

## Does ESG Score Impact on Financial Performance? The Moderating Role of Female Board of Directors

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### Abstract

This study investigates the influence of Environmental, Social, and Governance (ESG) on corporate financial performance (FP), and the role of female board of directors among ESG and corporate financial performance. Sustainability issues have been on the rise in recent decades, leading to increased market interest in transparency of companies' economic, environmental, and social performance (ESG). Companies carry out ESG performance as a form of responsibility to stakeholders. Disclosure of ESG performance that is responded positively by investors can impact the company's financial performance. With a quantitative method, the samples of this study are companies listed in the ESG Leader Index on the IDX in 2021-2023. The data collection technique uses purposive sampling. The number of samples is 60 companies. Hypothesis is tested with regression analysis. The empirical findings show that ESG, as measured by ESG risk, has a negative impact on corporate financial performance. In addition, female board of directors strengthen association of ESG and corporate financial performance. This study contributes to enriching the literature on stakeholder theory in the scope of corporate awareness of ESG. This research makes a practical contribution that companies that have good environmental and social responsibility do not necessarily have optimal financial performance. Hence investors and shareholders also need to understand this matter before making their investments.

**Keywords:** ESG, Female Board of Directors, Financial Performance

### 1. Introduction

Climate change risk is currently a major concern worldwide, as it impacts individuals, businesses and multinational organizations. Extreme weather, including floods, rising sea levels and hurricanes can be detrimental to businesses. The risk of physical damage becomes inevitable, asset damage, supply chain disruption can reduce productivity, sales and consumer demand. Hence, attention to sustainability issues is very important. Sustainability issues have continued to increase in recent decades, causing market interest in transparency of companies' economic, environmental and social performance to grow. Major social changes are being brought about by values of preserving the environment and upholding societal interests (Garel & Petit-Romec, 2021). Businesses are looking into more morally and environmentally sound ways to conduct long-term operations, and capital markets are now focusing on integration of the environment, social, and governance (H.-M. Chen et al., 2022).

ESG-compliant activities are necessary for sustainable economic development. Corporate sustainability performance is proxied by Environmental, Social, and Governance (ESG) criteria (Drempetic et al., 2020). ESG is to narrate how investors and businesses approach and corporate environmental, social, and corporate governance concerns into their business plans (Fatemi et al., 2018). Stakeholders have grown more conscious of the value of sustainability during the past ten years, particularly in the wake of the financial crisis and stock market meltdown.

Sustainability reports, annual reports, financial reports, corporate websites, external data providers (Thompson Reuters, Bloomberg), and other sources are typically good places to find information about a firm's ESG (Setiani, 2023). The information asymmetry of company's management and its many

stakeholders might be lessened by the reports that have been made for public. Agency disputes arise from information imbalance between stakeholders and the company. Differences in interests between principals, or shareholders, and agents, or management, lead to agency conflicts because agents typically make investment decisions based on their own interests. Disclosure, then, can be the way to lessen disproportion of information and make it possible for investors to get more information. An overview of the company's position in economic, environmental, and social activities is given to internal and external stakeholders through sustainability reporting (Amran, 2012).

Non-financial disclosure is a legal tool used by businesses to represent their active commitment to environmental and social responsibility. This improves the company's standing with creditors, investors, customers, and the community. In order for businesses to use their competitive advantages to obtain additional capital at a reduced cost (Ben-Porath et al., 2018). Currently, the company's sustainability report is still a voluntary disclosure, there is no mandatory from the Indonesian regulator for companies to report. There has been an increase in the number of companies preparing sustainability reports in recent years. The Indonesia Stock Exchange fully supports ESG practices in businesses by releasing index likes IDX ESG Leaders, which evaluate the performance of organizations with high ESG ratings and little controversy (Bursa Efek Indonesia, 2024a). Businesses participate in ESG performance to meet their stakeholder commitments. Companies engage in ESG performance as a means of fulfilling their stakeholder obligations. Company's financial performance may be impacted by ESG performance disclosure that investors find favorable.

