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ESG Rating and Firm Performance of Indonesian LQ45 Listed Companies: The Role of Female Commissioners

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Abstract: This study examines the impact of environmental, social, and governance (ESG) ratings and governance mechanisms on a firm's performance. The purpose of this research is to also analyze the impact of governance mechanisms on ESG. This research employs a sample of LQ45 listed companies in Indonesia from 2020 to 2023, generating 100 panel data units from 25 companies, which were analyzed using random-effects GLS regression. Documentation was used for data collection. The results indicate that ESG ratings do not provide significant evidence of influencing firm performance as measured by return on assets, return on equity, and earnings per share. The presence of a board of directors with several meetings can negatively affect firm performance. A notable finding of this study is the positive and significant impact of the female board of commissioners' composition on the firm's performance, as measured by return on assets and return on equity. The proportion of female board members also significantly impacts ESG ratings. However, only company size can significantly affect EPS. This study suggests that a female board of commissioners has a positive impact on firm performance and ESG ratings. This study extends the upper echelon theory by proving that gender diversity on boards of commissioners plays a significant role in improving a company's financial performance and ESG rating. This study highlights the role of female commissioners on ESG and company performance, emphasizing the importance of gender diversity in boards of commissioners.

Keywords: ESG rating, earnings per share, female commissioner, independent commissioner, return on assets, return on equity, size.

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INTRODUCTION

Global attention to sustainability issues has increased the importance of implementing environmental, social, and governance (ESG) criteria in business practices (Bao, Sadiq, Tye, & Zhang, 2024). ESG is viewed not only as a form of social responsibility but also as a long-term strategy to maintain a company's competitiveness and sustainability (Arvidsson & Dumay, 2022; Khan, Mahmood, & Khalid, 2024; Krueger, Sautner, Tang, & Zhong, 2024). However, ESG is seen as an important aspect of long-term value but not as significant as other intangible assets such as management quality, corporate culture, and innovation (Edmans, 2023).

ESG activities have been proven to improve company performance while encouraging sustainable development (Huang, 2021; Khan et al., 2024). Meta-analyses and various empirical studies show that ESG activities positively impact accounting and market performance, and significantly impact overall company performance (Albitar, Hussainey, Kolade, & Gerged, 2020; Wu & Nguyen, 2024). Strong ESG performance also drives innovation and, in the long term, helps companies with high ESG ratings achieve better financial performance (Xu & Zhu, 2024).

The relationship between ESG and corporate performance has received significant attention, with many studies finding a significant positive effect on both financial and market performance (Chen & Fan, 2024; Narula, Rao, Kumar, & Paltrinieri, 2025; Pasupuleti, Kodete, Thuraka, & Sangaraju, 2024). ESG is also closely linked to profitability, particularly in the banking sector (Brogi & Lagasio, 2019) while CSR has been shown to further improve financial performance with higher ESG scores (Coelho, Jayantilal, & Ferreira, 2023). However, mixed results remain, particularly regarding the contribution of environmental and social aspects to profitability (Handoyo & Anas, 2024). This suggests that the relationship between ESG and corporate performance is context-dependent and warrants further investigation, particularly in emerging markets such as Indonesia.

To explain this relationship, various theories have been used. Signaling theory explains how companies convey information to influence stakeholder decisions under conditions of information asymmetry (Spence, 1978). Agency theory addresses the issue of conflicts of interest between shareholders and management (Jensen & Meckling, 1976) while stakeholder theory emphasizes that an organization's success depends on its ability to balance the interests of various stakeholders (Freeman, Wicks, & Parmar, 2004; Handoyo & Anas, 2024; Li, Saat, Khatib, & Liu, 2024). Furthermore, upper echelon theory highlights differences in cognitive characteristics between men and women in influencing governance and decision-making (Fairuzi & Tjahjadi, 2022), while sustainability and resource dependence theory assert that gender diversity can improve financial performance (Assenga, Aly, & Hussainey, 2018; Maulana & Tjahjadi, 2022).

In addition to ESG, corporate governance mechanisms are also important factors influencing performance, with various mechanisms such as the roles of directors and commissioners. Studies show that effective climate governance improves financial performance (Aibar-Guzmán, Raimo, Vitolla, & García-Sánchez, 2024) while board structure influences banking performance, including board size, independence, and leadership (Bekiaris, 2021; Khan et al., 2024; Magoma, Ernest, & Kasheshi, 2024). Board attributes such as size, independence, and gender diversity can also significantly impact performance (Akhter & Hassan, 2024; Fauzi & Locke, 2012), although findings vary, indicating positive, negative, or even no impact at all (Kyere & Ausloos, 2021; Sehrawat, Singh, & Kumar, 2020).

