

Does Integrated Reporting Quality Enhance the Value of ESG Performance? Evidence From Indonesia Listed Firms

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Abstract

This study analyzes the impact of Environmental, Social, and Governance (ESG) performance on firm performance and examines the moderating role of Integrated Reporting Quality (IRQ) among companies listed on the Indonesia Stock Exchange (IDX) during 2020–2024. Despite growing pressure for transparent ESG disclosure, ESG implementation in Indonesia still suffers from inconsistent information quality, and research on IRQ's role in strengthening the ESG–firm performance link remains limited. Using a quantitative approach, panel data regression was applied to 242 observations from 49 companies selected via purposive sampling. ESG performance was measured using the Refinitiv Thomson Reuters score, IRQ using a binary scoring system based on the Integrated Reporting Framework, and firm performance was proxied by Return on Equity (ROE) and Tobin's Q, with firm size, leverage, and industry as control variables. Results show ESG performance positively and significantly affects both ROE and Tobin's Q in the baseline model; once IRQ is introduced, the direct ESG effect becomes negative, while the ESG×IRQ interaction remains positive and significant. These findings confirm IRQ as a critical moderator of the ESG–firm performance relationship, suggesting that companies and regulators on the IDX should prioritize integrated reporting quality alongside ESG performance. However, these findings should be interpreted as associations rather than causal effects, given the limited sample of 49 firms with available ESG score and the short five-year observation period.

Keywords:

ESG Performance; Quality of Integrated Reporting; Firm Performance.

1. INTRODUCTION

In recent years, ESG has received increasing attention from investors, regulators, and companies as part of strategies to create business sustainability and improve firm performance (Hesniati et al., 2025). Investors are increasingly considering ESG in making decisions because it is seen as able to reflect the quality of governance, social responsibility, and environmental concern of the company (Bamel et al., 2025). In Indonesia, this attention has grown since POJK No 51/POJK. 03/2017, which requires public companies and financial services institutions to prepare sustainability reports as a form of transparency on environmental, social, and corporate governance aspects (POJK, 2017). ESG is seen as able to support sustainable economic growth and increase company value through improved reputation, investor confidence, and long-term risk management (Hamdouni, 2025).

Globally, around 75% of large companies have implemented sustainability reporting (KPMG, 2023). Many companies in Indonesia still use ESG implementation as a form of government regulatory compliance and have not fully become the company's main strategy to create long-term value (Yori and Rahmawati, 2025). Although the Financial Services Authority (OJK) and the Indonesia Stock Exchange (IDX) have encouraged the use of ESG criteria, reporting practices still vary (Butar-butur et al., 2025), partly because of inadequate assessment systems and unclear information disclosure. Establishing clearer and more consistent ESG reporting standards is therefore crucial (Syarifuddin et al., 2024).

In the modern business era, ESG is an important factor to improve firm performance because it can affect the company's profitability and value. Study by Bo and Li (2025) show that ESG criteria strengthen the link between digital transformation and business performance, acting as a strategic factor beyond demonstrating social responsibility. Study by (Zumente and Bistrova (2021) likewise report that ESG improves firm performance by making the company better known, improving management quality, and increasing stakeholder trust. Research by Butar-butur et al. (2025) highlights integrated reporting quality as a moderator since it facilitates the merging of financial and non-financial information, enhancing transparency and illustrating the connection between ESG performance and firm performance.

However, the evidence is mixed. Research by Mans-Kemp and Lugt (2020) find that companies with high integrated reporting quality do not always show better financial performance, as most financial indicators are not significantly influenced. In addition, Research by Handoyo and Anas (2024) shows that the relationship between ESG and firm performance with the circumstances studied. Although environmental and social elements do not show a large influence, while the governance dimension has a real influence, suggesting that implementing good governance can prevent inter-agency conflicts and increase transparency. In Indonesia, ESG actually negatively influence on firm value because it is considered as a cost burden with limited resources (Yori and Rahmawati, 2025).

