

Does Profitability Matter? The Dual Role of ROA and ROE in the ESG–Firm Value Relationship

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ABSTRACT

Purpose: This study investigates the relationship between Environmental, Social, and Governance (ESG) performance and firm value, with profitability—measured by Return on Assets (ROA) and Return on Equity (ROE)—serving as the moderating variable.

Method: Data were collected from companies listed on the Indonesian Stock Exchange (IDX) over five years (2019-2023). Control variables include firm size, firm age, and leverage. This study employs a quantitative approach, utilizing panel data regression on 209 firm-year observations from IDX-listed companies. Tobin's Q serves as a proxy for firm value, while the ESG score is the independent variable, moderated by profitability.

Result: The findings indicate that ESG performance positively affects firm value in the base model. However, this effect turns negative when profitability is included as a moderator. Notably, the interaction term ESG*ROE has a significant positive effect, suggesting that higher profitability (as reflected by ROE) enhances the positive impact of ESG on firm value. In contrast, ROA does not exhibit a significant moderating effect.

Practical Implications for Economic Growth and Development: This study underscores the importance of integrating sustainability efforts (ESG) with strong financial performance to create long-term value. This insight is crucial for policymakers and investors aiming to promote responsible business practices and sustainable economic development.

Originality/Value: This study examines the moderating role of profitability—specifically ROA and ROE—in the relationship between ESG performance and firm value. By focusing on an emerging market context, this research offers insights on how different dimensions of profitability influence the ESG–firm value nexus.

Keywords: *Environmental Social and Governance, Profitability, Firm Value*

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INTRODUCTION

In recent years, the concept of ESG performance has garnered increasing attention from investors, policymakers, and corporate leaders worldwide. This trend is particularly pronounced in Indonesia, where environmental damage is becoming more prevalent (Agustin et al., 2024). The ESG concept guides sustainable economic development, and in this era, a higher quality of growth and sustainable development has become a major focus for various stakeholders, including shareholders, investors, governments, and regulatory agencies, all of whom have shown a rapidly increasing interest in ESG issues (Ruan & Liu, 2021). Companies that effectively implement ESG strategies are believed not only to contribute to sustainable development but also to enhance their financial performance by attracting investors, improving their corporate reputation, and minimizing regulatory risks.



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In relation to stakeholder theory, organizations require support not only from shareholders but also from their broader stakeholder network. Stakeholder theory posits that organizations must generate multiple benefits for various entities, including civil societies, communities, customers, employees, governments, shareholders, and suppliers (Mahajan et al., 2023). When conducting international business, companies must consider their impact on local communities, the environment, and the economy, ensuring that their social responsibilities are fulfilled (Suprpto et al., 2023). While both ESG and CSR focus on sustainability, ESG has gained greater attention in academic research due to its structured, measurable, and investor-oriented nature. Recognizing that merely investing in CSR activities is insufficient for improving financial performance, there are broader strategies that organizations must adopt (Boulhaga et al., 2023).

Beyond the direct impact of ESG on firm value, corporate characteristics such as firm size, firm age, and leverage also play critical roles in shaping this relationship. Larger firms typically have more resources to invest in ESG initiatives, while older firms may benefit from more established governance practices. Leverage can affect financial stability and the ability to sustain ESG commitments, thus ensuring the robustness of the findings. These firm-specific factors will be considered as control variables. By examining the moderating role of profitability, this research seeks to provide a more comprehensive understanding of how ESG affects firm value. The findings will offer valuable insights for corporate decision-makers, investors, and regulators, emphasizing the importance of integrating ESG principles into business strategies to achieve long-term financial and sustainability goals. Research by Hesniati et al. (2024) indicates that industries should be more involved in environmental activities, both in terms of authority and responsibility, especially concerning environmental matters.

