

Research Article

The Effect of ESG Score on Firm Performance With the Moderating Role of Board Independence

(A Study on Financial Sector Companies)

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Abstract. This study analyzes the transition of the Indonesian financial sector toward a sustainable financial ecosystem by examining the impact of Environmental, Social, and Governance (ESG) performance on firm profitability. Despite the regulatory push for sustainable finance, market responses to non-financial disclosures remain mixed, raising questions about whether sustainability practices genuinely enhance asset efficiency or merely impose administrative burdens. This study aims to investigate the effect of ESG Scores on Firm Performance and evaluate whether Board Independence acts as an internal governance mechanism to moderate this relationship. Utilizing a quantitative approach, a purposive sample of 30 financial companies listed on the Indonesia Stock Exchange was observed from 2021 to 2023, yielding 90 firm-year observations analyzed via panel data regression with mean-centered Moderated Regression Analysis (MRA). The empirical results reveal that ESG Scores have an insignificant negative impact on Return on Assets (ROA). Furthermore, Board Independence fails to moderate the relationship. These findings conclude that ESG integration in Indonesia is currently compliance-driven rather than substantive, where the short-term structural costs of sustainability disclosure still outweigh its immediate accounting returns.

Keywords: Board Independence; ESG Scores; Firm Performance; Moderated Regression; Return on Assets.

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1. Introduction

The global financial architecture is currently undergoing a significant shift in perspective regarding long-term business resilience. Corporate evaluation is no longer assessed solely on the basis of short-term financial performance, but also considers how companies manage their environmental impact, social responsibility, and corporate governance (Flammer et al., 2019). This global momentum is driven by the rapid growth of sustainability-focused asset management across various regions, where institutional investors explicitly seek to incorporate non-financial metrics into their investment screening and portfolio construction (Sreedhar & Barney, 2022). In Indonesia, this international direction is formalized into a mandatory regulatory framework through POJK 51/2017, which requires Financial Services Institutions, Issuers, and Public Companies to implement Sustainable Finance and publish an annual Sustainability Report (Otoritas Jasa Keuangan, 2017). Furthermore, the Phase II Sustainable Finance Roadmap (2021–2025) explicitly positions the financial services sector as a central actor to integrate sustainability into internal risk management and drive sustainable finance as the 'new normal' (OJK, 2021).

The primary objective of this study is to analyze the direct impact of Environmental, Social, and Governance (ESG) performance—measured through third-party standardized Bloomberg ESG Scores—on firm performance within the financial sector (Chen et al., 2023). From the perspective of Stakeholder Theory, superior ESG disclosure serves as a mechanism to respond to the expectations of various non-shareholder groups, thereby reducing non-

economic friction, securing social legitimacy, and improving accounting profitability (Freeman & Mcvea, 2008). Conversely, from the perspective of Agency Theory, transparent ESG ratings help reduce information asymmetry and strengthen external monitoring functions, ensuring that managerial actions align with the long-term economic interests of shareholders (Pulino et al., 2022a). However, implementing substantive ESG frameworks requires substantial short-term expenditures and infrastructure adaptation costs, which can temporarily weigh down operational efficiency and create a performance trade-off (Moussa et al., 2024). Consequently, prior empirical literature regarding the direct relationship between corporate sustainability disclosure and realization-based firm performance remains highly inconclusive.

To reconcile these conflicting empirical findings, this study introduces board independence as an internal corporate governance oversight mechanism that acts as a moderating variable. In accordance with Agency Theory, independent directors have no financial, managerial, or family ties to the executive management or controlling shareholders, allowing them to provide objective supervision and mitigate managerial moral hazard (Jensen & Meckling, 1976). A highly independent board is theoretically expected to challenge executive decisions and prevent the strategic misallocation of resources on symbolic, inefficient, or purely reputational ESG programs, thereby steering sustainability investments toward initiatives that substantively protect and enhance corporate value (Mccolgan, 2001). Under strong independent oversight, companies are more likely to execute ESG policies that effectively mitigate systemic compliance risks and enhance operational accounting returns (Aydoğmuş et al., 2022).