The literature thus indicates that the relationship between ESG and firm performance varies across situations. ESG has a beneficial impact in developed countries (Zennaro et al., 2024), but can have a negative impact in developing countries such as Indonesia (Yori and Rahmawati, 2025). Research on integrated reporting quality is growing, yet it still rarely used as a factor that modifies the ESG-firm performance relationship. The research gaps are therefore inconsistent results, limited study of the interaction between these variables, and limited evidence from developing countries, especially Indonesia, using recent panel data from 2020-2024 after the OJK regulations on ESG. Based on these gaps, this study addresses the following research questions: (1) does ESG performance significantly affect firm performance, as measured by ROE and Tobin's Q, among companies listed on the IDX; and (2) does the quality of integrated reporting moderate the relationship between ESG performance and firm performance?

In addition to the direct impact of ESG on firm performance, the role of quality integrated reporting also serves as a moderating factor, company characteristics related to the company size, leverage, and industry also play an important in shaping this relationship. In general, the performance of a company is evaluated through two methods, namely Return on Equity (ROE) and Tobin's Q. Generally, larger firms have greater resources to implement ESG methods. Leverage can help reduce a company's financial risk while sustaining profitability, enabling it to produce returns. Furthermore, industry specific differences can be mitigated by addressing differences in characteristics between sectors (Hamdouni, 2025). These factors will be used as control variables.

This study offers deeper insights into the evolution of the ESG literature and the significance of high-quality integrated reporting in improving firm performance, particularly in developing countries like Indonesia. It aims to provide solid evidence on how integrated reporting quality can strengthen or weaken the impact of ESG on firm performance, while considering firm-specific characteristics. Academically, it contributes to the management science and corporate reporting literature by providing empirical evidence from an emerging market, where this question remains underexplored in the Indonesian setting. Practically, the findings offer guidance for company management in designing more effective ESG and reporting strategies, for investors in interpreting ESG signals, and for regulators such as the OJK and IDX in strengthening sustainability disclosure standards.

Spence (1973) presented signaling theory, where companies that better information will provide certain signals so that other parties can assess the quality or actual conditions in the midst of information asymmetry. In the context of ESG, companies can reduce information imbalances by signaling to investors through ESG disclosure and implementation (Cerón et al., 2026). Within the context of integrated reporting, signaling theory explains how organizations adopt a comprehensive disclosure framework to communicate commitments to long-term value creation, stakeholder engagement, and sustainability performance (Sagala et al., 2025).

Kraus and Litzenberger (1973) introduced the trade-off theory, which explain how companies choose the most appropriate capital structure by considering the benefits of using debt, in the form of tax savings, and the costs arising from increased bankruptcy risk. The correct implementation of ESG can reduce corporate risk, reduce information gaps, and increase investor and creditor confidence. This condition causes the cost of capital to be lower so that the company can make more optimal use of debt (Csapi et al., 2024).

1.1. ESG Performance and Firm Performance

Environmental, Social, and Governance (ESG) performance is an important aspect that can influence a firm performance, as it shows how well a company is able to run its business sustainably. Good ESG performance is able to improve firm performance through theoretical mechanisms. Based on signaling theory, companies that disclose ESG practices well tend to be able to increase investor and stakeholder trust in assessing the company's quality (Biju et al., 2025). By having a commitment to business practices, clear risk management, and having transparent governance, companies can attract investors, expand access to funding, and improve firm performance (Fernando et al., 2022). Research by Qian et al. (2023) states that the company

with high ESG are generally considered to have better business opportunities and more capable of sustaining of their business in the future.

Recent evidence from Indonesia is consistent with the view, while also showing that the ESG-firm performance relationship is not uniform. Research by Surya et al. (2026) find that ESG performance is positively associated with firm value measured by tobin's q, but that this association is highly context-dependent: it is stronger for politically connected firms and is not significantly moderated by external ESG assurance. Similarly, Suprpto et al. (2026) report that ESG performance has a positive and significant effect on ROE but no significant effect on tobin's q, suggesting that the benefit of ESG are realized internally before the market fully recognizes them. Taken together, these studies indicate that the effect of ESG on firm performance depends on whether investors regard ESG information as credible, which motivates this study's examination of integrated reporting quality as a condition that may strengthen the relationship.