According to stakeholder theory, a company's ability to satisfy stakeholder needs has a significant impact on its market value (Shakil, 2021). According to research by Garel & Petit-Romec (2021) investors are able to reevaluate the environmental impact and morality expected in corporate development due to the unusual experience of COVID-19. Based on non-financial data that the company provides, investors evaluate risks and expected returns (H.-M. Chen et al., 2022).

This topic is interesting due to the wide range of stakeholders who are concerned about sustainability challenges in business. The earlier study on the influence of ESG on business performance is inconsistent. The research conducted by Duque-Grisales & Aguilera-Caracuel (2019) reveals a statistically unfavorable association about ESG and firm performance. Research by Chen et al. (2022) suggests that CSR has no effect on FP, but when companies are more careful in ESG performance, it will have a positive influence on FP, but the impact decreases over time because it reduces profits. Other research, however, discovers that ESG has a positive effect on FP (Wu et al., 2024) as well as an effect on financial performance (Z. Chen & Xie, 2022).

In prior research by Fatemi et al. (2018) states that ESG performance has a positive effect on firm value, while ESG disclosure diminishes company value. Investors who believe that disclosure is only "greenwashing" may view this as feasible. According to a Setiani's (2023) study, ESG has a detrimental impact on business performance. Mendiratta et al. (2023) explain that the contentious ESG score has an adverse impact on the valuation of company. However, according to studies by Bagh, Fuwei, & Khan (2024) ESG investments significantly increase the value of a company.

This study attempts to investigate the impact of ESG scores on business financial performance in light of inconsistent in previous research. In contrast to earlier research, it modifies the correlation of ESG and company success by looking at the number of female board of directors. According to research on the diversity of directors and commissioners by Zahid et al. (2020) there is a significant positive relation of environmental, social, and economic dimensions in the workplace and corporate sustainability, indicating that female directors have an intriguing role to play in enhancing corporate sustainability. Gender diversity improves the correlation between financial success and corporate social responsibility (CSR) (Zahid et al., 2020). According to Huang & Li (2024) research, female directors both enhance and impede business financial and ESG performance.

The samples of this study include 20 companies listed in the ESG Leader Index in 2021-2023 with purposive sampling method. This study focuses on impact of ESG performance on the financial performance that has been implemented and has considered environmental and sustainability issues as an important part of the business process. It also tests the moderating impact of female board directors on the correlation of ESG performance and company financial performance. The hypothesis is tested in this study using the least square panel regression technique. According to this study, financial success is significantly impacted by ESG performance. A female board of directors improves the correlation between financial and ESG performance.

## 2. Literatur Review

### A. Stakeholder Theory

The stakeholder theory explains that businesses must serve the interests of other stakeholders in addition to their own. As stated by Freeman (2010) a business owes obligations to all parties involved, not only shareholders. Both internal and external stakeholders are included in the company (Shakil, 2021). Internal stakeholders include directors, employees, managers, stockholders. In contrast, external stakeholders include of the government, financial services authorities, tax authorities, suppliers, creditors, investors, and other parties that are not directly associated with the business (Weygandt et al., 2015). Stakeholder theory addresses moral, ethical, and social values, including social and environmental actions, in business management (Shakil, 2021). A company's capacity to remain in business rests on the support of all of its stakeholders, hence one of its main goals should be to win their legitimacy. As non-financial information in corporate decision making, stakeholders are calling for increased sustainability disclosure on ESG issues (Hassan et al., 2021). Corporate decision-making that takes ESG into account can raise a company's reputation and generate long-term value for all stakeholders. Companies can increase their reputation by considering the demands and interests of every stakeholder, which lowers risk and enhances long-term financial performance.

### B. Environmental, Social, and Governance (ESG)

Stakeholder theory emphasizes that, to ensure a business's survival, other stakeholders must also be taken into account in addition to shareholders. Although ESG disclosure is not required, stakeholders appreciate and societal tension will decrease when businesses demonstrate their concern for these concerns (Shin et al., 2023). Annual reports, sustainability reports, financial statements, corporate websites, outside data providers, and other sources can all provide information about an organization's ESG. ESG means how investors and businesses incorporate ESG concerns into their business plans. When evaluating company sustainability, the financial markets, businesses, and academics frequently turn to the ESG Score (Gillan et al., 2021).

