

“Does poor ESG performance still drive profitability? New evidence from Indonesia’s SRI-KEHATI listed firms”

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DOES POOR ESG PERFORMANCE STILL DRIVE PROFITABILITY? NEW EVIDENCE FROM INDONESIA'S SRI-KEHATI LISTED FIRMS

Abstract

This study investigates the relationship between Environmental, Social, and Governance (ESG) performance and financial outcomes, as measured by Return on Assets (RoA), among publicly SRI-KEHATI listed firms in Indonesia. Utilizing panel data from 90 firm-year observations over six years, the analysis employs a Random Effects Model (REM) across three progressively expanded specifications. ESG performance is proxied by the Sustainability ESG Risk Score, with higher values indicating poorer ESG standing. The estimation reveals a consistently positive and statistically significant relationship between ESG risk and financial performance. In the baseline model, the coefficient for ESG is 0.598 with a p-value of 0.052. This effect strengthens in the second model (coefficient = 0.768, p-value = 0.010) and remains significant in the fully controlled model (coefficient = 0.724, p-value = 0.017). These results imply that firms with weaker ESG profiles may achieve higher profitability, particularly in emerging markets with lenient ESG enforcement. Sustainable Growth Rate (SGR) also strongly and positively influences RoA (coefficient = 0.740, p-value = 0.002), underscoring the role of sectoral reinvestment capacity. The findings raise critical questions regarding the alignment between ESG efforts and financial incentives in transition economies. Policymakers are urged to consider stronger regulatory frameworks to realign ESG compliance with firm-level profitability. This study contributes to the literature by providing context-specific insights into the paradox of ESG and financial success in under-regulated markets.

Keywords

ESG performance, return on assets, financial performance, sustainable growth, random effect model (REM)

JEL Classification

M14, L25, G32, Q56, C23

INTRODUCTION

The global transition toward sustainability has significantly reshaped the landscape of corporate strategy and stakeholder expectations. Environmental, Social, and Governance (ESG) considerations, once peripheral, have evolved into essential pillars of modern corporate governance, investment evaluation, and long-term value creation (Nugroho et al., 2024; Inayah & Fuadi, 2025). This shift is driven by growing awareness of environmental degradation, climate risk, social justice, and ethical governance, compelling firms to reframe their operations around sustainable development objectives (Eccles et al., 2014; Khan et al., 2016). From a financial perspective, ESG integration has been increasingly recognized not only as a reputational imperative but also as a determinant of operational resilience and financial out-performance (Hart & Dowell, 2011).

In emerging economies such as Indonesia, rapid industrialization, resource dependence, and institutional capacity constraints intensify the urgency for sustainable corporate behavior. Environmental degradation, income inequality, and weak enforcement mechanisms amplify the relevance of ESG frameworks in this context (Chava, 2014). In response, Indonesia has launched several initiatives to strengthen sustainability standards, most notably through establishing the SRI-KEHATI Index in 2009. Created by the Indonesia Stock Exchange (IDX) in partnership with the KEHATI Foundation, the index aims to promote Sustainable and Responsible Investment (SRI) by recognizing listed firms that excel in environmental management, social contribution, and governance practices (Sri-Kehati, 2021).

The SRI-KEHATI Index functions as both a benchmark for ESG-focused investors and a symbol of sustainability leadership among Indonesian firms. Companies are selected through a screening framework that includes environmental impact, labor rights, governance transparency, and ethical business conduct. In a regulatory landscape where ESG disclosure remains largely voluntary, the index provides a crucial reference point for aligning investor interest with sustainable corporate conduct (Sri-Kehati, 2021). Despite its significance, there remains limited empirical inquiry into the financial implications of index inclusion or ESG performance among Indonesian firms, particularly those beyond binary classification (i.e., listed vs non-listed).

Existing studies in developed markets have consistently shown a positive association between ESG performance and financial outcomes, citing pathways such as cost efficiency, access to capital, reputational gains, and risk mitigation (Kung et al., 2018; Shakil, 2021). However, in emerging markets, the relationship is less conclusive due to market inefficiencies, inconsistent ESG disclosures, and weak institutional oversight (Sen & Bhattacharya, 2001; Aydoğmuş et al., 2022). Moreover, many ESG studies overlook firm-specific characteristics, such as financial leverage, growth strategy, or market-based valuation, which can mediate or moderate the impact of ESG efforts.

This study addresses these research gaps by investigating the impact of ESG performance, measured using Sustainalytics ESG Risk Ratings (Morningstar Sustainalytics, 2024), on corporate financial performance, proxied by Return on Assets (RoA), in a panel of firms listed in the SRI-KEHATI Index during 2018–2023. In contrast to previous literature that relies solely on index membership or qualitative indicators, this research introduces a score-based ESG metric that captures the intensity of sustainability-related risk. Furthermore, the study incorporates key control variables, namely leverage, Tobin's Q, and the Sustainable Growth Rate (SGR), to build a more comprehensive econometric model that reflects internal financial dynamics and market perceptions.