In addition, trade-off theory suggests that companies must balance the benefits and costs of implementing ESG criteria. Research by Handoyo and Anas (2024) argue that the expenditures associated with improving environmental performance may exceed the monetary benefits in the short term. The implementation of ESG requires large costs in the early stages such as investment, but in the long term, ESG practices can provide benefits in the form of reducing business risks, improving the company's image, as well as provide easier access to sustainable financing so that it can improve the firm's performance (Oktrivina et al., 2025). The long-term benefits of implementing ESG criteria can outweigh the cost, provided that companies are able to manage ESG criteria effectively (Aydoğmuş et al., 2022). Overall, this theoretical perspective suggests that ESG performance is positively correlated with firm performance, especially over the long term. Companies with better ESG performance are generally viewed more favorably by investors (Ge et al., 2022). Disclosure of ESG practices is crucial, as it reflects the quality, transparency, and sustainability of company, and contributes to forming a good perspective on the company's value and future prospects.

H1a: ESG has a significant positive effect on firm performance (ROE).

H1b: ESG has a significant positive effect on firm performance (Tobin's Q).

1.2. Moderating Effect of Quality of Integrated Reporting between ESG Performance and Firm Performance

ESG performance demonstrates a company's dedication to a sustainable approach and ethical governance, which increases stakeholder trust as well as company value in the long run. Companies with a strong commitment to ESG tend to have lower risk, a better reputation, and greater long term financial stability, factors that can ultimately increase their market. The quality of integrated reporting serves as a key indicator in ESG and company performance. The higher the quality of a company's integrated reporting, the more positive investor perception is of understanding how the company implements ESG in the long term (Zennaro et al., 2024).

Increasing investor confidence can lead to greater investment interest, thereby increasing the value of a company (Bon and Hartoko, 2022). Study by Phan et al. (2025) reveals that the high quality of integrated reporting reflects a company ability to improve the and quality of corporate information. According to signaling theory, companies are able to send positive signals to stakeholders and investors by disclosing clearer and more interconnected financial and non-financial information (Nada and Györi, 2023). The existence of high-quality integrated reporting can bring together financial and non-financial data more comprehensively (Li et al., 2025).

Study by Tanaya and Utama (2026) find that ESG performance is positively and significantly associated with quality of integrated reporting, indicating that firms with stronger ESG performance tend to produce higher quality integrated reports as part of a broader commitment to transparency and accountability. In addition, Andini and Wedari (2025) show that the effect of integrated reporting quality on firm performance is not uniform. They also note that prior evidence on the performance effect of integrated reporting quality is mixed, with some studies reporting positive effects and others a negative effect. Taken together, these studies suggest that the value of integrated reporting quality depends on the conditions under which it operates, which supports examining it as a moderator of the relationship between ESG performance and firm performance.

Companies characterized by good financial performance and growth, focus on providing high-quality integrated reports to communicate the company's value creation process to stakeholders (Islam, 2020). Effective quality integrated reporting has potential to improve the information environment and efficiency of corporate decision-making, thereby supporting the improvement of firm performance (Hsiao et al., 2022). Therefore, this study hypothesizes that integrated reporting quality has a more significant moderating effect on the relationship between ESG performance and firm performance, as measured by ROE and Tobin's q.

H2a: Quality of integrated reporting positively moderates the relationship between ESG performance and firm performance (ROE).

H2b: Quality of integrated reporting positively moderates the relationship between ESG performance and firm performance (Tobin's Q).