Despite the growing body of literature on sustainability, a critical research gap persists regarding the specific economic consequences of ESG scores within the Indonesian capital market, particularly in the financial services sector. While index benchmarks like the SRI-KEHATI Index serve as a market signal for sustainable investments, empirical evidence tailored to asset-driven and highly leveraged financial institutions remains heavily limited (Rivard & Thomas, 1997). Most existing domestic studies either analyze developed market contexts or group highly heterogeneous industries together, masking the distinct regulatory and operational dynamics of financial firms. Furthermore, initial domestic evidence suggests that the local capital market exhibits mixed responses to non-financial criteria, as compliance is frequently driven by administrative box-ticking rather than a core strategic transformation (Zarefar et al., 2022).

This study provides several distinct contributions to the existing literature. First, it offers localized empirical evidence regarding the financial implications of aggregate ESG scores by analyzing a purposive sample of 30 financial companies listed on the Indonesia Stock Exchange during the post-pandemic regulatory shift from 2021 to 2023. Second, it evaluates the strategic success of accounting-based profitability in an asset-driven sector by utilizing Return on Assets (ROA), which captures operational efficiency without the distortion of high equity multipliers (Venkatraman & Ramanujam, 1986). Third, it extends the application of corporate governance frameworks by examining whether the proportion of independent commissioners can statistically strengthen or weaken the economic returns of sustainability disclosures in a developing economy.

The remainder of this paper is organized as follows. Section 2 reviews the foundational theoretical literature and develops the formal hypotheses. Section 3 delineates the quantitative methodology, including data sources, variable operationalization, and panel regression specifications. Section 4 presents the descriptive statistics and classical assumption test diagnoses. Section 5 provides the empirical results of the regression estimation alongside an in-depth discussion. Finally, Section 6 delivers the conclusions, research limitations, and specific recommendations for future research.

2. Literature Review

Stakeholder Theory

Stakeholder Theory serves as a fundamental framework to explain why companies must extend their operational accountability beyond traditional shareholder wealth. This theory posits that a corporation's survival and success depend significantly on its capacity to manage relationships with a broader spectrum of constituents, including employees, customers, suppliers, community members, and regulatory authorities (Freeman & Mcvea, 2008). Within this

theoretical paradigm, corporate engagement in Environmental, Social, and Governance (ESG) practices represents a strategic mechanism to align the firm's operations with stakeholder values and institutional expectations. By transparently disclosing sustainability metrics, firms actively mitigate non-financial operational risks, secure strong social legitimacy, and enhance long-term reputational capital. Consequently, fulfilling stakeholder demands is theorized to generate specialized resources and strategic goodwill that ultimately manifest in superior accounting-based financial profitability.

Agency Theory

In contrast to the external relationship focus of Stakeholder Theory, Agency Theory addresses the internal contractual dynamics, structural conflicts of interest, and information asymmetries inherent between corporate principals and agents. This theoretical perspective assumes that corporate managers, acting as agents, may prioritize their own short-term opportunistic utility or reputational benefits over the long-term economic wealth of shareholders, who act as the principals (Jensen & Meckling, 1976). In the context of corporate sustainability, implementing non-financial frameworks can potentially introduce an agency conflict. Managers might allocate substantial corporate resources toward symbolic, highly visible ESG initiatives to boost their personal social prestige or engage in corporate greenwashing, without generating structural economic value for the firm. Therefore, robust corporate governance mechanisms are critically required to monitor managerial discretion and ensure that corporate sustainability investments are channelled into economically efficient practices that protect shareholder value.

ESG Performance

Environmental, Social, and Governance (ESG) performance represents a multidimensional construct used to evaluate a corporation's operational sustainability and ethical impact. In the modern financial landscape, ESG performance is systematically quantified through standardized provider metrics, such as the Bloomberg ESG Score, which aggregates a firm's non-financial disclosures into a comparable composite rating (Chen et al., 2023). The environmental dimension evaluates resource efficiency, waste management, and carbon footprint reduction strategies. The social dimension measures corporate relationships with internal and external stakeholders, including labor standards, human rights protection, and community development. Meanwhile, the governance pillar scrutinizes internal corporate structures, shareholder rights, transparency, and executive compensation alignments (Flammer et al., 2019). Within the framework of sustainable finance regulations, high ESG performance signals a firm's proactive adaptation to systemic non-financial risks and structural market changes.