In the context of resource dependence theory, gender diversity has been shown to have a positive impact on financial performance (Assenga et al., 2018). In a two-tier governance system, women can serve on both boards of directors and commissioners (Tjahjadi, Hapsari, Soewarno, Sutarsa, & Fairuzi, 2024), with findings showing a significant influence on board input and company results (Adams & Ferreira, 2009), although some studies have found no significant relationship with profitability (Fairuzi & Tjahjadi, 2022).

This study also aims to analyze the influence of GCG mechanisms on ESG performance. Independence, board size, and the presence of female directors have been shown to increase ESG disclosure (Lagasio & Cucari, 2019), although other findings show mixed results regarding board size and gender (Cucari, Esposito De Falco, & Orlando, 2018; Ellili, 2023). The number of female directors also contributes to improved ESG scores and sustainability reporting (Alkayed, Shehadeh, Yousef, & Hussainey, 2024; Fan, Li, & Yang, 2024) in line with the upper echelons theory, which emphasizes their role in influencing board decisions toward a risk-neutral stance (Korphaibool, Chindasombatcharoen, Chatjuthamard, Jiraporn, & Treepongkaruna, 2024).

This study investigates the impact of ESG ratings and governance mechanisms (directors and commissioners) on firm performance and analyzes the impact of governance mechanisms (directors and commissioners) on ESG performance. The roles of directors and the board of commissioners (composition of independent and female commissioners) are believed to significantly impact a company's performance. Using a panel data regression analysis obtained from LQ45 listed companies, this study examines the contribution of the role of directors (through meetings held) and the composition of female commissioners to firm performance. Another contribution of this study is the application of agency, upper echelon, and sustainability theories to examine the relationship between governance, sustainability, and firm performance within Indonesia's two-tier governance system (in the Indonesian context). Many members of the boards of directors and the commissioners of listed companies in Indonesia are women. Therefore, they can play an active role in influencing firm performance.

METHOD

This research employs panel data regression analysis to examine how ESG ratings and governance mechanisms influence firm performance, as well as how governance mechanisms affect ESG performance. The study utilizes data from companies listed on the LQ45 index in Indonesia, focusing on 25 firms that have been consistently included in the index from 2020 to 2023, resulting in 100 panel data units.

Table 1: Operational definition of research variables

Variables	Definition and Measurement	Abbreviation
Dependent Variable		
Firm performance	Return on assets: the ratio of profit before tax to total assets.	ROA
	Return on equity: calculated from the profit ratio before tax to capital.	ROE
	Earnings per share: calculated from net income divided by the number of common shares outstanding.	EPS
Independent Variables		
ESG Rating	Sustainalytics ESG Risk Rating	ESG
Director mechanism	Board size: the number of directors.	BS
	Board meetings: the number of meetings for a year.	BM
Commissioner mechanism	Commissioners' size: the number of commissioners.	CS
	Commissioner's meeting: the number of meetings per year.	CM
	Independent commissioners: the proportion of independent commissioners' members.	INDC
	Female commissioners: the proportion of female commissioner members.	FCOM
Control Variable		
Firm size	Natural log of the total assets of the firm.	SIZE

The dependent variable is financial performance, measured by return on assets, return on equity, and earnings per share. The independent variables are ESG ratings, the directors' mechanism, and the commissioners' mechanism. The ESG rating is obtained from Sustainalytics' ESG rating data, as disclosed in published data on the Indonesia Stock Exchange (IDX) website. Directors' mechanisms are measured by the number of meetings held and the number of board members. Commissioners' mechanisms are measured by the number of commissioners, the number of meetings held, the composition of independent boards of commissioners, and the composition of female boards of commissioners. Firm size is used as a control variable and measured by the log of total assets. Table 1 presents the operational definitions of the variables.