Several studies have explored the effects of ESG on firm value and profitability. Research by Aydoğmuş et al. (2022) found that the combined ESG score positively and significantly affects firm value, with Tobin's Q and ROA showing a correlation, as both ratios reflect a company's financial performance. High firm profitability generally leads to better financial performance. D'Amato et al. (2024) found that ESG scores impact a firm's profitability, measured by EBIT. However, some ESG activities may also reduce profitability, as ESG standards can increase costs while potentially lowering profitability. Additionally, long-term ESG activities are suggested to positively influence firm performance. A study by Yuen et al. (2022) found similar results regarding the impact of ESG activities on bank profitability, noting that short-term implementation of ESG standards may reduce profitability due to increased operational costs, although stakeholder theory supports these initiatives as they contribute to broader value creation.

Over time, these efforts may align with shareholder interests by enhancing firm value, consistent with the long-term perspective of modern shareholder theory. The study by Cheng et al. (2024) investigates how ESG impacts firm value, showing a significant relationship where ESG increases firm value. Another study indicates that the relationship between ESG and firm value, moderated by profitability, is less evident. The sustainability report suggests that promoting ESG will benefit companies and their stakeholders. However, ESG disclosure can send negative signals that may reduce firm value in the eyes of investors and negatively affect a firm's profitability (Sulistyawati & Dwi, 2023). This situation relates to signaling theory, which posits that signals can either attract or deter investor interest. In this study, we will examine the moderating role of profitability on the relationship between ESG and firm value, using ROA and ROE as measures of profitability, acknowledging that the research remains limited, particularly concerning the profitability measured by ROE.

Firm value is a critical indicator of corporate success, influencing shareholder value, market position, and long-term business sustainability. Despite extensive literature on ESG and firm value, previous studies have produced mixed results regarding the direct impact of ESG on firm value. Some scholars argue that ESG strengthens competitive advantage and increases firm value (Mohammad & Wasiuzzaman, 2021), while others highlight that the costs of ESG implementation may exceed its short-term benefits (Pulino et al., 2022). Furthermore, most

existing research does not account for firm-specific characteristics (e.g., firm size, firm age, and leverage) as control variables to ensure the robustness of the findings. Addressing this gap, this study aims to provide empirical evidence on whether profitability moderates the impact of ESG on firm value while considering firm-specific factors. The findings will contribute to the ongoing debate regarding the financial implications of ESG and offer valuable insights for investors, corporate decision-makers, and policymakers.

Hypotheses Development

ESG and Firm Value

Strong ESG practices can lead to higher firm value through several theoretical mechanisms. Based on stakeholder theory, companies that actively engage in ESG practices are more likely to build trust and long-term support from stakeholders. By improving their ESG disclosure and responsibility, firms can attract greater investor interest and secure funding opportunities, ultimately contributing to firm value. This engagement enhances stakeholder confidence, attracts investment, and fulfills governance responsibilities, all of which support value creation (Hu et al., 2023).

From another perspective, traditional shareholder theory posits that a company's responsibility is to maximize shareholder wealth, often interpreted as short-term financial gains. However, recent developments suggest a shift in this perspective, as the concept increasingly leans towards ensuring a company's long-term place in the economy (Zumente & Bistrova, 2021). Shareholder theory may now view ESG not merely as a cost, but as a strategic investment that ultimately maximizes shareholder value over the long term through risk reduction and sustained profitability.

Furthermore, based on signaling theory, a strong ESG profile serves as a positive signal to the market, indicating effective management, lower exposure to risk, and a long-term vision. Together, these theoretical perspectives suggest that ESG performance is positively correlated with firm value. Firms with higher ESG performance are likely to be perceived more positively by investors. This is because environmental, social, and economic goals depend on how firms signal their ESG performance and financial history to stakeholders, thereby shaping perceptions of brand value (Lee et al., 2022).

H1: ESG has a significant positive effect on firm value.

