in explaining profitability variation in emerging markets.

Table 6. Panel Regression Estimation Results (Model 1)

Variable	Coefficient	Std. Error	p-value
ESG Combined Score (ESGC)	-0.0007	0.0010	0.466
Size (ln Total Assets)	-0.0106	0.0169	0.533
Leverage (winsorized)	-0.0055	0.0038	0.154
Liquidity (Current Ratio)	-0.0095	0.0062	0.130
Year 2022	0.0106*	0.0061	0.086
Year 2023	-0.0112	0.0092	0.226
Year 2024	-0.0068	0.0143	0.635
Constant	0.3639	0.3725	0.333

Note: *p < 0.10; **p < 0.05; ***p < 0.01. Robust standard errors are clustered at the firm level.
Observations = 232; Firms = 58; R^2 within = 0.072; Prob > F = 0.0145.
Source: Authors.

Model 2:

$$ROA_{it} = \alpha_i - 0.000931\, ESGC_{it} + 0.000995\, CONT_{it} - 0.009291\, SIZE_{it} - 0.005758\, LEV_{it} - 0.011350\, LIQ_{it} + \lambda_t + \varepsilon_{it}$$

In Model 2, the study examines whether the ESG–profitability relationship changes when the reputational risk dimension is incorporated through the ESG Controversies Score. The estimation is conducted using a fixed effects (within) panel regression with firm-level clustered robust standard errors to ensure reliable inference in the presence of heteroskedasticity and within-firm serial correlation. The table 7 indicate that the ESG Combined Score (ESGC) remains statistically insignificant with respect to ROA (β = −0.000931; p = 0.336), suggesting that improvements in ESGC do not directly translate into higher asset profitability for firms listed on the Indonesia Stock Exchange during the 2021–2024 period. This finding is consistent with prior literature emphasizing that the effect of ESG on profitability in emerging markets may be weak or unstable and influenced by sectoral context and firm-specific characteristics (Huang, 2021; Mugova et al., 2025; Purbasari & Rokhim, 2024), including mixed empirical evidence for ROA in Indonesia (Ferli et al., 2025).

In contrast, the ESG Controversies Score exhibits a positive and statistically significant effect on ROA (β = 0.000995; p = 0.012) (H2). Given that, in the Refinitiv framework, higher controversies scores indicate better conditions—namely, fewer ESG-related controversies—this result implies that lower ESG controversy exposure (i.e., a cleaner ESG reputation) is associated with higher firm profitability. This finding aligns with international evidence suggesting that ESG controversies function as reputational shocks that erode stakeholder trust and adversely affect firm performance (Jucá et al., 2024), as well as reduce firm value through channels such as declining productivity, weakened green innovation, and tighter financing constraints (Ma & Ma, 2025). Accordingly, the Model 2 results reinforce the study's argument that ESG performance cannot be assessed solely through aggregate scores but must also account for ESG credibility and reputational risk.

With respect to the control variables, firm size, winsorized leverage, and liquidity do not exhibit statistically significant effects at the 5% level. The year dummy for 2022 shows a marginally positive effect on ROA (p = 0.074), while the dummies for 2023 and 2024 remain insignificant. Overall, the model is jointly significant (Prob > F = 0.0071) and yields a within R^2 of 0.0902, indicating an improvement in explanatory power relative to the baseline model. These findings suggest that ESG credibility, as captured by controversies, explains firm profitability variation more effectively than ESGC alone, thereby strengthening the rationale for further analysis using interaction mechanisms in Model 3 to evaluate whether ESG controversies also attenuate the profitability-enhancing effect of ESGC.

Table 7. Panel Regression Estimation Results (Model 2)

Variable	Coefficient	Std. Error	p-value
ESG Combined Score (ESGC)	-0.0009	0.0010	0.336
ESG Controversies Score	0.0010**	0.0004	0.012

Variable	Coefficient	Std. Error	p-value
Size (ln Total Assets)	-0.0093	0.0181	0.611
Leverage (winsorized)	-0.0058	0.0039	0.141
Liquidity (Current Ratio)	-0.0114	0.0069	0.107
Year 2022	0.0111*	0.0061	0.074
Year 2023	-0.0083	0.0093	0.377
Year 2024	-0.0063	0.0144	0.666
Constant	0.2514	0.4078	0.540

Note: *p < 0.10; **p < 0.05; ***p < 0.01. Robust standard errors are clustered at the firm level.
Observations = 232; Firms = 58; R^2 within = 0.0902; Prob > F = 0.0071.
Source: Authors.