Firm Performance

Firm performance represents the operational and financial realization of a company's strategic resource allocation over a specific fiscal period. In corporate finance research, performance metrics are broadly divided into market-based valuation indicators and accounting-based profitability measures (Venkatraman & Ramanujam, 1986). This study utilizes Return on Assets (ROA) as the primary proxy for internal financial performance, calculated as net income divided by total assets. Unlike market-based metrics that are heavily susceptible to short-term investor sentiment, macroeconomic volatility, and external market speculation, ROA isolates internal operational efficiency (Rivard & Thomas, 1997). For asset-driven and highly leveraged institutions within the financial services sector, ROA provides an accurate reflection of managerial capability in utilizing institutional assets to generate substantive accounting returns and net economic earnings.

Board Independence as Governance Mechanism

Board independence represents a cornerstone structural element of internal corporate governance designed to safeguard stakeholder interests and align executive behavior with capital efficiency. Operationalized as the proportion of independent commissioners relative to the total board membership, independent board members possess no direct operational,

financial, or familial ties to the management or the controlling shareholders (Fuji et al., 2016). Under the dual-board system implemented in the Indonesian capital market, the independent board of commissioners functions exclusively as an objective oversight body (Zarefar et al., 2022). Their primary corporate responsibility is to monitor executive decisions, ensure transparent financial reporting, and manage agency conflicts (Jensen & Meckling, 1976). In the context of corporate sustainability, independent oversight is critical to guarantee that strategic investments in non-financial programs are carried out prudently to maximize long-term firm resilience rather than satisfying symbolic managerial interests (McColgan, 2001)

Hypothesis Development

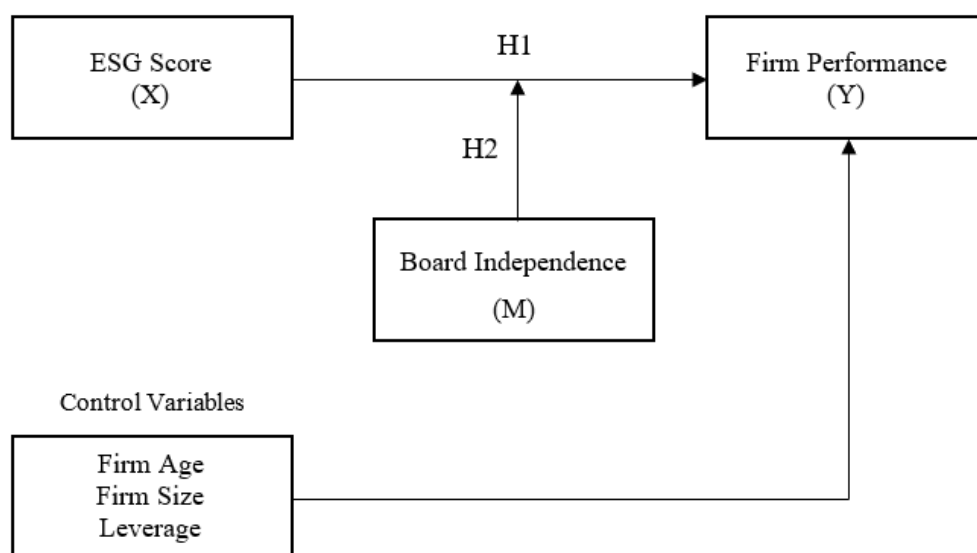


Figure 1. Research Framework.