Moderating Effect of Profitability on the Nexus between ESG and Firm Value

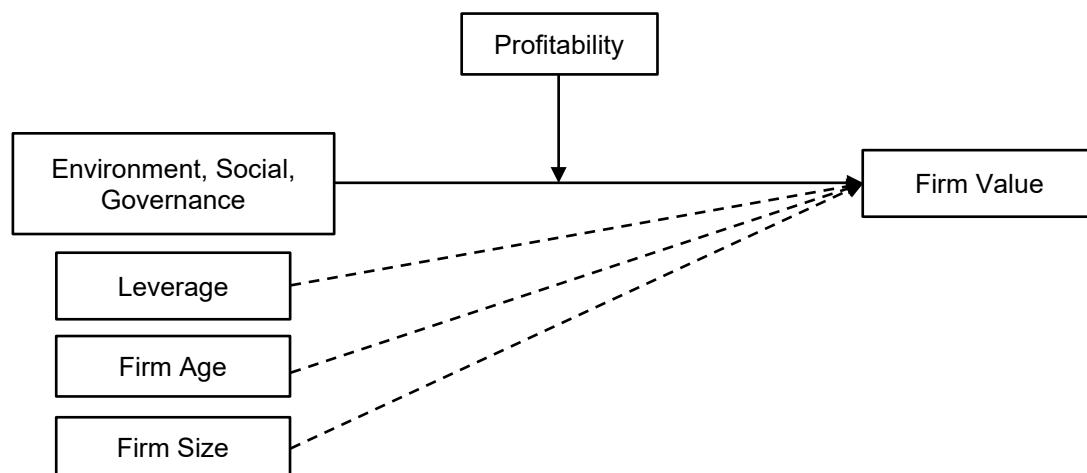
ESG performance reflects a firm's commitment to sustainable practices and ethical governance, which can enhance stakeholder trust and long-term firm value. Companies with strong ESG commitments are often associated with lower risks, improved reputations, and long-term financial stability, all of which can enhance their market valuation. Profitability serves as a key indicator of a company's financial performance and operational efficiency. The higher a company's profitability, the more positive the investors' perception will be. Increased investor confidence can lead to greater investment interest, which can raise stock prices and enhance firm value (Bon & Hartoko, 2022). From a financial perspective, higher profitability indicates a company's ability to generate earnings from its assets and operations, which can enhance investor confidence and trust. According to signaling theory, companies with high profitability can send a positive signal to the market about their operational efficiency and future growth, thereby reducing information asymmetry and increasing firm value (Huang, 2022). High profitability signals to the market regarding the company's future prospects and managerial competence. This signal reduces information asymmetry and may attract more investors, leading to an increase in the firm's share price. Moreover, when a company consistently reports strong profits, it suggests financial stability and long-term growth potential, both of which are valued by shareholders. Firm value is an important indicator of investor welfare, as a high firm value typically reflects a higher rate of return on investment

and is a key metric used by investors to evaluate a company's future success (Bon & Hartoko, 2022). Profitability, particularly as measured by Return on Assets (ROA), shows how effectively a company uses its total assets to generate profit; a high ROA can reinforce the value of these initiatives in the eyes of investors. However, ROA may not always capture the financial benefits of ESG investment effectively, especially if the asset base includes significant debt or operational inefficiencies. Return on Equity (ROE), in contrast, focuses on how well a firm utilizes shareholder equity to generate profit, making it a more direct reflection of value creation for investors. Some prior findings (Sulistyawati & Dwi, 2023) suggest that ROA may have a weaker role in moderating the ESG–firm value relationship due to the potential costs associated with ESG disclosure. Nevertheless, conceptually, ROE may provide a stronger moderating effect because it reflects a firm's capacity to align ESG initiatives with shareholder value. Therefore, this study hypothesizes that profitability, as measured by ROE, has a stronger moderating effect on the relationship between ESG performance and firm value than ROA.

H2a: Profitability (ROA) moderates the relationship between ESG performance and firm value.