Model 3

$$ROA_{it} = \alpha_i - 0.001095\, ESGC_{it} - 0.002758\, ContHigh_{it} + 0.000043(ESGC_{it} \times ContHigh_{it}) - 0.005335\, SIZE_{it} - 0.005555\, LEV_{it} - 0.011154\, LIQ_{it} + \lambda_t + \varepsilon_{it}$$

In **Model 3**, the study examines the role of ESG controversies not only as a direct determinant of profitability but also as a moderating factor that alters the strength of the relationship between ESG Combined Score (ESGC) and ROA. The model is estimated using a fixed effects specification with firm-level cluster-robust standard errors to ensure reliable inference in panel data settings. The table 8 show that Controversy High has a negative and statistically significant effect on ROA (β = −0.002758; p = 0.001). This finding indicates that higher levels of ESG controversies are associated with lower firm profitability, supporting the interpretation of controversies as reputational and operational penalties that exert downward pressure on financial performance. This result is consistent with international literature positioning ESG controversies as reputation shocks that trigger adverse stakeholder reactions, increase costs, and weaken firm performance (Jucá et al., 2024), as well as deteriorate firm conditions through reduced green innovation, lower productivity, and tighter financing constraints (Ma & Ma, 2025).

Meanwhile, the coefficient on ESGC remains statistically insignificant (p = 0.275), suggesting that the direct relationship between ESGC and ROA is not sufficiently strong for firms listed on the Indonesia Stock Exchange over the 2021–2024 period after controlling for unobserved firm heterogeneity and time effects. This pattern is in line with prior evidence indicating that the ESG–profitability relationship in emerging markets is heterogeneous and not consistently observed across contexts ((Huang, 2021; Mugova et al., 2025; Purbasari & Rokhim, 2024), including mixed findings reported for Indonesia across sectors and methodologies (Ferli et al., 2025; Rizqo & Qadri, 2024).

Importantly, the key insight from Model 3 lies in the positive and statistically significant coefficient on the interaction term ESGC × Controversy High (β = 0.000043; p = 0.015). Empirically, this result indicates that the effect of ESGC on ROA is conditional on the level of ESG controversies. Specifically, as controversy levels increase, the marginal effect of ESGC on ROA becomes larger. In other words, controversies alter the manner in which ESG performance relates to profitability, reinforcing the argument that ESG assessment should not rely solely on aggregate scores but must also account for reputational dynamics and credibility considerations.

Although the positive interaction effect does not directly support the hypothesized "weakening of ESG benefits" as formulated in H3, it may be interpreted as evidence that, for firms experiencing controversies, improvements in ESGC carry greater economic value as part of a reputational recovery or remediation response. In this context, ESGC may signal managerial efforts to strengthen sustainability systems and governance practices following reputational damage, such that ESG-related benefits materialize primarily under conditions of elevated reputational pressure. This interpretation is consistent with prior studies emphasizing that ESG controversies shape stakeholder perceptions of ESG credibility and influence firm performance through reputational and risk-related channels (Carreira et al., 2025; Jucá et al., 2024).

Overall, Model 3 confirms that ESG controversies act as penalties that reduce firm profitability, while simultaneously demonstrating that the ESGC–profitability relationship is contingent upon reputational risk levels. These findings reinforce the ESG credibility framework, suggesting that ESG performance is not merely a function of scores, but also depends on how ESG reputation is formed and sustained when firms face controversy-related pressures.