By integrating both risk-based ESG assessments and firm-level financial indicators, this study aims to provide a more granular and empirically grounded understanding of the ESG-performance nexus within an emerging market context. The findings are expected to yield important insights for investors, corporate strategists, and policymakers seeking to balance environmental responsibility with financial viability in Indonesia's evolving capital market.

1. LITERATURE REVIEW

In recent years, the interplay between environmental, social, and governance (ESG) performance and financial outcomes has garnered substantial scholarly and practical attention. This growing interest stems from the global momentum toward sustainable development, stakeholder capitalism, and long-term value

creation, as well as from empirical findings suggesting that ESG-oriented firms may outperform their peers under certain circumstances (Eccles et al., 2014; Khan et al., 2016; Nugroho et al., 2024). As ESG becomes more deeply embedded in strategic decision-making, firms are increasingly expected to integrate sustainability into operations, risk management, and capital structure.

Return on Assets (RoA), defined as net income divided by total assets, remains one of the most widely used indicators of financial efficiency and profitability. It captures the ability of a firm to convert its asset base into earnings (Zhu et al., 2025). In much of the ESG literature, higher ESG performance – typically measured by lower ESG risk scores – is theorized to reduce regulatory exposure, enhance stakeholder loyalty, and lower capital costs, thereby improving profitability (Hart & Dowell, 2011; Fatemi et al., 2015). According to the natural-resource-based view (NRBV), ESG practices constitute strategic intangible assets that drive firm performance through long-term efficiency and reputation advantages (Hart & Dowell, 2011).

However, a more nuanced body of research challenges the assumption that strong ESG performance always translates to improved financial outcomes, particularly in short-term horizons and emerging markets. This study adopts the Sustainalytics ESG Risk Rating to operationalize ESG performance, where a higher score reflects greater ESG risk and thus poorer ESG performance. Intriguingly, the results reveal a positive relationship between ESG score and RoA, suggesting that firms with weaker ESG practices may nonetheless exhibit superior profitability.

This counterintuitive relationship is supported by a growing stream of literature. For instance, Athari et al. (2024) and Wang et al. (2022) find that in transitional economies and underdeveloped regulatory environments, ESG compliance may not be fully institutionalized or financially rewarded. In such cases, firms that do not incur ESG-related expenditures may enjoy cost savings, operational flexibility, and unencumbered growth, leading to improved financial metrics such as RoA. Booth et al. (2001) further argue that in developing countries, the pressure to adopt ESG practices remains weak, allowing firms with high ESG risk to sustain or even outperform others in terms of profitability.

Chava (2014) supports this view by demonstrating that firms that face fewer ESG-related constraints may prioritize profit-maximizing behaviors, particularly in sectors where ESG obligations are viewed as discretionary rather than mandatory. In the absence of strong institutional enforcement, ESG initiatives may be perceived as costly invest-

ments that do not yield immediate financial returns. Consequently, higher ESG scores indicating riskier ESG profiles may coincide with leaner operational models and higher short-term earnings. From this perspective, a higher ESG score could correlate positively with RoA, not because ESG is detrimental, but because its absence reduces costs in the short term.

While ESG performance directly contributes to financial outcomes, a firm's capital structure, particularly its level of leverage, may condition this relationship. Leverage, measured as total debt to total assets, serves as a proxy for financial risk and reflects a firm's reliance on debt financing. According to classical corporate finance theory, moderate leverage improves firm value through tax shields; however, excessive leverage may expose firms to default risk and constrain long-term investments, including ESG initiatives (Modigliani & Miller, 1958; Altman, 1968; Rajan & Zingales, 1995). Furthermore, high debt levels increase a firm's sensitivity to macroeconomic shocks, limiting the flexibility to implement sustainability strategies.

Empirical evidence supports the view that firms with strong ESG performance often benefit from reduced borrowing costs and improved access to capital, as they are perceived as lower-risk entities by creditors (Goss & Roberts, 2011; El Ghoul et al., 2011). On the other hand, in highly leveraged firms, the positive influence of ESG on profitability may be partially offset by the burden of debt servicing and constrained cash flows. Chava (2014), and Grisales and Aguilera-Caracuel (2019) argue that ESG strength contributes to more favorable lending conditions, but only when debt remains within optimal thresholds. Accordingly, this study includes leverage as a control variable and investigates its potential moderating effect.