H2b: Profitability (ROE) moderates the relationship between ESG performance and firm value.

Figure 1. Research Framework



Source: Developed by the authors (2025)

METHOD

This study employs quantitative research, utilizing panel data analysis to examine the relationship between ESG performance, profitability, and firm value. The sample for this research comprises companies from all sectors listed on the Indonesia Stock Exchange (IDX). Initially, 83 companies across all sectors were considered; however, due to data availability constraints, the final sample was reduced to 46 companies that met specific criteria, including having ESG scores available in the DSRI Refinitiv Thomson Reuters database. The study covers a five-year period from 2019 to 2023. The sample was selected using purposive sampling, applying criteria such as continuous listing on IDX from 2019 to 2023, complete ESG score data from the Refinitiv Thomson Reuters database, and comprehensive financial statement data for profitability, firm value, and control variables. A total of 209 data points were collected and processed using STATA.

ESG performance serves as a crucial indicator for assessing a company's commitment to sustainability and ethical business practices. This research utilizes the DSRI Refinitiv Thomson Reuters database for ESG measurement, which provides a comprehensive,

standardized, and objective ESG score. Previous research by Demiraj et al. (2023) indicates that the score used in their article was sourced from the Thomson Reuters (Refinitiv) database, and Li et al. (2022) also employed Thomson Reuters for their study. Refinitiv ESG scores are derived from publicly available company reports, including annual reports, sustainability reports, and corporate governance disclosures. These scores evaluate firms based on three main pillars: Environmental, Social, and Governance, each comprising multiple key performance indicators (KPIs). Refinitiv Thomson Reuters data is among the few major ESG data providers utilized in several academic papers (Ehlers et al., 2024).

Profitability measures a company's ability to generate profits. Many studies utilize Return on Assets (ROA) as a profitability measurement tool (Aydoğmuş et al., 2022). Data is sourced from official company publications on the Indonesia Stock Exchange (BEI). This study will employ both ROA and Return on Equity (ROE) to assess firm profitability. Additionally, company value will be measured using Tobin's Q, which is forward-looking and considers both accounting and market-based metrics, making it difficult for management to manipulate (Okafor et al., 2021). Control variables include firm size, firm age, and leverage. Firm size serves as a proxy for various positive aspects, including profitability (Lim & Rokhim, 2020). Larger firms typically have greater access to financial resources, better risk diversification, and significant market influence, which may enhance their ability to implement sustainable business strategies, including ESG initiatives. Firm age is measured as the number of years since the firm was established, reflecting the company's maturity and experience in the industry. A longer-established company is generally assumed to have stronger credibility with investors, and it is expected that such companies will achieve higher profits than newer ones (Lambey, 2021). Leverage, measured by the Debt-to-Equity Ratio (DER), indicates the extent to which a company's assets are financed through debt, comparing total liabilities to shareholder equity to evaluate the degree of leverage employed (Jihadi et al., 2021).

Table 1. Variable Measurement

Variable Type	Variable Name	Measurement	Reference
Dependent	Firm Value	Tobins'Q = Market Value of Firm/Replacement Cost of Firm Asset	(Butt et al., 2023)
Independent	ESG	DSRI Refinitiv Thomson Reuters Database	(Agustin et al., 2025)
Moderating	Profitability	Return on Asset (ROA) & Return on Equity (ROE)	(Okafor et al., 2021)
Control	Firm Size	Ln of Total Asset	(Wahidahwati & Ardini, 2021)
	Firm Age	Ln of Firm Age	(Livnat et al., 2021)
	Leverage	Total Debt/Total Asset	(Jihadi et al., 2021)

Source: Compiled by the authors (2025)

This study employs Ordinary Least Squares (OLS) regression as the primary method of data analysis. OLS is widely used in empirical research due to its simplicity, interpretability, and efficiency in estimating linear relationships between dependent and independent variables. This method is particularly suitable for cross-sectional or panel data analysis, where the objective is to examine the magnitude and significance of influences among variables. OLS is chosen because it provides the best linear unbiased estimator (BLUE) and is appropriate for testing interaction effects, such as moderation, which is a key component of this study. In this research, the dependent variable is firm value proxied by Tobin's Q; the independent variable is environmental, social, and governance (ESG) factors; and the moderating variable is profitability, measured by return on assets (ROA) and return on equity (ROE). Several control variables include firm-specific characteristics such as firm size, firm age, and leverage.