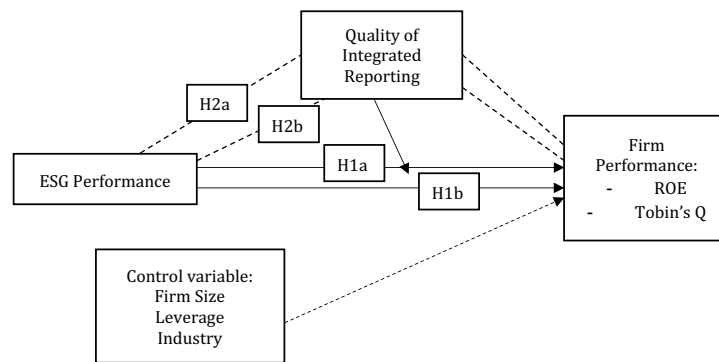


Figure 1. Research Framework

2. RESEARCH METHOD

The research employs quantitative methods, specifically data panel analysis, to explore the connection between ESG performance, the quality of integrated reporting, and firm performance. The sample of this research comprises companies from diverse sectors listed on the Indonesia Stock Exchange. A quantitative panel design was chosen because the study tests hypothesized relationships among measurable variables across firms and over time, and panel data capture both cross-firm and time variation while allowing unobserved heterogeneity to be controlled. The initial assessment included 96 companies from various sectors; however, based on data availability, the final selection consisted of 49 companies that fulfilled specific criteria, such as having available ESG scores in Thomson Reuters' Refinitiv database. This research spans a five-year timeframe from 2020 to 2024. The study utilized a purposive sampling technique, applying specific criteria such as consistent listing on the IDX from 2020 to 2024, detailed ESG score data obtained from Refinitiv Thomson Reuters, annual financial report information, and extensive financial data to evaluate integrated reporting quality, firm performance, and control variables. A total of 242 data points were gathered and analyzed using STATA software. Data were compiled at the firm-year level: ESG scores were taken from Refinitiv, integrated reporting quality was scored from each company's reports, and financial data were drawn from annual financial reports. Companies without an available Refinitiv ESG score were excluded, which reduced the initial 96 companies to 49. The final panel contains 242 firm-year observations, slightly below the maximum of 245 (49 firms $\times$ 5 years), reflecting data availability for some firm-years.

The final sample (49 of the 96 companies initially assessed; 242 firm-year observations) is restricted to firms with consistent IDX listing during 2020–2024, available Refinitiv ESG scores, and sufficient report information to score IRQ. These criteria are likely to favor larger and more transparent firms, because ESG scores are more readily available for firms that disclose more information publicly, and selecting only continuously listed firms may also introduce survivorship bias. Consequently, the findings may not generalize to smaller firms or firms with weaker disclosure, and may overstate the benefits of ESG and integrated reporting quality for the wider market. Although firm size is included as a control variable, it does not remove the selection arising from ESG score availability. The results should therefore be interpreted as applying to relatively large and transparent IDX-listed firms.

Evaluating a company's dedication to sustainable and eco-friendly business practices is significantly reflected in its ESG performance. This research utilizes the Refinitiv database as a tool for measuring ESG, as it offers a thorough and impartial evaluation. Previous studies by Naeem et al. (2021) indicate that the score referenced in the article originates from the Thomson Reuters database and Fernando et al. (2022) also used Thomson Reuters in their research. This score evaluates a company based on three primary components, Environmental, Social, and Governance, each of which encompasses various key performance indicators. Research by Ehlers et al. (2024) stated that Refinitiv data Thomson Reuters is one of the few major ESG data providers to provide baseline data openly. Refinitiv gathers its data mainly from publicly available sources like corporate websites, annual reports, and different categories of company documentation (Aydoğmuş et al., 2022).

The quality of integrated reporting (IRQ) reflects a company's capability to convey both financial and non-financial information in a transparent, relevant, and consistent manner. In this study, IRQ serves as a moderating variable to evaluate how it can enhance the connection between ESG performance and firm performance. The measurement of IRQ is conducted through an evaluation based on the integrated report indicator metrics established by the guidelines of the International Integrated Reporting Council (IIRC), utilizing a binary assessment scale for each indicator (Butar-butur et al., 2025). The effectiveness of a company is evaluated through ROE and Tobin's q to gauge its capacity to produce profits for shareholders and to assess its worth based on the market valuation of its assets (Shaikh, 2021). This research incorporates control variables like firm size, leverage, and industry sector to achieve more precise and thorough findings when assessing the influence of ESG on company performance, with IRQ serving as a moderating factor (Hamdouni, 2025). Using

indicators from an established framework and a uniform binary scheme supports consistent measurement across firms, although the scoring still relies on the researcher's reading of each report.

IRQ was measured through content analysis of each company's report for every year in 2020–2024, using indicators derived from the IIRC International <IR> Framework, following Butar-butur et al. (2025). Each indicator was scored 1 if the related disclosure was present in the report and 0 otherwise, and the IRQ of a firm-year was calculated as the total score divided by the maximum attainable score, so that IRQ ranges between 0 and 1. Applying the same checklist and decision rules to all report's limits inconsistency across firms and years. However, because content analysis cannot fully eliminate judgment, some subjectivity in IRQ scoring remains and is acknowledged as a limitation of this study. The operational definition and measurement of each variable are presented in Table 1.