ESG assessment is a crucial component of evaluating how well an organization has implemented ESG practices. In an effort to promote long-term sustainable investment and enhance ESG practices in the Indonesian capital market, the Indonesia Stock Exchange works with ESG assessment organizations. Businesses that deal with two aspects of ESG issues—exposure and management—are faced with conducting ESG risk assessments through sustain analytics application of the risk decomposition concept (Bursa Efek Indonesia, 2024b). The significant ESG risk that a business faces and which influences the ESG risk assessment is exposure. In order to address ESG challenges, the firm's management has committed to taking concrete steps in the form of work plans and other company rules.

### C. ESG and Financial Performance

ESG score is a score for assessing the execution of ESG practices in a company. More ESG funding is typically needed for the integration of ESG into a business' operations. Therefore, companies must allocate sufficient funds to support and improve their ESG practices (Duque-Grisales & Aguilera-Caracuel, 2019). Other studies explain ESG which can increase transparency, reduce risk, and innovate effective ESG practices (Z. Chen & Xie, 2022; Wu et al., 2024). Their research indicates that businesses that voluntarily integrate reporting typically perform better financially. There is a correlation of ESG performance and financial performance as well as corporate value (Fatemi et al., 2018). Company value and performance are positively impacted by socially conscious behavior (Fatemi et al., 2015). Study by Nguyen et al. (2020) states that CSR increases stakeholder value. Based on previous theories and research:

**H1:** ESG scores impact the company's financial performance

### D. Female Board of Directors, ESG, and Financial Performance

Many factors influence the company's financial performance. Gender is one more variable that affects the company's financial performance. According to a study by Zahid et al., (2020), there is a noteworthy correlation between the environmental, social, and economic aspects of the workplace and company sustainability, indicating that female directors can play an intriguing role in enhancing corporate sustainability. The existence of female directors in corporate governance structures is often associated with increased commitment to ESG practices. Women in leadership positions tend to have a higher ethical and social orientation (Glass et al., 2016). Research by Huang & Li, (2024) ESG performance improves with a higher number of female directors. Furthermore, there is a good relation of CSR and financial performance when there have female directors (Kahloul et al., 2022).

**H2:** Female board of directors strengthen the association about ESG score and corporate financial performance

Table 1. Research Variables

Variable	Measurement
Financial Performance ( <i>ROA</i> )	$ROA_{it} = \frac{Net\ Income_{it}}{Total\ Asset_{it}}$
Environmental Social Governance ( <i>ESG</i> )	<i>ESG Score Risk</i>
Female Board of Director ( <i>FD</i> )	$FD_{it} = \frac{Total\ Debt_{it}}{Total\ Asset_{it}}$
Leverage ( <i>LEV</i> )	$LEV_{it} = \frac{Total\ Debt_{it}}{Total\ Asset_{it}}$
Firm Size ( <i>SIZE</i> )	$SIZE_{it} = Ln(Total\ Asset)_{it}$

Hypothesis Model 1:

$$ROA_{it} = \alpha_0 + \alpha_1 ESG_{it} + \alpha_2 LEV_{it} + \alpha_3 SIZE_{it} + \varepsilon \quad (1)$$

Hypothesis Model 2:

$$ROA_{it} = \alpha_0 + \alpha_1 ESG_{it} + \alpha_2 FD_{it} + \alpha_3 ESG_{it} * FD_{it} + \alpha_4 LEV_{it} + \alpha_5 SIZE_{it} + \varepsilon \quad (2)$$

Where:

- $ROA_{it}$  = the return on asset i for period t
- $ESG_{it}$  = ESG risk score i for period t
- $FD_{it}$  = female board of director i for period t
- $LEV_{it}$  = leverage of company i for period t
- $SIZE_{it}$  = firm size i for period t

### 3. Method

To determine how ESG scores influence the financial success of companies with female boards of directors as a moderating variable, this study employed a quantitative approach using financial report data and annual reports from businesses listed on the Indonesian Stock Exchange (IDX). The sampling method was purposive sampling with specific criteria. First, companies that went public on the IDX between 2021 and 2023. Second, companies that remained part of the ESG Leader Index category from 2021 to 2023. Third, companies that publish annual financial reports in rupiah. These criteria resulted in a sample of 60 companies for the study.