Panel regression estimation will be conducted using STATA software with the following model specification:

$$TobinQ_{it} = \alpha + \beta_1 ESG_{it} + \beta_2 ROA_{it} + \beta_3 (ESG_{it} \times ROA_{it}) + \beta_4 LEV_{it} + \beta_5 FSIZE_{it} + \beta_6 FAGE_{it} + \varepsilon_{it}$$

$$TobinQ_{it} = \alpha + \beta_1 ESG_{it} + \beta_2 ROE_{it} + \beta_3 (ESG_{it} \times ROE_{it}) + \beta_4 LEV_{it} + \beta_5 FSIZE_{it} + \beta_6 FAGE_{it} + \varepsilon_{it}$$

The dependent variable, firm value proxied by Tobin's Q, reflects how the market perceives a firm's value relative to its physical asset base. The independent variables, return on assets (ROA) and return on equity (ROE), represent firm profitability. The interaction term (ESG × ROA or ESG × ROE) is included to test whether profitability moderates the effect of environmental, social, and governance (ESG) factors on firm value. Control variables, represented by financial ratios, may also affect the firm's financial performance (Cho & Tsang, 2020).

RESULT AND DISCUSSION

Descriptive Statistics

Table 2 presents the descriptive statistics of the variables used in this study, including the mean, standard deviation, minimum, and maximum values. These statistics provide an overview of the distribution and central tendencies of the data, which aids in understanding the general characteristics of the sample.

Table 2. Descriptive Statistics

Variable	N	Mean	Std. Dev.	Minimum	Maximum
ESG	209	53.077	17.807	13.761	88.108
ROA	209	0.066	0.117	-0.186	1.062
ROE	209	0.260	1.543	-1.503	21.972
Tobins'Q	209	1.809	1.886	0.638	16.263
Firm Size	209	31.844	1.413	29.206	35.315
Firm Age	209	43.110	22.054	7.000	128.000
LEV	209	0.540	0.233	0.103	0.995

Source: Processed data (2025)

This study analyzes 209 observations from 46 companies over five years. The average ESG score is 53.08, indicating a moderate sustainability effort, with scores ranging from 13.76 (very weak) to 88.11 (strong initiatives). Return on assets (ROA) averages 6.6%, varying from -18.6% to 106.2%, reflecting diverse profitability levels. A negative ROA indicates that some companies are struggling to generate profits, while others have exceptionally high asset earnings, achieving a 100% return on assets. In contrast, return on equity (ROE) shows greater variability, averaging 26%, with extreme values ranging from -150% to 2,197%. This variability indicates that while some companies are struggling, others are significantly increasing shareholder value. Tobin's Q averages 1.89, suggesting strong market expectations, with a range from 0.64 to 16.26, indicating both undervalued and potentially overvalued firms. A Tobin's Q above 1 suggests that investors expect strong future growth and profitability. The result for firm size in this study is relatively stable, with a mean of 31.84 and a small standard deviation of 1.41, indicating that most firms in the sample are of similar scale. Meanwhile, firm age ranges from 7 to 128 years, with an average of 43.11, showing a mix of both young and well-established firms. Finally, leverage (LEV) has an average of 0.54,

with values ranging from 0.10 to 0.99, reflecting varying levels of financial leverage across companies. These results provide a foundational understanding of the dataset, allowing for further analysis of the relationships between these variables.