The relationship between corporate sustainability integration and financial profitability is deeply rooted in the alignment of external legitimacy and internal operational efficiency. From the perspective of Stakeholder Theory, a firm's long-term survival relies on its capacity to manage relationships with a broad spectrum of constituents, including employees, customers, communities, regulators, and investors (Freeman & Mcvea, 2008). Under this framework, integrating Environmental, Social, and Governance (ESG) practices into core business strategies functions as a proactive mechanism to fulfill stakeholder expectations and maintain social legitimacy (Awa et al., 2024). Companies with superior ESG disclosure tend to build a stronger corporate reputation, secure higher levels of market trust, and lower non-financial operational risk exposure (Aydoğmuş et al., 2022). These non-financial advantages complement traditional financial analysis by providing easier access to capital, lowering financing costs, and mitigating litigation risks, which collectively translate into enhanced accounting-based profitability such as Return on Assets (Chen et al., 2023).

Furthermore, from the standpoint of Agency Theory, a standardized external assessment like the Bloomberg ESG score helps reduce information asymmetry between managers and shareholders (Pulino et al., 2022). This transparent rating mechanism serves as an external monitoring tool, giving managers a strong economic incentive to execute substantive sustainability programs that support long-term goals rather than engaging in purely symbolic greenwashing, thereby lowering residual agency losses and boosting firm performance (Pulino et al., 2022). Prior empirical studies across emerging markets corroborate that higher ESG scores are significantly and positively associated with corporate profitability and financial value (Aydoğmuş et al., 2022). Based on these theoretical frameworks and empirical evidence, the first hypothesis is formulated as follows

H1: There is a positive effect relationship between ESG Score and Firm Performance.

The financial returns of corporate sustainability practices are highly dependent on the effectiveness of a firm's internal oversight environment. Board independence, operationalized as the proportion of independent commissioners, serves as a primary internal corporate

governance mechanism to maintain objectivity in supervision, protect shareholder interests, and strengthen risk control (Fuji et al., 2016). According to Agency Theory, independent directors have no financial, managerial, or family ties to the executive management, enabling them to provide unbiased monitoring and mitigate potential principal-agent conflicts of interest (Jensen & Meckling, 1976).

In the context of sustainability, a highly independent board ensures that corporate resources allocated to ESG initiatives are driven by strategic capital efficiency rather than managerial opportunism or self-serving image-building (McColgan, 2001). Independent commissioners act as critical gatekeepers who challenge executive decisions, reducing the risk of greenwashing and encouraging management to integrate environmental, social, and governance factors directly into core operational processes (Awa et al., 2024). In an environment characterized by strong independent oversight, firms with high ESG scores are more likely to implement sustainability practices that substantively mitigate compliance risks and stabilize operational accounting returns (Aydoğmuş et al., 2022). Prior empirical literature in global south economies supports this view, indicating that board independence significantly moderates the relationship between sustainability disclosures and firm performance metrics (Bamel et al., 2025). Based on these arguments, the second hypothesis is formulated as follows

H2: Board Independence significantly moderates the relationship between ESG Scores and Firm Performance.

3. Research Method

Population and Sample

The population comprises all financial services sector companies listed on the Indonesia Stock Exchange (IDX) during 2021–2023. Purposive sampling selected companies meeting these criteria: financial sector IDX listing during 2021–2023, available Bloomberg ESG scores, complete annual reports, and complete data for all operational and control variables. From 109 IDX-listed financial companies, 79 lacked consistent ESG data or complete financial reports, leaving 30 firms with complete data across three years. The final panel dataset includes 90 observations from 30 companies.

Variables and Measurement

This study examines one dependent variable (firm performance), one independent variable (ESG performance), one moderating variable (board independence), and three control variables (firm size, leverage, firm age).

Firm performance is measured using Return on Assets (ROA), calculated as the ratio of net income to total assets. ESG performance is operationalized using the composite ESG score provided by the Bloomberg database, which evaluates sustainability disclosures on a standardized continuous scale ranging from 0 to 100. Board independence is measured as the continuous ratio or proportion of independent commissioners relative to the total number of sitting board members. Control variables are operationalized as follows: firm size is measured using the natural logarithm of total assets, leverage is calculated as the ratio of total liabilities to total assets, and firm age is determined by the number of years since public listing on the Indonesia Stock Exchange (IDX). This research uses a panel data common effect model.

4. Results

Table 1. Descriptive Statistical Analysis.