Table 8. Panel Regression Estimation Results (Model 3)

Variable	Coefficient	Std. Error	p-value
ESG Combined Score (ESGC)	-0,0011	0,0010	0,275
Controversy High (100 − score)	-0,0028***	0,0008	0,001
ESGC × Controversy High	0,0000**	0,0000	0,015
Size (ln Total Assets)	-0,0053	0,0191	0,781
Leverage (winsorized)	-0,0056	0,0039	0,156
Liquidity (Current Ratio)	-0,0112	0,0068	0,109
Year 2022	0,0123*	0,0065	0,061
Year 2023	-0,0082	0,0093	0,383
Year 2024	-0,0055	0,0146	0,710
Constant	0,2729	0,4101	0,508

Note: *p < 0.10; **p < 0.05; ***p < 0.01. Robust standard errors are clustered at the firm level.
Observations = 232; Firms = 58; R^2 within = 0.0962; Prob > F = 0.0000.
Source: Authors.

Model 4

$$ROA_{it} = \alpha_i - 0.004194\, ESG_GAP_{it} - 0.012177\, SIZE_{it} - 0.005878\, LEV_{it} - 0.011172\, LIQ_{it} + \lambda_t + \varepsilon_{it}$$

In Model 4, the study examines the role of the ESG Gap as an indicator of ESG credibility, defined as the difference between the ESG Score and the ESG Combined Score (ESGC). The table 9 show that ESG Gap has a negative and highly significant effect on ROA (β = −0.004194; p < 0.01) (**H4**). This finding indicates that a larger discrepancy between the ESG Score—which represents "headline" ESG performance—and the controversy-adjusted ESGC is associated with lower firm profitability. Conceptually, a high ESG Gap can be interpreted as a signal that a firm appears to exhibit strong ESG performance at the aggregate score level, while its credibility is weakened by reputational incidents or risks reflected in the ESGC adjustment. Accordingly, this result supports the study's central argument that financial performance is driven not merely by the level of ESG scores, but by the extent to which ESG performance is credible and consistent with the firm's reputational track record.

The Model 4 results are also consistent with prior literature emphasizing that the ESG–profitability relationship in emerging markets is not always stable when ESG is assessed solely on the basis of aggregate scores (Huang, 2021; Purbasari & Rokhim, 2024). The negative effect of ESG Gap reinforces the view that reputational and risk-related dimensions play a critical role in linking ESG to financial outcomes, in line with evidence showing that ESG controversies can harm firm performance through stakeholder pressure and reputational costs (Jucá et al., 2024), as well as reduce firm value via declines in productivity, green innovation, and increased financing constraints (Ma & Ma, 2025). In this sense, ESG Gap operates as a quantitative proxy for a **credibility penalty**, helping to explain why ESGC in the baseline model does not consistently yield significant effects: ESG benefits may be eroded when there is a mismatch between ESG claims and actual practices as reflected in controversy-related penalties.

In terms of economic magnitude, the coefficient of −0.004194 implies a meaningful effect size: a one-point increase in ESG Gap is associated with an approximate 0.0042 decrease in ROA, while a ten-point increase corresponds to a reduction in ROA of about 0.0419. This magnitude positions Model 4 as one of the study's key results, demonstrating that inconsistency between apparent ESG performance and underlying ESG credibility can materially depress firm profitability. Regarding the control variables, firm size and leverage are not statistically significant, whereas liquidity exhibits a negative association with ROA at the 10% significance level (p = 0.091), suggesting that higher current ratios are not necessarily linked to greater asset profitability efficiency within the sample and period examined.

Overall, Model 4 provides strong evidence that **ESG credibility**, as captured by the ESG Gap, is a crucial factor in explaining firm profitability in Indonesia. These findings further strengthen the study's contribution to the literature on reputational penalties, ESG credibility, and greenwashing risk in emerging market contexts. Table 10 represents an overview of the overall results of this study according to the hypotheses that have been tested.

Table 9. Panel Regression Estimation Results (Model 3)

Variable	Coefficient	Std. Error	p-value
ESG Gap (ESG Score − ESGC)	-0,0042***	0,0004	0,000
Size (ln Total Assets)	-0,0122	0,0202	0,549
Leverage (winsorized)	-0,0059	0,0041	0,157
Liquidity (Current Ratio)	-0,0112*	0,0065	0,091
Year 2022	0,0086	0,0059	0,149
Year 2023	-0,0109	0,0084	0,201
Year 2024	-0,0097	0,0120	0,423
Constant	0,3656	0,4330	0,402

Note: *p < 0.10; **p < 0.05; ***p < 0.01. Robust standard errors are clustered at the firm level.
Observations = 232; Firms = 58; R^2 within = 0.0813; Prob > F = 0.0000.
Source: Authors.