Pearson Correlation Matrix

Table 3 presents the Pearson correlation coefficients among the variables used in this study. These coefficients indicate the strength and direction of the linear relationships between pairs of variables and help identify potential multicollinearity issues prior to regression analysis.

Table 3. Pearson Correlation Analysis

Variable	ESG	ROA	ROE	Tobins'Q	LEV	Firm Size	Firm Age
ESG	1.000						
ROA	0.107 (0.125)	1.000					
ROE	-0.015 (0.828)	0.177** (0.010)	1.000				
Tobins'Q	0.066 (0.341)	0.487*** (0.000)	0.131* (0.059)	1.000			
LEV	0.195*** (0.005)	-0.254*** (0.000)	0.144** (0.037)	-0.019 (0.785)	1.000		
Firm Size	0.433*** (0.000)	-0.244*** (0.000)	-0.150** (0.030)	-0.332*** (0.000)	0.468*** (0.000)	1.000	
Firm Age	0.457*** (0.000)	0.102 (0.142)	0.034 (0.627)	0.163** (0.018)	0.260*** (0.000)	0.413*** (0.000)	1.000

Source: Processed data (2025)

The correlation analysis reveals several key relationships among the variables. Larger and older firms tend to have higher ESG scores, as indicated by the strong positive correlations between ESG and both Firm Size (0.433***) and Firm Age (0.457***). However, Firm Size negatively correlates with Tobin's Q (-0.332***), suggesting that larger firms tend to have lower market valuations. Return on Assets (ROA) is positively associated with Tobin's Q (0.487***) and negatively associated with leverage (-0.254***), implying that firms with higher profitability tend to have lower market valuations and less financial leverage. Meanwhile, leverage (LEV) shows strong positive relationships with Firm Size and Firm Age, indicating that larger and older companies tend to have higher debt levels. Return on Equity (ROE) has a weak positive correlation with Tobin's Q (0.131*), suggesting that firms with higher returns on equity may have slightly better market valuations. Overall, the results indicate that Firm Size and Firm Age play significant roles in influencing ESG performance, leverage, and market valuation, while profitability metrics like ROA and ROE exhibit more nuanced relationships with other financial indicators.

Regression Result

Table 4 displays the results of the regression analysis used to examine the relationship between ESG performance, profitability, and firm value. Three models are presented to assess the direct effect of ESG on firm value, the role of profitability, and the moderating effect of profitability on the ESG-firm value relationship. The analysis includes control variables and year dummies to account for external influences.

Table 4. Regression Result

Variable	(Model 1) TobinsQ	(Model 2) TobinsQ	(Model 3) TobinsQ
ESG	0.018** (2.04)	0.005 (0.67)	-0.020*** (-4.16)
ROA		1.554 (0.21)	
ROE			-6.448*** (-6.07)
ESG*ROA		0.077 (0.55)	
ESG*ROE			0.165*** (6.03)
Firm Size	-0.796*** (-3.90)	-0.615** (-4.05)	-0.305*** (-4.32)
Firm Age	0.026*** (2.070)	0.018*** (2.69)	0.003 (1.07)
LEV	1.232* (1.77)	1.796*** (2.85)	0.057 (0.12)
2019	0.000 (.)	0.000 (.)	0.000 (.)
2020	-0.1.01 (-0.19)	0.042 (0.09)	0.074 (0.25)
2021	-0.608 (1.28)	-0.681 (-1.51)	-0.627*** (-2.03)
2022	-0.710 (-1.52)	-0.786* (-1.77)	-0.818*** (-2.76)
2023	-0.710* (-1.67)	-0.673* (-1.72)	-0.768*** (-2.94)
_cons	24.9923*** (4.37)	19.425*** (4.40)	12.370*** (6.10)
r ²	0.278	0.422	0.698
r ² _a	0.249	0.393	0.682
N	209	209	209

Source: Processed data (2025)