Table 1. Variable Measurement

Variable Type	Variable Name	Measurement	Reference
Dependent	Firm Performance	Tobin's Q = $\frac{\text{Market value of equity} + \text{Debt}}{\text{Total Assets}}$ ROE = $\frac{\text{Net Income}}{\text{Shareholders' Equity}}$	(Hamdouni, 2025)
Independent	ESG	Refinitiv Thomson Reuters Database	(Agustin et al., 2024)
Moderating	Quality of Integrated Reporting	Using a binary scoring system based on a scale of values between 0-1 for each element and concept	(Butar-butur et al., 2025)
Control	Leverage	$\frac{\text{Total Debt}}{\text{Total Asset}}$	(Hamdouni, 2025)
	Firm Size	Ln of Firm Asset	
	Industry	Industry Dummy Variables	

This research uses the ordinary least squares (OLS) regression technique as the main data analysis method because of its simplicity, interpretation, and efficiency in estimating the linear relationship between dependent and independent variables (Hesniati et al., 2025). This study also establishes fixed effects for empirical analysis, taking into account both annual effects and industry effects (Feng et al., 2024). This method is suitable for panel data analysis, where the goal is to see the magnitude and significance of the influence between variables. Industry and year fixed effects are included to control for unobserved differences across sectors and over time. In this study, the dependent variables are the firm performance proxied by ROE and Tobin's Q. The independent variable is the ESG score; and the moderation variable is the quality of integrated reporting. Several control variables include company characteristics such as leverage, company size, and industry type.

Panel regression estimation was carried out using STATA software with the following model specifications:

$$\begin{aligned}
 ROE_{it} &= \beta_0 + \beta_1 ESG_{it} + \beta_2 FZ_{it} + \beta_3 LEV_{it} + Industry_{it} + \varepsilon_{it} \\
 TQ_{it} &= \beta_0 + \beta_1 ESG_{it} + \beta_2 FZ_{it} + \beta_3 LEV_{it} + Industry_{it} + \varepsilon_{it} \\
 ROE_{it} &= \beta_0 + \beta_1 ESG_{it} + \beta_2 IRQ_{it} + \beta_3 ESG * IRQ_{it} + \beta_4 FZ_{it} + \beta_5 LEV_{it} + Industry_{it} + \varepsilon_{it} \\
 TQ_{it} &= \beta_0 + \beta_1 ESG_{it} + \beta_2 IRQ_{it} + \beta_3 ESG * IRQ_{it} + \beta_4 FZ_{it} + \beta_5 LEV_{it} + Industry_{it} + \varepsilon_{it}
 \end{aligned}$$

The dependent variables are firm performance as measured by ROE and Tobin's q, which indicate how market views a firm's ability to generate profits for shareholders, as well as the firm value relative to its physical assets. The independent variable is the composite ESG score, which aggregates the environmental, social, and governance pillars. The moderating variable is quality of integrated reporting (IRQ). An interaction term (ESG × IRQ) was added to determine whether integrated reporting quality influences the ESG impact on firm performance. Control variables, i.e. leverage, company size, and industry to consider possible sources of variation (Hamdouni, 2025).

This study uses only secondary data from the Refinitiv database and publicly available company reports of IDX-listed firms. No human participants were involved, so informed consent was not required, and no personal or confidential information was collected.

Several limitations should be acknowledged. First, the sample is limited to 49 firms with available Refinitiv ESG scores, which may favor larger and more transparent companies and limit generalizability. Second, the five-year window (2020–2024) is relatively short for capturing the long-term effects of ESG. Third, IRQ scoring involves some judgment, which may affect measurement consistency. Fourth, the regression models identify associations rather than causal effects. These limitations are mitigated by using two firm performance measures (ROE and Tobin's Q), including firm size, leverage, and industry as control variables.