The data were collected using documentation methods, sourced from information published on the IDX website and the annual reports of the respective companies. The data analysis technique employed is panel data regression analysis, which begins with a model test using the Lagrangian multiplier, Chow, and Hausman tests to determine the best model for the study, as well as other prerequisite tests, such as multicollinearity and heteroscedasticity tests. The regression equation tested in this study is as follows:

$$ROA = \beta_0 + \beta_1 ESG + \beta_2 BS + \beta_3 BM + \beta_4 CS + \beta_5 CM + \beta_6 INDC + \beta_7 FCOM + \beta_8 SIZE + \varepsilon$$
$$ROE = \beta_0 + \beta_1 ESG + \beta_2 BS + \beta_3 BM + \beta_4 CS + \beta_5 CM + \beta_6 INDC + \beta_7 FCOM + \beta_8 SIZE + \varepsilon$$
$$EPS = \beta_0 + \beta_1 ESG + \beta_2 BS + \beta_3 BM + \beta_4 CS + \beta_5 CM + \beta_6 INDC + \beta_7 FCOM + \beta_8 SIZE + \varepsilon$$
$$ESG = \beta_0 + \beta_1 BS + \beta_2 BM + \beta_3 CS + \beta_4 CM + \beta_5 INDC + \beta_6 FCOM + \beta_7 SIZE + \varepsilon$$

RESULTS AND DISCUSSION

A description of the research variables is presented in Table 2. Financial performance, as measured by ROA, ROE, and EPS, indicates that companies are experiencing losses. The minimum values of the three indicators are -2.86, -7.3, and -64.06, respectively. The average values are 8.089, 19.408, and 794.134, respectively, indicating that LQ45 listed companies exhibit good financial performance on average. The ESG rating is moderate, with an average value of 32.898. The board of directors holds up to 255 meetings a year, with a minimum of 12 meetings. The average number of board of commissioner meetings is 16 per year. Additionally, the composition of the independent board of commissioners meets the 30% requirement, at 44.07%. The composition of female board of commissioners is also low, at 8.50%.

Table 2: Descriptive statistics of research variables

No.	Research variables	Obs.	Min.	Max.	Mean	std. Dev.
1.	ROA	100	-2.86	45.43	8.089	8.507
2.	ROE	100	-7.3	145.09	19.408	26.738
3.	EPS	100	-64.06	14613.6	794.134	1897.096
4.	ESG	100	17.42	62.02	32.898	8.957
5.	Board size	100	5	17	8.23	2.604
6.	Board meeting	100	12	255	43.5	43.874
7.	Commissioners' size	100	3	14	7.08	2.111
8.	Commissioner's meeting	100	3	63	16	15.394
9.	Independent commissioners	100	25	83.33	44.069	12.344
10.	Female commissioners	100	0	33.33	8.495	9.675
11.	Firm size	100	16.389	21.499	18.575	1.393

The hypothesis testing results, obtained through panel data regression analysis, are presented in the following table and explanation. To determine the most suitable panel data regression model, the Breusch and Pagan Lagrangian multiplier test and the Hausman test were performed. Based on these tests, the GLS random-effects regression model was selected. The Breusch and Pagan Lagrangian multiplier test produced a chi-bar (2) value of 24.81 with a probability value of 0.0000.

The modified Wald test results for heteroscedasticity confirm that the research model is free from heteroscedasticity, with a p-value of 0.000. Similarly, the Wooldridge test indicates that there is no autocorrelation among the independent variables. Table 3 presents the average variance inflation factor (VIF), which is 2.19, with each independent variable's VIF remaining below 5. Additionally, the 1/VIF values for all independent variables are greater than 0.1. The regression model is free from multicollinearity problems, so all independent variables are suitable for use because they do not show high correlation between variables.

Table 3: Correlation test results

Variables	VIF	1/VIF
ESG	1.52	0.655
Board size	2.92	0.342
Board meeting	2.10	0.476
Commissioners' size	2.82	0.453
Commissioner's meeting	2.10	0.355
Independent commissioners	1.92	0.520
Female commissioners	1.19	0.841
Firm size	2.49	0.401
Mean VIF	2.19	

Table 4 presents the results of the panel data regression analysis using the random-effects model. The findings reveal that ESG rating has no significant impact on the firm's performance (ROA, ROE, EPS). The frequency of board of directors' meetings has a significant negative impact on ROA and ROE, but shows no significant effect on EPS. Meanwhile, the proportion of female commissioners has a significant positive influence on ROA and ROE, though it does not significantly affect EPS. Furthermore, firm size demonstrates a significant positive effect on EPS, but no effect on ROA and ROE. These results underscore the significance of board meeting frequency and female commissioner representation in influencing the performance of LQ45-listed companies in Indonesia.