Table 4 presents the results of the regression analysis. In Model 1, ESG shows a positive and statistically significant effect on firm value (Tobin's Q) ($\beta = 0.018$, $p < 0.05$), suggesting that higher ESG scores are associated with increased firm value, thereby supporting Hypothesis 1 (H1). In Model 2, return on assets (ROA) does not exhibit a statistically significant effect on firm value ($p > 0.05$), and the interaction term between ESG and ROA is also not significant ($p > 0.05$), indicating that Hypothesis 2a is not supported. In Model 3, return on equity (ROE) demonstrates a significant negative direct effect on firm value (Tobin's Q) ($\beta = -6.448$, $p < 0.01$). However, the interaction term of ESG * ROE is positive and statistically significant ($\beta = 0.165$, $p < 0.01$), implying that firms with high ESG performance may benefit from higher ROE, thus supporting Hypothesis 2b (H2b) which posits ROE moderates the relationship between ESG and firm value. Among all the control variables, firm size has a consistently negative and significant effect across all models ($p < 0.05$). Firm age is positively significant in Models 1 and 2, while leverage is significant in Models 1 and 2 but becomes insignificant in Model 3. The adjusted R² values increase across the models, with Model 3 having the highest explanatory power (Adjusted R² = 0.698), indicating that including the interaction term improves the model's fit.

Discussion

The results indicate that ESG performance has a positive influence on firm value, while profitability measured using ROA does not moderate this relationship. However, the results show that ROE significantly strengthens the effect of ESG on firm value, suggesting that higher ESG scores are associated with increased firm value. Previous research by Wu et al. (2022) indicates that ESG has a positive and significant relationship with Tobin's Q, suggesting that ESG performance can help companies increase firm value. Additionally, prior studies have demonstrated that strong ESG performance can reduce equity risk, which may enhance investor confidence in the long term. These studies also report that companies with strong ESG practices tend to exhibit superior profitability, as measured by ROA and ROE (Koundouri et al., 2022).

The positive moderation of ROE aligns with shareholder theory, which posits that corporate strategies are considered effective when they contribute directly to shareholder wealth. However, this study is limited, particularly due to the scarcity of prior research that directly investigates the interaction between ROE, ESG performance, and firm value as measured by Tobin's Q. Nevertheless, these findings are consistent with previous research by Thanh Nguyen et al. (2022), emphasizing that market investors tend to value companies more positively when ESG practices are supported by strong financial performance, particularly when they meet investor expectations for socially responsible investing.

ROE, as a measure of a company's ability to generate profit from shareholder equity, serves as a key indicator for investors. This indicator makes ESG efforts appear more credible. Conversely, the insignificant role of ROA may be attributed to its broader asset-based perspective, which includes debt-financed activities and may not directly reflect shareholder returns. This result highlights how different measures of profitability can yield varying investor responses to ESG disclosures.

CONCLUSION

This study aims to examine the effect of ESG performance on firm value, with profitability measured by ROA and ROE as moderating variables. It focuses on companies in an emerging market context to investigate whether strong financial performance can enhance the impact of ESG on firm value. The results show that ESG performance positively affects firm value. ROA does not significantly moderate the relationship between ESG and firm value, suggesting that asset-based profitability may not directly influence investor perception in this context. However, ROE has a significant positive moderating effect, indicating that firms with high ESG performance and strong shareholder returns are more likely to be valued highly by the market.

These findings suggest that companies should not only improve their ESG initiatives but also ensure they maintain strong financial performance, particularly in terms of equity returns, to maximize the benefits of ESG on firm valuation. Investors and policymakers in emerging markets can use ROE as a key indicator when evaluating the effectiveness of ESG disclosures, supporting the idea that ESG strategies aligned with shareholder value creation are more likely to gain market support. Future research can explore the role of other profitability measures, such as NPM and EPS, in moderating the relationship between ESG and firm value. It is also recommended to examine different sectors and expand the analysis to more countries for comparative insights.

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