3. RESULTS AND DISCUSSION

3.1. Result

3.1.1. Descriptive Statistics

Table 2 provides a comprehensive overview of the descriptive statistics including the number of observations, mean, standard deviation, minimum, and maximum. The study analyzed 242 observations from 49 companies over a five-year period. The ESG score has an average of 54.406, accompanied by a standard deviation of 19.418. The lowest recorded score is 15.050 while the highest score is 88.880. This indicates that there is considerable variation in the level of ESG implementation between companies. In general, the average quality of integrated reporting reached 0.945, which means that the company's reporting as a whole is in quite good condition. The return on equity (ROE) shows considerable variability, averaging 0.143 with an extreme value range ranging from -2.302 to 2.541. This variability shows that there are companies that suffer significant losses and companies with very high levels of profitability. The average value of tobin's q is 0.486 with a range between 0.054 to 1.170, which indicates that the company's market valuation is quite high. Firm size showed relatively stable result, with a mean 31.850 and a small standard deviation of 1.364, indicating that firms in the sample were similar in size. The average leverage ratio was 0.199, with value from -0.110 to 1.147, indicating variations in the use of debt in firm financing structure. Lastly, the industry has a value range of 1 to 11 which indicates that the study covers a wide range of industry sectors.

Table 2. Descriptive Statistic

	N	Mean	Standard Deviation	Minimum	Maximum
ESGScore	242	54.406	19.418	15.050	88.880
IRQ	242	0.945	0.115	0.500	1.000
ROE	242	0.143	0.382	-2.302	2.541
TobinsQ	242	0.486	0.244	0.054	1.170
FirmSize	242	31.850	1.364	28.653	35.426
Leverage	242	0.199	0.190	-0.110	1.147
Industry	242	5.508	3.163	1.000	11.000

3.1.2. Correlation Analysis

Table 3 presents the Pearson correlations used to illustrate the direction and strength of the linear association among variables and to help identify potential multicollinearity problems before the regression analysis. ESG is positively and significantly correlated with IRQ (0.182***), ROE (0.186***), Tobin's q (0.169***), and firm size (0.431***), indicating that firms with higher ESG scores tend to have better reporting quality, higher profitability and market valuation, and larger size. Tobin's q is also positively correlated with ROE (0.119*) and firm size (0.444***), indicating that these variables tend to move together. In contrast, leverage is negatively correlated with ESG (-0.254***), IRQ (-0.247***), and ROE (-0.156**), indicating that more highly leveraged firms tend to have lower ESG scores, reporting quality, and profitability. Industry is negatively correlated with ESG (-0.131**) and Tobin's q (-0.165**), suggesting that these variables differ across industry categories. The correlations among the independent and control variables are all below 0.5 (the highest is 0.431, between ESG and firm size), indicating that multicollinearity is unlikely to be a serious concern in the regression models. Overall, these correlations show associations only and do not establish causality; the relationships are tested further in the regression analysis.

Table 3. Pearson Correlation Analysis

	ESGScore	IRQ	ROE	TobinsQ	Firm Size	Leverage	Industry
ESGScore	1.000						
IRQ	0.182*** (0.004)	1.000					
ROE	0.186*** (0.004)	0.043 (0.505)	1.000				
TobinsQ	0.169*** (0.008)	-0.064 (0.321)	0.119* (0.065)	1.000			
FirmSize	0.431*** (0.000)	-0.032 (0.616)	-0.098 (0.129)	0.444*** (0.000)	1.000		
Leverage	-0.254*** (0.000)	-0.247*** (0.000)	-0.156** (0.015)	0.360*** (0.000)	0.087 (0.175)	1.000	
Industry	-0.131** (0.042)	-0.091 (0.159)	-0.004 (0.948)	-0.165** (0.010)	-0.302*** (0.000)	0.189*** (0.003)	1.000