In addition to financial structure, the broader sectoral context in which a firm operates significantly shapes its financial performance. Specifically, the Sustainable Growth Rate (SGR), calculated as return on equity multiplied by the retention ratio, serves as a proxy for a sector's ability to finance growth internally without raising external equity or increasing leverage (Kouser et al., 2012). SGR captures the structural potential of industries to

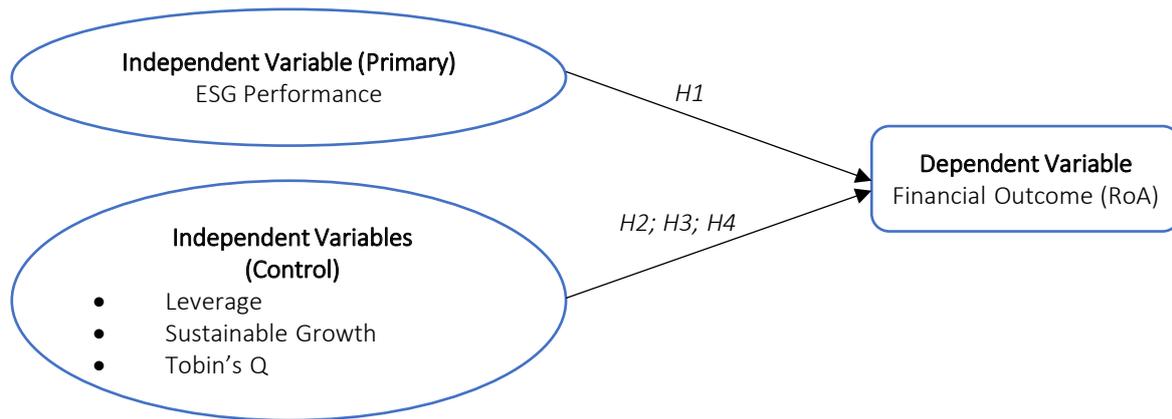


Figure 1. Research framework

support reinvestment and expansion. Firms operating in high-growth sectors may experience profitability due to strong market demand, independent of their ESG performance. Conversely, in mature or declining sectors, ESG may serve as a key differentiator enhancing operational efficiency and financial resilience. Prior research supports this interaction. Beck et al., (2005) found that growth constraints in low-SGR sectors increase the value relevance of firm-specific initiatives, including governance and sustainability. Athari et al. (2024) provide further evidence that sector-level ESG norms and environmental pressures affect the financial returns of ESG investments.

Another salient factor in explaining firm-level profitability is Tobin's Q, a market-based valuation metric calculated as the ratio of a firm's market value (equity plus liabilities) to the replacement cost of its assets. A high Tobin's Q indicates investor optimism regarding future earnings and reflects the market's valuation of intangible resources, including ESG reputation (Fatemi et al., 2015; Orlitzky et al., 2003). Khan et al. (2016) argue that firms with material ESG practices are more likely to attract investor interest, which translates into valuation premiums.

Zumente and Bistрова (2021) find that ESG enhances long-term shareholder value primarily through its effects on market perception. In such cases, profitability may be mediated by capital market trust, as firms perceived to be ESG-resilient may command higher earnings multiples. As Tobin's Q captures such valuation dynamics, it is included in this study as a control variable.

These dynamics are particularly significant in the context of an emerging market such as Indonesia. With growing investor interest in sustainability, but still-evolving regulatory and disclosure standards, the Indonesian capital market offers a unique platform to test the financial implications of ESG. The SRI-KEHATI Index, introduced to promote ESG awareness and investment, identifies listed companies that demonstrate a commitment to sustainable and responsible business practices (Sri-Kehati, 2021). However, the use of quantitative ESG scoring tools, such as Sustainalytics, provides a more granular measure of ESG risk management, thereby enabling a deeper examination of the financial benefits of ESG adoption.

Collectively, the literature suggests that ESG performance is a multidimensional driver of financial outcomes, whose effect is shaped by both firm-level and sector-level characteristics. By integrating ESG score, leverage, sectoral growth, and market valuation into a unified profitability model, this study contributes to a more nuanced understanding of how sustainability practices influence corporate financial performance, especially within an emerging economy context.

Based on the reviewed literature, the study proposes the following hypotheses:

- H1: ESG risk score is positively associated with RoA.*
- H2: Leverage moderates the relationship between ESG performance and RoA.*

H3: Sustainable growth from the industry sector influences the ESG–RoA relationship.

H4: Tobin's Q significantly moderates the ESG–RoA relationship.