Variable	Obs	Mean	Std. dev.	Min	Max
ROA	90	2.184	6.901025	-18	52
ESG	90	43.82144	11.75501	14.56	65.88
BI	90	0.537	0.1036573	0.25	0.75
Age	90	19.86667	10.88882	0	41
LnSize	90	11.55082	0.703501	7.683864	14.59218
Leverage	90	0.6782222	0.2489735	0.04	0.88
ESG_BI	90	23.98047	8.506201	3.64	43.848

The descriptive statistics show that firm performance (ROA) ranges from -18% to 52%, with a mean of 2.184% and a high standard deviation of 6.901, indicating significant variation in operational profitability across the financial sector firms during the observation period. ESG performance ranges from 14.56 to 65.88, averaging 43.821 with a standard deviation of 11.755, reflecting a moderate level of sustainability commitment and diverse reporting transparency among the sampled companies. Board independence averages 0.537 (range 0.25–0.75, SD = 0.104), suggesting that, on average, more than half of the board seats are held by independent commissioners to maintain objective supervision. For the control variables, firm age averages 19.867 years (range 0–41, SD = 10.889), indicating relatively mature listings, while firm size (LnSize) averages 11.551 (range 7.684–14.592, SD = 0.704), and leverage averages 0.678 (range 0.04–0.88, SD = 0.249), representing a fairly consistent debt-reliant capital structure. Meanwhile, the mean value of the interaction variable (ESG_BI) is 23.980 with a standard deviation of 8.506 (range 3.64–43.848), capturing the combined baseline distribution of sustainability practices and independent oversight before the regression analysis.

Table 2. Coefficient of Determination Test.

Regression Model	R-Squared (R^2)	Explanatory Power	Change in R
Model 1 (Without Moderation)	0.060	6.00%	Base
Model II (With Moderation)	0.090	9.00%	+0.030 (3%)

Table 2 shows the coefficient of determination test without moderation. The R-squared is 0.060, indicating that the independent variables are able to explain approximately 6.00% of the variation in firm performance (ROA). This is without the moderating variables and the interactions.

Meanwhile after adding moderating variable and variables interaction. The R-squared increases to 0.090, indicating the model explains approximately 9.00% of the variation in firm performance. This gain, from 0.060 in the controls-only model, demonstrates the added explanatory value of including board independence and its interaction terms.

Table 3. Simultaneous Significance Test.

Regression Model	F-Statistic	Prob F > (p-value)
Model 1 (Without Moderation)	1.107	0.372
Model II (With Moderation)	1.179	0.345

Table 3 shows the simultaneous significance test for both empirical specifications. For Model 1 (without moderation), the F-statistic is 1.107 with a p-value (Prob > F) of 0.372, indicating that the ESG score and the firm-level control variables do not simultaneously exercise a statistically significant effect on firm performance (ROA). For Model 2 (with moderation), after integrating board independence and its centered interaction term, the F-statistic slightly alters to 1.179 with a p-value of 0.345. Since the p-values for both specifications remain consistently above the standard 0.05 significance threshold, it is concluded that the

independent, moderating, and control variables across both models are simultaneously insignificant in explaining variations in internal financial profitability.

Table 4. T-Test Statistic (Without Moderation).

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]
C_ESG	-.058	.085	-0.69	.498	-.231	.115
Age	.052	.07	0.74	.465	-.092	.196
LnSize	.729	.714	1.02	.316	-.731	2.188
Leverage	-7.875	4.663	-1.69	.102	-17.411	1.661
Constant	-1.93	8.601	-0.22	.824	-19.521	15.661

Table 4 shows the partial significance test for the direct linear regression model. The independent variable, ESG score (C_ESG), displays a negative coefficient of -0.058 with a p-value of 0.498, indicating that sustainability performance does not exercise a statistically significant direct effect on firm performance (ROA). Furthermore, all firm-level control variables—including firm age, size, and leverage—consistently present p-values well above the standard 0.05 threshold, confirming that none of these baseline indicators possess a statistically significant individual contribution to predicting accounting profitability within the sampled financial institutions.

Table 5. T-Test Statistic (With Moderation).