Table 4: Results of Random Effects GLS Regression of Firm Performance Factors

	ROA	ROE	EPS
ESG	-0.016	-0.101	6.464
Board size	-0.110	0.941	-0.152
Board meeting	-0.032**	-0.079*	-3.421
Commissioners' size	-0.051	-0.726	44.243
Commissioner's meeting	-0.091	-0.132	-32.927
Independent commissioners	0.063	0.257	-25,017
Female commissioners	0.209**	0.469*	12.744
Firm size	-0.574	0.448	470.601*
_cons	18.909	2.022	-6802.350

Note: ** and * indicate statistical significance at the 5% and 10% levels, respectively.

Research on the relationship between ESG and company performance has yielded mixed results. This finding aligns with previous studies that have found ESG to have no effect on company profitability (as measured by ROE) (Zhou, Liu, & Luo, 2022). Similarly, there is no significant relationship between ESG ratings and financial performance (Fikru, Brodmann, Eng, & Grant, 2024; Marheni, Sherry, & Yulfiswandi, 2024). However, other studies found a significant positive relationship between ESG ratings and company performance (Chen & Fan, 2024). Similar findings were also presented by Nenavani, Prasuna, Siva Kumar, and Kasturi (2024), who reported a positive and significant relationship between ESG disclosure and financial performance, although the R^2 value obtained was relatively low (Nenavani et al., 2024). One factor explaining the insignificant influence of ESG on company performance is the behavior of investors. In the context of emerging markets, including Indonesia, ESG factors have not been fully integrated as a primary determinant in investors' decision-making processes. Consequently, even if an entity obtains a relatively high ESG rating, this is not directly reflected in an increase in its market valuation or financial performance.

The governance mechanisms that were proven to significantly influence financial performance in this study were board meetings and female commissioners, but in opposite directions: board meetings had a negative influence, while female commissioners positively influenced financial performance. This study is in line with broader literature that highlights governance factors, such as board independence, size, gender diversity, and ownership structures, as significant determinants of performance (Masum, Alam, & Alam, 2024). Women's participation on boards enriches strategic decision-making through diverse perspectives, which enhances risk management, efficiency, and overall performance (Gulamhussen & Santa, 2015; Tjahjadi et al., 2024). This study aligns with previous research reporting a negative effect (Fauzi & Locke, 2012) while overall evidence continues to support the positive influence of women on firm performance (Masum et al., 2024). Notably, during the COVID-19 crisis, gender diversity on boards significantly improved ROA, underscoring its importance in turbulent periods (Boshnak, Alsharif, & Alharthi, 2023). The frequency of board meetings does not affect corporate performance (Jackling & Johl, 2009).

Other results indicate that the number of boards of directors and commissioners has no impact on the firm's performance. These results contrast with prior evidence suggesting that larger board size improves performance (Jackling & Johl, 2009). Corporate governance is widely acknowledged as a crucial determinant of financial performance (Khan, Al-Jabri, & Saif, 2021). A larger board of directors and commissioners does not automatically improve the effectiveness of oversight or the quality of decision-making. Company performance is more influenced by the competence, experience, and quality of interactions among board members. Overly large boards tend to face coordination problems, slow decision-making, and potential conflicts of interest, which can ultimately undermine the effectiveness of governance. Furthermore, even when the board structure is formally adequate, its oversight and control functions are often suboptimal due to limited independence, low active involvement, or the dominance of certain parties.

This study also analyzes the impact of governance mechanisms on ESG ratings. The results of hypothesis testing are shown in Table 5. The existence of a board of commissioners (including the number of members, the composition of independent commissioners, and the composition of female commissioners) can significantly influence ESG ratings, although it has a negative coefficient.

Table 5: Results of random effects GLS regression of ESG determinants

ESG	Coeff.	Robust Std. Err.	z	P>z	[95% Conf.	[Intervals]
Board size	0.923	0.919	1	0.315	-0.878	2.724
Board meeting	-0.004	0.034	-0.12	0.907	-0.071	0.063
Commissioners' size	-1.153	0.690	-1.67	0.095*	-2.506	0.200
Commissioner's meeting	-0.037	0.066	-0.56	0.577	-0.168	0.093
Independent commissioners	-0.198	0.088	-2.24	0.025**	-0.371	-0.024
Female commissioners	-0.195	0.113	-1.73	0.084*	-0.417	0.026
Firm size	-2.335	1.809	-1.29	0.197	-5,882	1.211
cons	88.002	29.737	2.96	0.003	29.717	146.287

Note: ** and * indicate statistical significance at the 5% and 10% levels, respectively.