2. METHODOLOGY

This study adopts a quantitative research design to examine the influence of Environmental, Social, and Governance (ESG) performance on corporate financial outcomes, specifically Return on Assets (RoA). The research focuses on firms listed in the SRI-KEHATI Index between 2018 and 2023, a recognized benchmark for sustainability-based investing in Indonesia. The index is curated based on ESG-related screening criteria, making it a suitable proxy for identifying companies that demonstrate commitment to sustainability principles (IDX, 2024; Morningstar Sustainalytics, 2024; Kouser et al., 2012).

To ensure the robustness and representativeness of the analysis, the sample selection was carried out using purposive (judgmental) sampling, guided by both data availability and the need for consistency in financial and ESG disclosure. The initial population comprised 25 companies that were included in the SRI-KEHATI Index between 2018 and 2023. The criteria are included as follows:

1. Firms listed on the Indonesia Stock Exchange (IDX) and included in the SRI-KEHATI Index during the entire study period;
2. Firms that were not delisted from the exchange between 2018 and 2023;
3. Firms with complete and publicly accessible financial reports for each year;
4. Firms reporting positive net income consistently throughout the observation period; and
5. Firms whose stock remained continuously listed in the index during the research period.

The application of these criteria yielded a final sample of 15 firms, resulting in 90 firm-year observations over six years. Table 1 presents the pur-

posive sampling process and the list of selected companies, along with their respective industrial sectors.

Table 1. Summary of sample selection and sample firms

No.	Company Name	Stock Code	Sector
1	PT Aneka Tambang Tbk	ANTM	Basic Materials
2	PT Astra Otoparts Tbk	AUTO	Consumer Discretionary
3	PT Bank Central Asia Tbk	BBCA	Financials
4	PT Bank Negara Indonesia (Persero) Tbk	BBNI	Financials
5	PT Bank Rakyat Indonesia (Persero) Tbk	BBRI	Financials
6	PT Bank Tabungan Negara (Persero) Tbk	BBTN	Financials
7	PT Bank Mandiri (Persero) Tbk	BMRI	Financials
8	PT Indofood CBP Sukses Makmur Tbk	ICBP	Consumer Staples
9	PT Indofood Sukses Makmur Tbk	INDF	Consumer Staples
10	PT Jasa Marga Tbk	JSMR	Infrastructure
11	PT Kalbe Farma Tbk	KLBF	Health Care
12	PT Industri Jamu dan Farmasi Sido Muncul	SIDO	Health Care
13	PT Telkom Indonesia (Persero) Tbk	TLKM	Infrastructure
14	PT United Tractors Tbk	UNTR	Industrials
15	PT Unilever Indonesia Tbk	UNVR	Consumer Staples

However, the data were compiled manually by the authors and consist of ESG scores from Sustainalytics, financial metrics including RoA, leverage ratio, sustainable growth rate, and Tobin's Q for 15 selected firms listed in the SRI-KEHATI Index. The complete dataset is openly accessible and can be reviewed via the Zenodo repository (Hermansyah et al., 2025). The dependent variable, RoA, is defined as the ratio of net income to total assets, serving as a key indicator of profitability relative to a company's asset base (Zhu et al., 2025). The main independent variable, ESG Performance, is measured using the Sustainalytics ESG Risk Rating (IDX, 2024; Morningstar Sustainalytics, 2024; Kouser et al., 2012). This quantitative score ranges from 0 to over 40, where lower values indicate lower ESG risk exposure and thus stronger sustainability performance. The rating categories are defined as follows: 0–10 (Negligible), 10–20 (Low), 20–30 (Medium), 30–40 (High), and >40 (Severe Risk) (IDX, 2024; Morningstar Sustainalytics, 2024).

Several control variables are incorporated to isolate the effect of ESG on financial outcomes. These include: Leverage, measured by total debt to total assets (Zhu et al., 2025); Sustainable Growth Rate, calculated as return on equity multiplied by the retention ratio, representing internally funded growth (Kouser et al., 2012); and Tobin's Q, defined as the ratio of the market value of equity plus total liabilities to total assets, capturing market valuation and growth expectations (Zhu et al., 2025); All data were collected from audited annual financial reports provided by the Indonesia Stock Exchange (IDX) database, and the Sustainalytics platform.

The analysis begins with the estimation of a Pooled Ordinary Least Squares (OLS) regression as the baseline model, expressed as:

$$RoA_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 X_{it} + e_{it}, \quad (1)$$

where RoA_{it} denotes the return on assets of firm i in year t , serving as a proxy for financial performance. The variable ESG_{it} represents the ESG performance score for firm i in year t , obtained from the Sustainalytics ESG Risk Rating. A lower score indicates a lower sustainability-related risk, thus higher ESG performance. Furthermore, the term β_0 represents the model's intercept, while β_1 and β_2 are coefficient vectors capturing the effects of ESG performance and the control variables, respectively. The control variables, denoted by X_{it} , include leverage ratio, sustainable growth rate, and Tobin's Q, which account for additional factors influencing financial outcomes. The error term, e_{it} , captures unexplained variation in the model.