3.1.3. Regression Results

Table 4 shows the outcomes of the regression analysis conducted to examine the connection among ESG, quality of integrated reporting, and firm performance. This model assesses the direct effect of ESG performance on firm performance and evaluates the quality of integrated reporting and its influence on the relationship between ESG performance and firm performance. In the first model, ESG exhibits a positive and statistically significant impact on ROE ($\beta = 0.005 < 0.01$), indicating that a higher ESG score can enhance a company's capacity to generate profits, thereby validating hypothesis H1a. In model 2, ESG has a notable and significant effect on Tobin's q ($\beta = 0.002 < 0.10$), indicating that a higher ESG score can enhance market valuation, although the effect is weaker than that of ROE, implying that the H1b hypothesis was supported. In model 3, the interaction between ESG and IRQ is positive and statistically significant ($\beta = 0.028$; $p < 0.01$), supporting hypothesis H2a that integrated reporting quality (IRQ) moderates the relationship between ESG and ROE. Because the model includes the interaction term, the ESG coefficient ($\beta = -0.021$; $p < 0.01$) is the effect of ESG when IRQ equals zero, a value outside the observed range of IRQ (0.500–1.000), and should not be read as the overall effect of ESG. The effect of ESG on ROE is instead given by $-0.021 + 0.028 \times \text{IRQ}$, which is negative at low reporting quality and turns positive when IRQ exceeds approximately 0.75; at the mean IRQ of 0.945 it is about 0.005, consistent with model 1. In model 4, the interaction term is likewise positive and statistically significant ($\beta = 0.016$; $p < 0.01$), supporting hypothesis H2b that IRQ moderates the relationship between ESG and Tobin's q. The ESG coefficient ($\beta = -0.014$; $p < 0.05$) again represents the effect of ESG at an IRQ of zero, and the effect of ESG on Tobin's q, $-0.014 + 0.016 \times \text{IRQ}$, turns positive when IRQ exceeds approximately 0.88. This indicates that high-quality integrated reporting increases transparency and investor confidence, thereby strengthening the effect of ESG on market valuation. Among all controlled factors, firm size and leverage have a significant positive impact on Tobin's q, but have a significant negative impact on ROE. The highest R² value is found in Model 4 at 0.343, indicating that adding moderation variables makes the model better.

Table 4. Regression Result

	(1) ROE	(2) TobinsQ	(3) ROE	(4) TobinsQ
ESGScore	0.005*** (2.94)	0.002* (1.78)	-0.021*** (-3.63)	-0.014** (-2.41)
IRQ			-1.410*** (-3.56)	-0.730** (-2.52)
ESGIRQ			0.028*** (3.84)	0.016*** (2.69)
FirmSize	-0.059* (-1.89)	0.058*** (4.26)	-0.067** (-2.06)	0.055*** (3.86)
Leverage	-0.113 (-0.63)	0.488*** (5.40)	-0.134 (-0.73)	0.486*** (5.09)
_cons	1.723* (1.81)	-1.475*** (-3.57)	3.272*** (2.63)	-0.684 (-1.17)
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
r ²	0.096	0.329	0.115	0.343
r ² a	0.065	0.306	0.077	0.315
N	242	242	242	242

3.2. Discussion

Overall, the regression results are consistent with all four hypotheses. ESG is positively associated with both ROE (H1a) and Tobin's q (H1b), and integrated reporting quality strengthens the relationship between ESG and firm performance measured by ROE (H2a) and Tobin's q (H2b). The result of this study indicate that ESG performance has a positive impact on firm performance, as measured by ROE and Tobin's q. These results indicate that companies with better ESG implementation tend to have higher profitability and company value. This finding is consistent with Biju et al. (2025) research, which found that ESG criteria can increase investor and stakeholder confidence in company valuations. In addition, previous researchers have shown that high ESG has better business prospects and is able to maintain business sustainability in the future (Qian et al., 2023). Study by Oktrivina et al. (2025) also shows that over time, ESG practices can lead benefits in the form of risk reduction and ease of access so as to improve company performance.

However, once the interaction term is included, the ESG coefficient turns negative for both ROE and Tobin's q. This coefficient reflects the effect of ESG at an IRQ of zero and is not the overall effect of ESG, because the effect depends on the level of IRQ: it is negative when reporting quality is low and becomes positive once IRQ exceeds roughly 0.75 for ROE and 0.88 for Tobin's q. This pattern suggests that implementing ESG and integrated reporting require additional funding, which could reduce profits and company value in the short term (Handoyo and Anas, 2024). However, the interaction between ESG and IRQ has a positive impact on ROE and Tobin's q, which suggests that integrated reporting quality can strengthen

the relationship between ESG and firm performance. This finding is aligned with Zennaro et al. (2024) research, which shows that higher levels of integrated reporting result in better investor perceptions of ESG implementation on the long term. In addition, research by Phan et al. (2025) also shows that the quality of integrated reporting can strengthen the influence of sustainability practices because investors trust companies that have good information transparency.