The findings indicate that aspects of the board of commissioners (the number of members and the representation of independent and female commissioners) significantly determine the ESG ratings of LQ45 listed companies in Indonesia. In contrast, characteristics of the board of directors, including its size and meeting frequency, do not significantly affect ESG ratings. Previous research has reported mixed results regarding the roles of directors and commissioners. For instance, board independence and size have been found to positively influence CSR practices (Kaymak & Bektas, 2017). Meta-analytical evidence further shows that board independence, board size, and female directorship significantly enhance voluntary ESG disclosures (Lagasio & Cucari, 2019). Other studies highlight that ESG performance is also shaped by factors such as foreign CEO experience, gender, and background characteristics (Liu, Zhang, & Zhang, 2024). This study aligns with prior findings that board meetings have no significant impact on CSR.

Board gender diversity is positively associated with company performance (Mohsni, Otchere, & Shahriar, 2021). The presence of female directors has been shown to have a significant positive impact on ESG scores (Fan et al., 2024), strengthening both the scope and depth of sustainability reporting and influencing a company's reporting practices (Alkayed et al., 2024). From the perspective of upper-echelon theory, female directors tend to guide board decisions toward a risk-neutral strategy, which can reduce innovation investments while maintaining firm profitability (Korphaibool et al., 2024).

Research findings indicating a negative correlation between the number of commissioners and ESG risk ratings suggest that a larger number of board members may decrease a company's ESG risk level or enhance the effectiveness of ESG risk management. While increasing the number of board members makes coordination and communication between members more complex, it can also encourage faster decision-making regarding ESG risk identification, mitigation, and management. The number of board members will be more influential in determining ESG risk ratings if it can provide effective oversight. The negative impact of independent board composition indicates that independent commissioners tend to emphasize oversight and compliance with risks and regulations. This approach can cause companies to delay or limit the implementation of ESG initiatives that require significant investment or are perceived as risky, resulting in a lower ESG score. The negative effect does not necessarily indicate that female commissioners are detrimental to ESG, but rather reflects that their more cautious, conservative, or long-term-oriented approach may have a temporary effect on ESG scores recorded during the study period.

CONCLUSION

This research examines the impact of ESG ratings, directors, and commissioners on the performance of LQ45 listed companies in Indonesia, while also investigating the relationship between the presence of directors and commissioners and ESG ratings. The GLS regression analysis provides empirical evidence that the number of board meetings can significantly affect ROA and ROE, despite having a negative coefficient. The composition of a female board of commissioners can be a significant and positive predictor of company performance (ROA and ROE). However, company size alone can also affect performance (EPS). In addition, ESG rating has been proven to be significantly influenced by the existence of a board of commissioners (the number of meetings, the percentage of independent commissioner members, and the percentage of female commissioner members).

This study highlights the importance of female board members. The presence of women on boards of directors, commissions, and governance committees significantly enhances company performance and environmental responsibility, as their stronger monitoring and accountability roles improve both accounting and market outcomes while influencing corporate risk-taking. In future research, the proportion of women should be measured not only by commissioners but also by the board of directors. The role of women on boards should be studied in-depth and comprehensively.

The limitation of this research lies in its scope, as it only examines the effects of ESG ratings, directors, and commissioners on firm performance. Moderation or mediation analyses can be performed to obtain other interesting findings. Additionally, the research object, which is limited to LQ45 listed companies, can be expanded by analyzing companies listed on the IDX. A comparative analysis based on industry type can also provide interesting findings.

This study suggests that a female board of commissioners has a positive impact on firm performance and ESG ratings. Thus, the implication for regulators is the need to promote affirmative policies regarding female representation on boards of commissioners, while emphasizing that the quality of governance is determined more by the effectiveness and diversity of board members than by the frequency of meetings alone. For investors, the results of this study suggest that the gender composition of boards of commissioners should be considered a critical factor in investment decisions because it is related to company performance and sustainability. Meanwhile, for companies, these findings encourage strengthening gender diversity on boards of directors as a strategy to increase value and reputation and emphasize the need to prioritize the quality of decision-making in board meetings rather than simply increasing the number of meetings.

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