To determine the most appropriate panel data model, the study evaluates two alternative specifications: Fixed Effects Model (FEM) and Random Effects Model (REM). FEM allows for time-invariant firm-specific intercepts (α_i), while REM introduces firm-specific unobservable components (u_i) that are assumed to be uncorrelated with the regressors. The REM is specified as:

$$RoA_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 X_{it} + u_i + e_{it}, \quad (2)$$

where u_i represents the random firm-specific effect, while e_{it} is the idiosyncratic error term. However, the composite error is defined as $v_i = u_i + e_{it}$.

All variables are transformed using the natural logarithm (\log). This logarithmic transformation serves several important econometric purposes. Firstly, it addresses heteroscedasticity by compressing the scale of data, reducing the influence of outliers, and improving the stability of variance. Secondly, logarithmic transformation linearizes nonlinear relationships, allowing percentage changes to be interpreted as elasticities. This makes the coefficients more interpretable in economic terms, particularly when dealing with ratio and index variables. Thirdly, the log transformation also helps in normalizing the data distribution, thereby satisfying the normality assumption of the classical linear regression model (Wooldridge, 2025).

To choose between FEM and REM, the F-test for FEM, Breusch-Pagan LM Test, and Hausman Specification Test are employed. Furthermore, to validate the reliability of the model, three classical assumption tests were conducted. Firstly, the normality of residuals was tested using the Jarque-Bera test, confirming that the residuals followed a normal distribution. Secondly, multicollinearity was assessed using the Variance Inflation Factor (VIF), and all variables were within acceptable thresholds, indicating no problematic collinearity. Thirdly, the Breusch-Godfrey Lagrange Multiplier test was employed to check for autocorrelation in the residuals, and no significant serial correlation was detected (Wooldridge, 2025).

3. RESULTS

The descriptive statistical results in Table 2 present an overview of the characteristics of the variables employed in this study. These include Return on Assets (ROA) as the dependent variable, ESG Score (ESG) as the main explanatory variable, and three control variables: Sustainable Growth (SG), Leverage Ratio (LR), and Tobin's Q (TQ). These statistics provide valuable insights into the central tendency, dispersion, and data range of each variable across the ninety observations derived from panel data involving fifteen firms over a six-year period.

Return on Assets (ROA), which measures financial performance, exhibits a mean value of 0.113.

This implies that, on average, the sampled firms were able to generate a net income equivalent to 11.3 percent of their total assets. The minimum and maximum values recorded are 0.004 and 0.312, respectively, indicating a considerable variation in firm-level profitability. Furthermore, the standard deviation of 0.089 suggests moderate dispersion around the mean, reflecting differences in operational efficiency and resource utilization among firms.

The ESG Score (ESG), which represents the level of exposure to environmental, social, and governance risk, has a mean of 24.797. The values range from 9.630 to 42.200 with a standard deviation of 8.215. It is important to note that higher ESG scores correspond to greater unmanaged ESG risk, hence lower ESG performance. The broad distribution of these variables underscore heterogeneity in sustainability risk exposure among firms, making it an appropriate metric for capturing variations in ESG practices.

The control variable Sustainable Growth (SG), which is calculated as the product of return on equity and the retention ratio, records a mean of 0.379. This suggests that, on average, firms are able to fund 37.9 percent of their growth internally without relying on external equity or debt. The minimum value is 0.114, while the maximum reaches 0.689, indicating variation in internally financed growth capacity across different firms and sectors. The standard deviation is 0.151, which implies moderate variation in reinvestment potential.

Leverage Ratio (LR), measured as the proportion of total debt to total assets, reports a mean value of 0.329. This indicates that 32.9 percent of the firm's assets are, on average, financed by debt. The observed minimum value is 0.0002, and the maximum value is 0.797, with a standard deviation of 0.257. These figures suggest significant heterogeneity in firms' capital structures, which may have implications for financial risk, investment decisions, and responsiveness to ESG initiatives.

Tobin's Q (TQ), a market-based valuation measure defined as the ratio of the market value of equity plus liabilities to the book value of total assets, has a mean value of 3.396. This indicates that, on average, the market values these firms at more than

three times the value of their assets. The minimum and maximum values recorded are 0.040 and 10.230, respectively, and the standard deviation is 2.841. These findings reflect considerable variation in investor perceptions and the valuation of intangible assets such as brand equity, innovation capacity, and ESG-related reputation.