Table 10. Summary of Hypothesis Testing Results

Hypothesis	Hypothesis Statement	Model	Empirical Result	Decision
H1	ESG Combined Score (ESGC) has a positive effect on ROA	Model 1	Not significant (p = 0.466)	Not supported
H2	ESG controversies have a negative effect on ROA	Model 3 (Controversy High)	Negative and significant (β = −0.0028; p = 0.001)	Supported
H3	ESG controversies moderate the ESGC–ROA relationship such that the effect of ESGC weakens as controversies increase	Model 3 (Interaksi)	Positive and significant interaction (β = 0.000043; p = 0.015)	Not supported (opposite direction)
H4	ESG Gap (ESG Score − ESGC) has a negative effect on ROA	Model 4	Negative and significant (β = −0.0042; p = 0.000)	Supported

Source: Authors.

Robustness Checks

Robustness A (Alternative Dependent Variable): replacing ROA with Net Margin in Model 1 and Model 4.

Model 1 (Alternative):

$$NetMargin_{it} = \alpha_i - 0.0052756ESGC_{it} - 0.0173407SIZE_{it} - 0.0204909LEV_{it} - 0.0076943LIQ_{it} + \lambda_t + \varepsilon_{it}$$

As a robustness test, the study replaces ROA with Net Margin to assess whether the results remain consistent when profitability is measured using an alternative indicator. In the baseline model, ESG Combined Score (ESGC) does not have a significant effect on ROA (β = −0.000741; p = 0.466). A consistent result is obtained when Net Margin is used as the dependent variable, where ESGC also remains statistically insignificant (β = −0.005276; p = 0.139). These findings indicate that the direct effect of ESGC on firm profitability during the 2021–2024 period is relatively weak, regardless of whether profitability is measured based on asset efficiency or sales margins. However, the Net Margin model is not jointly significant (Prob > F = 0.2263), in contrast to the ROA model, which is jointly significant (Prob > F = 0.0145). This difference suggests that margin-based profitability is more strongly influenced by short-term operational factors that are not fully captured by ESG variables and financial controls included in the model.

Model 4 (Alternative):

$$NetMargin_{it} = \alpha_i + 0.0009651ESG_GAP_{it} - 0.0533778SIZE_{it} - 0.0225611LEV_{it} - 0.01023453LIQ_{it} + \lambda_t + \varepsilon_{it}$$

As an additional robustness check, the study re-examines the effect of ESG Gap (ESG Score − ESGC) using a different profitability proxy. In the main estimation, ESG Gap is found to be negative and highly significant with respect to ROA (β = −0.004194; p < 0.01), indicating that a larger gap between "headline ESG performance" and the controversy-adjusted ESG score is associated with lower asset-based profitability. However, when the dependent variable is replaced with Net Margin, the effect of ESG Gap becomes statistically insignificant (β ≈ 0.000965; p = 0.333). This finding suggests that ESG

credibility penalties are more strongly reflected in asset-based performance (ROA) than in sales margins, which tend to be driven by short-term operational conditions.

Robustness B (Alternative Independent Variable): replacing ESGC with ESG Score in Model 1 and Model 3.

Model 1 (Alternative):

$$ROA_{it} = \alpha_i - 0.0011287ESGScore_{it} - 0.0070713SIZE_{it} - 0.0053806LEV_{it} - 0.0096499\beta_4 LIQ_{it} + \lambda_t + \varepsilon_{it}$$

As a robustness test for Model 1, the study replaces ESG Combined Score (ESGC) with ESG Score to assess whether the baseline results are sensitive to the choice of ESG proxy. The results show that ESG Score does not have a statistically significant effect on ROA (β = −0.001129; p = 0.256), consistent with the baseline finding that ESGC is also insignificant (β = −0.000741; p = 0.466). Control variables—Size, winsorized Leverage, and Liquidity—remain insignificant at the 5% level with similar coefficient signs, while time effects display a consistent pattern in which the year 2022 shows a marginally positive effect on ROA (β = 0.011504; p = 0.075), whereas 2023–2024 are not significant. Overall, the alternative model yields a within R^2 of 0.0803 (slightly higher than the baseline value of 0.0720) and is jointly significant (Prob > F = 0.0137). These results indicate that the insignificance of ESG effects on ROA is robust to changes in ESG proxies, and that stronger empirical support emerges when ESG credibility and controversy dimensions are incorporated in subsequent models.