The finding indicates that high quality, integrated reporting is crucial for maximizing the benefits of ESG on firm performance. While implementing ESG can increase company costs in the short term, quality integrated reports can build investor confidence and improve the market perception of the company. These benefits may become greater over the longer term, although this study cannot test long-term effects directly because it covers only five years.

The results interpreted as associations, not causal effects, because endogeneity is not formally addressed. Reverse causality is possible, as financially stronger firms may have more resources to invest in ESG and produce higher-quality integrated reports, consistent with the positive ESG–IRQ correlation on Table 3. Omitted variables such as managerial quality, ownership structure, or governance may also affect ESG, IRQ, and performance simultaneously; industry and year fixed effects do not capture time-varying, firm-specific unobservables. Measurement error in ESG and the judgment-based IRQ scores may further bias estimates, including the interaction term. In addition, the contemporaneous models over 2020–2024, a period that includes COVID-19, cannot assess lagged or long-term effects, so claims about long-term benefits reflect prior literature rather than this study's findings. Future research could employ lagged variables, instrumental-variable or system GMM estimators, and longer panels.

These findings have practical and theoretical implications. For managers, ESG initiatives are more likely to pay off when they are accompanied by high-quality integrated reporting that communicates them transparently. For investors and regulators, the results suggest that the quality of integrated reports is an important signal when assessing how ESG practices translate into performance. Theoretically, the study adds evidence from Indonesia that reporting quality conditions the ESG–firm performance relationship. Because the sample is limited to 49 firms over 2020–2024 and the models identify associations rather than causal effects, the results should be interpreted with caution.

4. CONCLUSION

This study examined the effect of ESG performance on firm performance, measured by ROE and Tobin's *q*, and whether integrated reporting quality (IRQ) moderates this relationship, using 242 firm-year observations of 49 companies listed on the Indonesia Stock Exchange (IDX) during 2020–2024. ESG performance is positively associated with both ROE and Tobin's *q*, supporting H1a and H1b, and IRQ positively moderates this relationship (H2a and H2b): the effect of ESG is negative at low IRQ, which may reflect the additional short-term costs of implementing ESG, and becomes positive only when reporting quality is sufficiently high. This indicates that high-quality integrated reporting amplifies the value of ESG by enhancing transparency, information reliability, and investor trust, and it adds evidence from an emerging market that the performance benefits of ESG depend on how well ESG is communicated. Companies should therefore strengthen both ESG implementation and the quality of integrated reporting, investors may regard reporting quality as a key element in assessing ESG effectiveness, and regulators can encourage better sustainability disclosure through clearer guidelines and monitoring. Overall, ESG creates the most value when supported by high-quality integrated reporting, so ESG performance and transparent reporting should be treated as complementary.

This study has several limitations. The sample is small (49 firms and 242 firm-year observations) and limited to firms with available Refinitiv ESG scores and consistent IDX listing, which favors larger and more transparent companies, may involve survivorship bias, and limits generalizability to smaller firms or firms with weaker disclosure. The five-year window (2020–2024), which includes the COVID-19 period, is too short to capture long-term effects. IRQ relies on judgment-based binary content analysis that captures the presence rather than the depth or credibility of disclosure, and its values are concentrated near the upper bound (mean of 0.945), so the thresholds at which the ESG effect turns positive (about 0.75 for ROE and 0.88 for Tobin's *q*) should be interpreted cautiously and only within the observed range. ESG is measured by a single composite Refinitiv score based on public disclosure, which may overlap with reporting quality and does not separate the three pillars. Finally, the OLS models with industry and year fixed effects and limited control variables identify associations rather than causal effects, and endogeneity is not formally addressed.

Future research could use larger and longer panels that include smaller firms, additional sectors, and other ASEAN countries, and strengthen causal identification through lagged variables, firm fixed effects, instrumental-variable or system GMM estimators, or quasi-experimental designs based on regulatory changes. IRQ measurement could be improved with multiple independent coders and reliability tests, graded or automated text-based scoring, and the inclusion of assurance and readability. Researchers could also examine the environmental, social, and governance pillars separately, compare ESG scores from different providers, and test the IRQ threshold effects formally with nonlinear or threshold models. Finally, other moderators or

mediators, such as corporate governance quality, institutional ownership, and profitability, industry-specific analyses, and long-term outcomes such as firm risk and cost of capital, merit further study.

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