Table 2. Descriptive statistics of data

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	90	113	89	4	312
ESG	90	24.797	8.215	9.63	42.2
SG	90	379	151	114	689
LR	90	329	257	0.0	797
TQ	90	3.396	2.841	0.04	10.23

In this study, selecting the appropriate regression model was guided by three principal diagnostic tests for panel data: the Chow Test, the Hausman Test, and the Lagrange Multiplier (LM) Test (see Table 2). These procedures are standard in econometric analysis and provide robust frameworks for determining the most suitable estimation technique for panel data structures (Wooldridge, 2025).

The Chow Test was first employed to compare the Pooled Ordinary Least Squares (OLS) model and the Fixed Effects (FE) model. The test produced an F-statistic of 2.170 with a p-value of 0.018, which is significant at the 5% level. This result leads to the rejection of the null hypothesis, thereby indicating that the Fixed Effects model provides a significantly better fit than the Pooled OLS model. The test result confirms the presence of unobserved heterogeneity across firms that must be accounted for (Wooldridge, 2025).

Following this, the Hausman Test was conducted to determine whether the Fixed Effects or Random Effects (RE) model should be preferred. The test yielded a chi-squared statistic of 0.580 with a p-value of 0.965, which exceeds conventional significance levels. This result fails to reject the null hypothesis, suggesting that the Random Effects model is appropriate and that the individual-specific effects are uncorrelated with the regressors (Wooldridge, 2025; Hausman, 1978). The Random Effects estimator, under these assumptions, is not only consistent but also more efficient.

Table 3. Model selection test results

Test Name	Model Compared	Test Statistic	Prob > Stat	Decision	Final Model Suggestion
Chow Test	Pooled OLS vs. Fixed Effects	$F(14, 71) = 2.170$	0.018	Reject H_0 : Use Fixed Effects	Fixed Effects
Hausman Test	Fixed Effects vs. Random Effects	$\chi^2(4) = 0.580$	0.965	Fail to reject H_0 : Use Random Effects	Random Effects
Lagrange Multiplier Test	Pooled OLS vs. Random Effects	$\text{chibar}^2(01) = 5.250$	0.011	Reject H_0 : Use Random Effects	Random Effects

Finally, the Breusch and Pagan Lagrange Multiplier Test was employed to test the adequacy of the Random Effects model over the Pooled OLS model. The test returned a chi-bar-squared statistic of 5.250 with a p-value of 0.011, indicating statistical significance. This finding provides strong evidence against the null hypothesis of no panel-level effects and supports the application of the Random Effects model (Breusch & Pagan, 1980).

Given these three complementary results, the Random Effects model is selected as the most appropriate for this study. It effectively addresses firm-level heterogeneity and retains the advantages of efficient estimation when the assumption of exogeneity between individual effects and regressors is plausible (Wooldridge, 2025). This approach is particularly well-suited for analyzing datasets that consist of multiple firms observed over time, as is the case in this study.

This study applied a Random Effects Model (REM) to assess the relationship between ESG performance and financial outcomes, with all continuous variables transformed using natural logarithms to improve model specification. The log transformation is widely recommended in panel data regression to linearize exponential relationships, stabilize variance, and facilitate elasticity interpretation, whereby the coefficient reflects percentage change (Wooldridge, 2025). The estimation was conducted in three stages, each incorporating additional control variables to ensure robustness.

The results consistently show a positive and statistically significant association between ESG risk scores and Return on Assets (RoA). In the baseline model, the coefficient for ESG is 0.598 ($p = 0.052$). This relationship strengthens in the second model with a coefficient of 0.768 ($p = 0.004$), and remains significant in the full model at 0.724 ($p =$

0.006). These values suggest that firms with higher ESG risk — indicating weaker ESG performance — tend to exhibit higher levels of profitability.

In addition, the sustainable growth rate demonstrates a strong and significant effect in both extended models, with coefficients of 0.732 and 0.740 (both $p = 0.002$). By contrast, leverage shows no significant effect across all models, and Tobin's Q, included in the third model, is also statistically insignificant (coefficient = 0.076, $p = 0.297$).

The overall explanatory power of the models improves with the inclusion of additional variables, as reflected by the increasing R^2 values: 0.015 in Model 1, 0.257 in Model 2, and 0.293 in Model 3. The final model's Wald statistic ($\chi^2 = 14.63$, $p = 0.006$) confirms the joint significance of predictors in explaining variations in RoA.

Table 4. Effects of ESG performance on financial outcome: REM estimation

Independent Variables	(1)	(2)	(3)
ESG performance (ESG)	0.598* (0.307)	0.768*** (0.300)	0.724** (0.302)
Leverage ratio (LR)	0.047 (0.061)	0.027 (0.058)	0.027 (0.057)
Sustainable growth rate (SG)		0.732*** (0.238)	0.740*** (0.238)
Tobin's Q (TQ)			0.076 (0.073)
R^2	0.015	0.257	0.293
Observations	90	90	90
Wald χ^2	3.800	13.600	14.630
Prob > χ^2	0.149	0.004	0.006

Note: Coefficients are significant at 0.10 (*), 0.05 (**), and 0.01 (***).