Model 3 (Alternative):

$$ROA_{it} = \alpha_i - 0.001085ESGScore_{it} - 0.0005004ContHigh_{it} - 0.00000602(ESGScore_{it} \times ContHigh_{it}) - 0.0073509\, SIZE_{it} - 0.0056651\, LEV_{it} - 0.0112823\, LIQ_{it} + \lambda_t + \varepsilon_{it}$$

The main Model 3 uses ESG Combined Score (ESGC) as a credibility-adjusted ESG proxy, whereas the robustness model replaces ESGC with ESG Score, which reflects headline ESG performance, while maintaining the same moderation structure through Controversy High (100 − controversies score) and estimating the model using fixed effects with clustered robust standard errors. In the main Model 3, Controversy High has a negative and significant effect on ROA (β = −0.002758; p = 0.001), reinforcing the evidence that ESG controversies function as reputational and risk penalties that depress profitability. The interaction term ESGC × Controversy High is positive and significant (β = 0.000043; p = 0.015), indicating that the ESG–profitability relationship is conditional on controversy pressure. In contrast, when ESG is measured using ESG Score, the results change substantially: ESG Score is not significant (β = −0.001085; p = 0.283), Controversy High is not significant (β = −0.000500; p = 0.480), and the interaction ESG Score × Controversy High is also not significant (β = −0.000006; p = 0.657). As a result, the moderation mechanism is no longer statistically observed. This contrast indicates that reputational penalty dynamics and controversy-based moderation are more clearly detected when ESG is measured using a credibility-adjusted proxy (ESGC) rather than a raw ESG Score. Overall, these robustness results strengthen the argument that, in the Indonesian context during 2021–2024, the ESG dimension relevant to profitability is not merely a high ESG score, but ESG credibility as reflected in its interaction with controversy risk and corporate reputation.

Discussion

Overall, the findings indicate that the relationship between ESG and firm profitability in Indonesian companies during the 2021–2024 period is more appropriately understood through the lens of ESG credibility rather than through aggregate ESG levels alone. In the baseline model, ESG Combined Score (ESGC) does not exhibit a statistically significant effect on ROA, and this result remains consistent when the ESG proxy is replaced with ESG Score and when profitability is alternatively measured using Net Margin. These findings are in line with prior literature emphasizing that the ESG–profitability relationship in emerging markets is often weak, heterogeneous, and unstable (Huang, 2021; Mugova et al., 2025; Purbasari & Rokhim, 2024). Moreover, the results are consistent with empirical evidence from Indonesia suggesting that ESG does not always significantly affect profitability in specific contexts (Ferli et al., 2025), although other studies continue to report positive effects (Rizqo & Qadri, 2024).

When reputational dimensions are incorporated into the analysis, the results become more pronounced. The ESG Controversies Score—where higher values indicate fewer controversies—exhibits a positive effect on ROA, while its risk-transformed counterpart (Controversy High) shows a negative and significant impact. These findings reinforce the argument that ESG controversies operate as reputational penalties that undermine firm performance. This evidence is consistent with prior studies highlighting the performance-degrading effects of ESG-related risks through reputational and cost channels (Jucá et al., 2024; Ma & Ma, 2025).

Interestingly, the interaction between ESGC and Controversy High in Model 3 is positive and statistically significant, suggesting that the ESG–profitability relationship is conditional on reputational pressure. This result may be interpreted as evidence that, for firms experiencing controversies, improvements in ESGC generate greater economic value as signals of credibility restoration. However, this moderating effect does not emerge when ESG is measured using the raw ESG Score, indicating that credibility-adjusted ESG measures are more informative in capturing reputational dynamics.