Table 1 summarizes all variables in this study: financial performance is the dependent variable, the ESG score is the independent variable, and the female board of directors is the moderating variable. The study also considered company size and leverage as control variables. Return on Assets (ROA) measures financial performance and is calculated by dividing total net income by total assets. The ESG score is obtained from the IDX website's ESG risk score. The proportion of female directors is calculated by dividing the total number of female directors by the total number of board members. Leverage is measured as total debt divided by total assets, while firm size is determined by the natural logarithm of total assets.

### 4. Result and Discussion

#### A. Descriptive Statistic and Regression Analysis

Table 2 presents the descriptive statistics for all variables used in this study, including the dependent, independent, moderating, and control variables. The ROA variable shows a mean value of 0.0655, indicating relatively modest profitability among firms, with limited dispersion across the sample. The ESG score, which reflects firms' sustainability risk and performance, has an average of 21.50 and ranges from 11.31 to 29.71, suggesting moderate variation in ESG practices. Fraud Disclosure (FD) records a mean of 0.234, indicating relatively low disclosure levels, with substantial variation across firms. Leverage (LEV) displays the widest dispersion, with a mean of 12.33 and a high standard deviation of 91.24, reflecting heterogeneous capital structures within the sample. Firm size (SIZE) shows a mean of 35.27 with moderate variability. Overall, the descriptive statistics highlight the heterogeneity of the sample and provide a foundational overview prior to conducting further regression analysis.

The empirical analysis demonstrates that ESG performance significantly influences the financial performance of firms listed in the ESG Leader Index during the 2021–2023 period. As presented in Table 3, the results of the first regression model show that the ESG variable exhibits a significance value of 0.00046, which is well below the 0.05 threshold. This confirms support for the first hypothesis, indicating that ESG performance has a statistically significant effect on financial performance. The adjusted  $R^2$  value of 0.0078 suggests that ESG explains approximately 0.78% of the variation in financial performance, reflecting a modest explanatory power but a robust statistical relationship.

The second hypothesis examines whether the presence of female directors moderates the relationship between ESG and financial performance. The interaction term ESG\*FD yields a significance value of 0.0124, below the 0.05 level, indicating that the moderating effect is statistically significant and that the second hypothesis is supported. The adjusted  $R^2$  for Model 2 increases substantially to 0.2190, indicating that 21.90% of the variation in financial performance is explained by the model after including the moderating variable. This improvement suggests that female board representation strengthens the explanatory power of ESG in determining financial outcomes. Collectively, the findings highlight the direct and moderated effects of ESG on financial performance, emphasizing the strategic importance of sustainability practices and gender diversity in corporate governance.

Table 2. Descriptive Statistic for Research Variables

Variables	Obs	Mean	Std. dev.	Min	Max
ROA	60	0.065492	0.062790	0.0005096	0.3019712
ESG	60	21.49783	4.854812	11.31	29.71
FD	60	0.234179	0.161203	0	0.5714286
LEV	60	12.33262	91.24181	0.0810179	707.3071
SIZE	60	35.27284	7.434974	29.42809	49.13096

Table 3. Regression Test Results

	Model 1		Model 2	
	$\beta$	Sig.	$\beta$	Sig.
Const	0.1034379	0.1950098	-0.030954	0.1030758
ESG	-0.003195	0.0004635***	0.0013542	0.007451***
FD			0.4160961	0.8997864
ESG*FD			-0.0107997	0.0124492**
LEV	-0.0000511	0.0001287	0.000016	0.000179
SIZE	0.0008893	0.0032904	0.0006044	0.0027514
Adj $R^2$	0.0078		0,2190	
F Value	1.15		4,31	

## B. Discussion

According to the first hypothesis, there is a negative relationship between ESG and the financial performance of the organization. Table 3 reveals that the first hypothesis is supported, with the ESG coefficient (-0.003195) being significant at the 5% level. This study supports earlier research that found a significant negative relationship ESG and financial performance (Duque-Grisales & Aguilera-Caracuel, 2019). This relationship is linked to the idea that the more ESG performs, the more money is invested in ESG interests. It can occasionally result in less-than-ideal financial performance. Investments made to reduce emissions and increase natural resources are excessive. When companies focus on the use of clean and environmentally friendly technology, the resources used for normal operating activities will be disrupted and financial performance can also be disrupted. A study by Saygili et al. (2022) also explains that environmental performance disclosure has a negative effect on financial performance, this can be seen from the increasing environmental performance that will cause operational inefficiencies in the company.