However, the results presented in Table 5 summarize the diagnostic checks for the three classical regression assumptions: normality, multi-

collinearity, and autocorrelation. These assumptions underpin the validity and reliability of the regression estimates in the Random Effects Model applied in this study. Overall, the diagnostics confirm that the regression results are statistically valid, with all classical assumptions adequately satisfied.

Firstly, normality of residuals was tested using three distinct approaches: the Shapiro–Wilk test, the Skewness–Kurtosis test, and the Shapiro–Francia test. All tests produced p-values well above the standard significance level of 0.05–0.296, 0.267, and 0.393, respectively. These results indicate that the residuals are normally distributed, satisfying the assumption required for inference in parametric models. According to Wooldridge (2025), ensuring normally distributed residuals is particularly crucial when evaluating hypothesis tests and confidence intervals.

Secondly, the multicollinearity test assessed the presence of linear correlation among independent variables using the Variance Inflation Factor (VIF). The mean VIF value is 4.48, and although the highest individual VIF is 7.70 for the ESGP variable, all values remain below the commonly accepted threshold of 10. This suggests that multicollinearity is not severe and does not distort the regression estimates (Patterson et al., 1981).

Lastly, the autocorrelation test was conducted using the Wooldridge test for panel data. The result, with an F-statistic of 3.817 and a corresponding p-value of 0.071, fails to reject the null hypothesis of no first-order autocorrelation. This supports the conclusion that the residuals are not serially correlated, thus meeting another critical assumption of the classical linear model.

4. DISCUSSION

The results presented in the preceding section reveal a consistently positive and statistically significant relationship between ESG risk scores and Return on Assets (RoA) across all model specifications. This finding suggests that firms with poorer ESG performance, as indicated by higher ESG risk scores, tend to exhibit higher short-term profitability. While counterintuitive in light of the mainstream narrative that strong ESG practices contribute to financial outperformance (Hart & Dowell, 2011; Fatemi et al., 2015), this result aligns with an emerging body of research that points to the complexities of ESG–financial performance dynamics in transitional and under-regulated markets (Athari et al., 2024; Chava, 2014; Booth et al., 2001).

In particular, this result corroborates the argument that in economies such as Indonesia, where regulatory enforcement of ESG practices remains weak, firms may rationally deprioritize ESG commitments in favor of cost efficiency and operational flexibility. ESG compliance often involves direct and indirect expenditures, ranging from reporting costs to investments in clean technologies and labor welfare, which may not yield immediate financial returns unless supported by institutional incentives or market premiums (Chava, 2014). Therefore, firms that minimize such expenditures may report leaner operations and higher net income relative to assets, resulting in elevated RoA figures. These dynamics empirically support Hypothesis 1 and are consistent with the institutional voids literature, which posits that governance gaps in emerging economies can distort the cost-benefit calculus of sustainability strategies (Sen & Bhattacharya, 2001; Aydoğmuş et al., 2022).

Table 5. Classical assumption tests summary

Test	Statistic Result	p-value	Conclusion
Normality			
Shapiro-Wilk)	W = 0.983	296	Residuals are normally distributed
Skewness-Kurtosis	Chi2 = 2.640	267	Residuals are normally distributed
Shapiro-Francia)	W' = 0.986	393	Residuals are normally distributed
Multicollinearity			
Mean VIF	4.48	-	No severe multicollinearity
Highest VIF	ESG = 7.70	-	All VIF < 10, acceptable
Autocorrelation			
Wooldridge Test	F(1,14) = 3.817	71	No autocorrelation (p > 0.05)

Beyond the primary ESG variable, the sustainable growth rate (SGR) emerges as another statistically significant and economically meaningful determinant of profitability. The consistently strong and positive effect of SGR on RoA suggests that firms operating in industries with higher reinvestment capacity are better positioned to convert internal resources into financial returns. This supports Hypothesis 3 and is in line with Beck et al. (2005), who argue that sectoral growth potential significantly shapes firm-level financial outcomes. In such sectors, internal capital accumulation may enable firms to pursue either aggressive expansion or to absorb short-term costs, such as those associated with ESG implementation, without undermining profitability. Moreover, Athari et al. (2024) emphasize that sector-level externalities, such as investor preferences and environmental norms, further moderate the financial payoffs of ESG strategies, reinforcing the importance of SGR as a contextual variable in this study.