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]
C_ESG	-.025	.072	-0.35	.727	-.173	.122
C_BI	-14.329	7.734	-1.85	.074	-30.147	1.488
Age	0	.065	-0.00	.998	-.133	.133
Leverage	-6.378	4.114	-1.55	.132	-14.791	2.036
LnSize	.672	.667	1.01	.322	-.693	2.036
C_ESG_BI	-.295	.471	-0.63	.536	-1.257	.668
Constant	-1.105	7.576	-0.15	.885	-16.6	14.39

variable (C_ESG) and all control variables (Age, Leverage, and LnSize) remain statistically insignificant in explaining return on assets (ROA). Interestingly, board independence (C_BI) exhibits a significant negative direct relationship with corporate profitability ($x = -14.329$, $p = 0.074$), indicating it is partially correlated with decreased accounting returns at the 10% significance level. However, the primary interaction term (C_ESG_BI) yields a negative coefficient of -0.295 with an insignificant p-value of 0.536, confirming that board independence fails to function as a significant moderating mechanism. Ultimately, these results provide empirical proof that the internal governance oversight of independent directors in Indonesia does not weaken or strengthen the impact of sustainability performance on financial returns.

5. Discussion

The Effect of ESG Score on Firm Performance

Based on the panel data regression analysis, the ESG Score variable (C_ESG) yields negative coefficients with statistically insignificant p-values across both empirical models, leading to the formal rejection of Hypothesis 1. This statistical insignificance directly contradicts the foundational assumptions of Stakeholder Theory, which posits that fulfilling non-financial stakeholder expectations automatically optimizes internal corporate profitability. Instead, the empirical results unveil a operational trade-off within the Indonesian financial sector, where the heavy upfront capital expenditures, structural infrastructure adaptations, and extensive compliance monitoring required to secure high ESG ratings impose an immediate administrative burden that suppresses short-term asset efficiency. This finding aligns with local evidence indicating that the domestic capital market is still in an early, compliance-driven stage of sustainable financial transition, wherein domestic investors continue to prioritize traditional accounting parameters over non-financial sustainability metrics, thus leaving corporate investments in ESG disclosures uncaptialized in terms of direct economic returns.

The Moderating Role of Board Independence on ESG-Firm Performance Relationship

The Moderated Regression Analysis (MRA) demonstrates that the interactive term between the ESG Score and Board Independence (C_ESG_BI) presents an structurally negative coefficient with an insignificant p-value, thereby rejecting Hypothesis 2. This outcome indicates that board independence fails to exercise any statistically significant moderating role—neither strengthening nor weakening—on the relationship between corporate sustainability disclosures and return on assets. From a theoretical standpoint, this insignificance challenges the central tenet of Agency Theory, which assumes that independent oversight mechanisms naturally eliminate managerial opportunism and redirect corporate resources toward value-enhancing initiatives. In reality, while independent commissioners in Indonesia satisfy the formal quantitative regulatory thresholds for independent board composition, they statistically fail to steer or optimize the strategic allocation of sustainability investments into tangible financial returns. Consequently, the internal monitoring environment cannot bridge the short-term performance trade-off associated with administrative sustainable finance compliance.

6. Conclusions

This study reveals that the ESG score has an insignificant negative relationship with Return on Assets (ROA), demonstrating that corporate sustainability disclosures have not yet been successfully capitalized into short-term operational asset efficiency. Furthermore, while board independence exhibits a significant negative direct effect on profitability at the 10% level, it fails to function as a statistically significant moderating mechanism. Consequently, both hypotheses proposed within this research framework are rejected.

These results indicate that mandatory sustainability integration and internal governance monitoring structures within the Indonesian financial industry operate primarily as a compliance-driven administrative exercise rather than a strategic core business transformation. The substantial upfront capital expenditures and ongoing operational costs required for extensive ESG data monitoring create a short-term financial performance trade-off. Ultimately, these investments fail to yield direct accounting-based returns in a developing market where capital providers and domestic investors continue to heavily prioritize traditional financial fundamentals over non-financial sustainability disclosures.

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