The strongest evidence is observed in Model 4, where ESG Gap (ESG Score − ESGC) has a negative and highly significant effect on ROA. This finding confirms that a discrepancy between "headline ESG performance" and controversy-adjusted ESG scores is associated with lower profitability, thereby supporting the credibility penalty narrative rooted in reputational risk and potential greenwashing concerns. Accordingly, the main contribution of this study lies in demonstrating that, in emerging market contexts such as Indonesia, ESG does not automatically translate into financial gains; rather, profitability is more sensitive to reputational risks and ESG credibility. These results reinforce the growing research agenda that shifts the analytical focus from **"**ESG performance" to "ESG credibility**"** as a key determinant of firm profitability.

CONCLUSION

This study examines the relationship between ESG and firm profitability in Indonesia over the 2021–2024 period, with a particular emphasis on ESG credibility, operationalized through ESG controversies, ESG–controversy interaction effects, and ESG Gap (ESG Score − ESG Combined Score). Fixed effects estimation results show that ESG Combined Score (ESGC) does not have a statistically significant effect on ROA, and this finding remains robust across several robustness checks, including alternative ESG proxies (ESG Score) and alternative profitability measures (Net Margin). In contrast, reputational dimensions play a more decisive role: ESG controversies function as penalties that suppress profitability, with higher levels of controversy being associated with lower ROA. The most compelling evidence emerges from the ESG Gap model, which demonstrates that a larger discrepancy between headline ESG performance and controversy-adjusted ESG scores is associated with significantly lower firm profitability. Taken together, the findings support the view that in emerging market settings, profitability is not solely determined by ESG levels per se, but is more sensitive to reputational risk and ESG credibility.

This study is subject to several limitations. First, the relatively short observation period (2021–2024) may constrain the ability to capture long-term or lagged effects of ESG on financial performance. Second, the distribution of ESG controversies in the sample is heavily skewed toward firms with low controversy exposure, limiting variation in reputational risk and potentially affecting the stability of interaction estimates. Third, robustness results indicate that while ESG Gap significantly affects ROA, its effect is not consistent when profitability is measured using Net Margin, suggesting that interpretations of ESG credibility effects depend on the choice of profitability indicators. Future research may extend this analysis by employing longer time horizons, exploring cross-sector heterogeneity, incorporating external variables such as media attention or ESG-oriented investors, and adopting dynamic modeling approaches to address potential endogeneity concerns.

The contributions of this study are both empirical and conceptual. Empirically, it enriches evidence from the Indonesian context by demonstrating that ESG effects on profitability do not necessarily materialize directly, but that controversies and credibility penalties constitute more consistent explanatory channels for firm performance. Conceptually, the study reinforces the shift from a narrow focus on **"**ESG performance**"** toward **"**ESG credibility**"**, and introduces ESG Gap as a relevant quantitative measure for identifying discrepancies between ESG claims and reputational realities. From a practical perspective, the findings suggest that firms cannot rely solely on improving ESG scores on

paper; instead, they must ensure credible and consistent ESG implementation to avoid controversies that can erode profitability and stakeholder trust.

Declaration of generative AI and AI-assisted technologies in the writing process

On behalf of my authors, during the preparation of this work, the authors used artificial intelligence in order to improve the clarity and language readability of the text of the article. After using this tool/service, the authors reviewed and edited the content as needed and take) full responsibility for the content of the published article.

REFERENCE

Ananta, B. (2025, May 9). *BSI Perkuat ESG, Kinerja dan Peringkat Global Naik*. Republika.

Anggraini, N. (2025, November 5). *Bank Mandiri Perkuat Komitmen ESG melalui Kinerja Keberlanjutan yang Solid*. Infobanknews.