In contrast, the leverage ratio, introduced as a control for capital structure, does not exhibit statistical significance in any of the three models. This result does not support Hypothesis 2, which anticipated that leverage would moderate the ESG-RoA relationship. Classical financial theory has long suggested that moderate debt levels improve firm value through tax shields (Modigliani & Miller, 1958), and several empirical studies posit that firms with stronger ESG practices may benefit from lower borrowing costs (Goss & Roberts, 2011; El Ghouli et al., 2011). However, the insignificance of leverage in this study may reflect the limited sensitivity of lenders to ESG risk in Indonesia. As Grisales and Aguilera-Caracuel (2019) argue, ESG's financial effects are often neutralized in firms with non-optimal or under-regulated debt environments, where credit decisions are not influenced by sustainability profiles. This finding suggests that within the Indonesian market, capital structure plays a limited role in shaping ESG's financial implications, either due to low ESG integration among creditors or the absence of credit-rating incentives linked to sustainability disclosure.

Similarly, Tobin's Q, a proxy for market-based firm valuation, does not significantly affect

RoA in the fully specified model, thereby refuting Hypothesis 4. This result points to the immature state of ESG integration in investor valuation practices within Indonesia. In developed markets, a high Tobin's Q often signals investor recognition of intangible assets, such as corporate reputation or ESG resilience, and is frequently associated with enhanced firm performance over time (Fatemi et al., 2015; Khan et al., 2016). However, in settings where capital markets have not yet embedded ESG considerations into asset pricing or equity valuation, Tobin's Q may not reflect sustainability-related advantages or disadvantages (Zumente & Bistrova, 2021). Consequently, the lack of significance here reinforces the notion that ESG-related intangibles are undervalued in the Indonesian stock market, possibly due to limited ESG transparency, inconsistent reporting, or a dominant focus on short-term financial metrics among investors.

The progressive increase in R^2 across the three models, from 0.015 in the baseline model to 0.293 in the full specification, demonstrates that including sectoral and market-based variables enhances the explanatory power of the analysis. This pattern supports the conceptual argument that ESG effects are not only firm-specific but also context-dependent, shaped by industry dynamics and market structures. In the absence of mature ESG ecosystems, the relationship between ESG and financial outcomes remains highly contingent on sectoral growth dynamics rather than traditional financial levers such as leverage or market valuation.

Collectively, the findings contribute to the broader discourse on ESG in emerging markets by illustrating how institutional constraints, market inefficiencies, and sectoral characteristics interact to shape firm-level financial performance. While the results do not negate the long-term strategic value of ESG practices, they do highlight the misalignment between sustainability incentives and profitability in economies where regulatory mechanisms are still evolving. This underlines the need for stronger policy interventions and ESG disclosure mandates that can bridge the gap between sustainable business conduct and financial reward.

CONCLUSION

The primary aim of this study was to examine the relationship between Environmental, Social, and Governance (ESG) performance and financial outcomes, as proxied by Return on Assets (RoA), among publicly listed companies in Indonesia. Using panel data estimation and three model specifications within the Random Effects framework, the analysis reveals a consistently positive and statistically significant association between ESG risk scores and RoA. This implies that firms with poorer ESG performance tend to exhibit superior short-term financial outcomes.

This finding is both striking and counterintuitive, challenging prevailing assumptions that better ESG practices are always rewarded financially. It highlights a distinctive dynamic within emerging markets, where weak institutional frameworks and limited regulatory enforcement may allow firms with minimal ESG commitments to operate at lower costs and achieve higher efficiency in the short run. Another notable result is the persistent and positive influence of the Sustainable Growth Rate (SGR) on profitability, reinforcing the idea that sectoral growth dynamics amplify firm-level financial performance, irrespective of ESG orientation. Conversely, leverage ratio and Tobin's Q are found to be insignificant, suggesting that financial structure and market valuation do not moderate the ESG-performance relationship within this specific context.

From a theoretical standpoint, the findings question the universal applicability of value-creating ESG frameworks in economies where sustainability norms are not yet institutionalized. Empirically, the study offers a cautionary perspective: the absence of robust ESG enforcement may incentivize firms to deprioritize sustainability in favor of short-term gains, potentially undermining broader environmental and social objectives.

Nonetheless, this study is not without limitations. First, the use of secondary ESG data, while standardized, may not fully capture context-specific environmental or governance nuances. Second, the timeframe and sample size, although balanced, limit the generalizability of the results beyond the Indonesian setting. Third, the focus on accounting-based performance leaves room for market-based and long-horizon financial indicators to be explored.

Future research should consider integrating the role of institutional factors, including government intervention, ESG policy incentives, and mandatory disclosure frameworks, to evaluate whether stronger regulatory environments encourage alignment between ESG commitment and financial success. Longitudinal or cross-country analyses may further reveal how these relationships evolve over time and across diverse institutional contexts.

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