The negative relationship between ESG scores and financial performance may be due to the high level of ESG implementation, which requires significant investments, such as the adoption of environmentally friendly technology, transparent corporate governance, and professional employee training. All of which support company sustainability (Alareeni & Hamdan, 2020). When the company is operating, costs increase in the short term, and net profit and profitability ratios will decline. High initial costs for ESG investments can depress a company's short-term profits (Aliyev & Alishov, 2023). Implementing environmentally friendly practices, clean technologies, and social programs can require significant capital or operational expenditures, which can reduce profits before long-term benefits emerge. There is a trade-off between social responsibility and economic efficiency. Allocating funds to social activities can reduce funds available for core business activities, research and development, and market expansion. Excessive investment in CSR can reduce profitability (Lopatta et al., 2024). This means that up to a certain level, CSR can be beneficial, but investment beyond the optimal point can reduce resource efficiency and lower profitability. Furthermore, ESG returns are typically long-term, such as corporate reputation, consumer loyalty, and risk mitigation.

Investors in stock markets in developing countries remain unaware of the importance of ESG, and they do not place premiums or appreciation on companies with high ESG performance. Consequently, the market value of companies with high ESG performance does not increase. Window dressing, where companies implementing ESG are perceived as greenwashing, is a common practice. Companies facing ESG controversies often experience decreased investment efficiency and financial performance due to litigation and reputation repair costs (Xue et al., 2023).

According to the second hypothesis, the correlation of ESG and financial performance is strengthened when there are more female board members. Table 3 illustrates a negative yet statistically significant correlation between ESG and financial performance. The beta coefficient (-0.0107997) indicates this condition. Research by Huang & Li (2024); Kahloul et al. (2022); Zahid et al. (2020) that indicate gender diversity has a major favorable effect are not supported by this study. This study supports the findings of Abdullah (2014) and Nahar Abdullah & Ku Ismail (2013) about the detrimental impact of gender diversity on financial performance. This is linked to boards of directors with a higher proportion of female members giving audits, risk supervision, and control more attention. Furthermore, female board members prioritize non-financial performance metrics like innovation and corporate social responsibility in addition to financial success metrics.

The existence of female directors in corporate governance structures is often associated with the increased commitment to ESG practices. Women in leadership positions tend to have a higher ethical and social orientation, and a higher sensitivity to social and environmental issues than men (Glass et al., 2016). However, this can also strengthen the negative relationship between ESG performance and a company's financial performance. The presence of women encourages companies to focus on social and environmental interests. If it is executed excessively without adequate economic efficiency, the allocation of company resources tends to shift from profit-oriented activities to non-profit activities. Thus, it is reducing short-term financial performance (Baron et al., 2011).

## 5. Conclusion

This study examines the moderating effect of the female board of directors on the relationship between ESG and the company's financial success. First, there is a substantial negative impact of ESG on a firm's financial performance. It happens because a company that is more interested in ESG will likely employ more technology to improve environmental cleanliness, which will have a negative financial impact. Second, the correlation between ESG and financial performance is strengthened by the presence of female board of directors. This is linked to a board of directors that emphasizes non-financial performance metrics like innovation and corporate social responsibility in addition to financial performance metrics, with a greater proportion of female directors.

This study has theoretical and practical implications. First, this study enriches the research literature on stakeholder theory. Second, companies with good environmental and social responsibility do not necessarily have good financial performance, so investors and shareholders also need to understand this before making their investments. This study uses a sample of companies listed in ESG Leader Index so that the number of samples is limited. This study also assesses financial performance using the return on assets (ROA) proxy, so that further research can measure company performance using other measurements.

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