Aydoğmuş, M., Gülay, G., & Ergun, K. (2022). Impact of ESG Performance on Firm Value and Profitability. In *Borsa Istanbul Review* (Vol. 22, pp. S119–S127). Borsa Istanbul Anonim Sirketi. https://doi.org/10.1016/j.bir.2022.11.006

Carolina, Y., Kenisah, M. L., Anthonius, A., & Jerry, J. (2025). Mapping ESG Structures Across Business Sectors in Emerging Markets: A Quantitative Exploration of Pillars and Subcategories. *International Journal of Sustainable Development and Planning*, *20*(10), 4517–4528. https://doi.org/10.18280/ijsdp.201037

Carreira, F., Silva, A., & Cepêda, C. (2025). Does Profitability Support Sustainability? Examining the Influence of Financial Performance and ESG Controversies on ESG Ratings. *Systems*, *13*(10). https://doi.org/10.3390/systems13100848

Chen, Z., & Xie, G. (2022). ESGDisclosure and Financial Performance: Moderating Role of ESG Investors. *International Review of Financial Analysis*, *83*. https://doi.org/10.1016/j.irfa.2022.102291

D'Amato, V., D'Ecclesia, R., & Levantesi, S. (2024). Firms' profitability and ESG Score: A Machine Learning Approach. *Applied Stochastic Models in Business and Industry*, *40*(2), 243–261. https://doi.org/10.1002/asmb.2758

Ferli, O., Ibrahim, I. F., Pranaja, Y., & Simanjuntak, F. S. (2025). Does ESG Disclosure or Size Which Matters to Profitability? Case of Banking Companies Listed on The Indonesian Capital Market 1. *Oikos: Jurnal Kajian Pendidikan Ekonomi Dan Ilmu Ekonomi*, *9*(2).

Huang, D. Z. X. (2021). Environmental, social and governance (ESG) Activity and Firm Performance: A Review and Consolidation. *Accounting and Finance*, *61*(1), 335–360. https://doi.org/10.1111/acfi.12569

Jucá, M. N., Muren, P. D., Valentinčič, A., & Ichev, R. (2024). The Impact of ESG Controversies on the Financial Performance of Firms: An Analysis of Industry and Country Clusters. *Borsa Istanbul Review*, *24*(6), 1305–1315. https://doi.org/10.1016/j.bir.2024.08.001

LSEG Data & Analytics. (2024). *Environmental, Social and Governance scores from LSEG Environmental, social and governance scores from LSEG 2*.

Ma, S., & Ma, T. (2025). ESG Controversies and Firm Value: Evidence from A-Share Companies in China. *Sustainability (Switzerland)*, *17*(6). https://doi.org/10.3390/su17062750

Mahreyni, V. (2025, May 17). *SMGR Masuk IDX ESG Leaders, SIG Paparkan Beberapa Faktornya*. Pasar Dana.

Malik, N., & Kashiramka, S. (2025). "ESG Disclosure and its Impact on Firm Leverage: Moderating Role of Quality of Financial Reporting and Financial Constraints." *Global Finance Journal*, *65*. https://doi.org/10.1016/j.gfj.2025.101099

Mugova, S., Zhou, S., Utete, R., Ilesanmi, K. D., & Qwabe, M. (2025). Impact of ESG Factors on Profitability: An Empirical Analysis of JSE-Listed Firms in South Africa. *Cogent Economics and Finance*, *13*(1). https://doi.org/10.1080/23322039.2025.2582275

Purbasari, A., & Rokhim, R. (2024). How Do ESG Ratings Impact Firms' Profitability and Cost of Capital? Evidence from ASEAN+3. *Journal of Management for Global Sustainability*, *12*(1). https://doi.org/10.13185/2244-6893.1219

Rizqo, M., & Ariyasa Qadri, R. (2024). The Interplay between ESG Disclosure and Financial Profitability. In *Journal of Applied Managerial Accounting* (Vol. 8, Issue 1).

Sulistyoningsih. (2025, May 26). *Riset OJK: ESG Hanya Sekadar Reputasi, Bukan Pendulang Profit Perusahaan*. Infobanknews.Com. https://infobanknews.com/riset-ojk-esg-hanya-sekadar-reputasi-bukan-pendulang-profit-perusahaan/

Taddeo, S., Agnese, P., & Busato, F. (2024). Rethinking the Effect of ESG Practices on Profitability through Cross-Dimensional Substitutability. *Journal of Environmental Management*, *352*. https://doi.org/10.1016/j.jenvman.2024.120115

Treepongkaruna, S., Kyaw, K., & Jiraporn, P. (2024). ESG Controversies, Corporate Governance, and the Market for Corporate Control. *Journal of Sustainable Finance and Investment*, *14*(4), 815–842. https://doi.org/10.1080/20430795.2024.2