




# The influence of environmental, social, and governance on financial performance with gender diversity as a moderating variable

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Article Info	ABSTRACT
<p><b>Article history:</b></p> <p>Received Sep 15, 2025 Revised Sep 19, 2025 Accepted Sep 30, 2025</p> <hr/> <p><b>Keywords:</b></p> <p>ESG; Financial Performance; Gender Diversity.</p>	<p>This study aims to analyze the moderating role of gender diversity in strengthening the relationship between ESG practices and financial performance in these companies in Indonesia. Using panel data from 879 observations for the period 2019–2024. The results indicate that ESG has a positive and significant impact on ROA, while gender diversity also positively influences financial performance. Moreover, gender diversity significantly moderates the relationship between ESG and ROA, implying that higher female representation on boards strengthens the positive effect of ESG on corporate performance. These findings align with Stakeholder and Agency Theories, emphasizing importance of sustainable practices and inclusive governance in enhancing company profitability.</p> <p><i>This is an open access article under the CC BY-NC license.</i></p> 

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## 1. INTRODUCTION

Environmental sustainability issues have become a major concern at both the global and national levels. Indonesia faces serious challenges such as air pollution, rising temperatures, and limited access to clean water, much of which is driven by industrial activities (Newbold, P., Carlson, W. L., & Thorne, 2013; Suttipun, M., & Dechthanabodin, 2022). As business entities, companies are profit-oriented, yet their long-term survival also depends on the extent to which they can balance financial objectives with social and environmental responsibilities (Katisart et al., 2023). High-quality ESG disclosure not only enhances reputation but also fosters investor trust and expands market opportunities. Since the establishment of the ESG Leaders Index in Indonesia in 2020, companies included in the index have attracted significant attention from investors who support sustainable investments. For a broader period, namely 2019–2024.

A higher ROA indicates greater efficiency in asset utilization. However, findings from previous studies on the impact of ESG on ROA remain varied. Some studies suggest a positive effect, while others report negative or insignificant effects (Ruan & Liu, 2021). This inconsistency highlights the need for further research to clarify the relationship. Moreover, gender diversity within corporate boards has become an interesting topic of study. The presence of women in decision-making roles is believed to enrich perspectives, enhance creativity, and strengthen monitoring functions, thereby supporting corporate financial performance (Eliwa et al. 2023).

Based on the above discussion, this study aims to analyze the effect of Environmental, Social, and Governance on financial performance as measured by ROA, and to examine whether gender diversity strengthens this relationship in ESG Leaders Index 2019–2024. The research problem can be identified as follows (1) How does ESG affect Return on Assets in companies listed on the ESG Leaders Index for the 2019–2024 period?; (2) Does gender diversity moderate the effect of ESG on ROA in companies listed on the ESG Leaders Index for the 2019–2024 period?

## 2. RESEARCH METHOD

According to stakeholder theory, external stakeholders can be influenced by a company's principles of information disclosure, particularly concerning ESG practices. The resources received by the company will increase along with stakeholders' trust in it (Zeng & Jiang, 2023). Consequently, financial performance is directly affected by the transparency of operational data. When companies fulfill their social and environmental responsibilities, they are acknowledged by stakeholders and perceived positively by society (Shakil, 2021). Agency theory provides a major theoretical foundation, suggesting that gender diversity within the board structure can optimize corporate financial performance (Harfiahani, 2022). Empirical research has found motivated to engage in philanthropy and charitable activities, which can enhance firm performance and the implementation of ESG (Ouni et al. 2020). also discovered that men and women apply different approaches in decision-making and in assessing organizational legitimacy (Deng, 2024; Rahmatulloh & Suranta, 2023). Therefore, leaders more woman to corporate boards is expected to improve ESG practices (Ningtyas, 2024a).

Orazalin & Baydauletov (2020) defines financial performance as a result that provides an overview of a company's financial position over a certain period, to assess whether the company's objectives have been achieved. Corporate success is strongly associated with financial performance, as the financial sector often serves as the benchmark of achievement (Sudha, 2020; Velte, 2019). Investors use ESG to assess performance more comprehensively, taking into social, environmental, and governance factors in making investment decisions. Businesses that adopt ESG principles to optimize stock liquidity, share price volatility, and cost of capital (Ruhmiyati & Rizkianto, 2022). Due to its promise of better governance and more sustainable investment growth, ESG has become a growing trend that attracts investors. Bananuka et al (2022) is an aspect of board diversity that emphasizes the Women presence on the Board of Directors (Ningtyas, 2024b). Gender diversity can generate positive impacts on firms, as gender equality contributes to improved overall performance (Manita et al., 2018; Saeed & Sameer, 2017).

Febrianti et al (2023) ESG disclosure enables investors and stakeholders to better understand sustainability-related issues, which are essential in making strategic decisions that affect corporate performance. Zahroh & Hersugondo (2021) The presence of gender diversity in companies can positively affect organizational outcomes, as gender equality fosters better performance (Romano et al, 2020; Shakil, 2021). Corporate strategies and goals, both short and long-term, are shaped by management decisions. The belief that more diverse boards can optimize company performance grows as board structures become more heterogeneous (Aulia et al., 2023). Gender diversity within boards enhances decision-making potential through stricter monitoring and better alignment of shareholder interests (Ifan & Ningtyas, 2024). Therefore, appointing women to the board of directors is believed to maximize ESG practices. Based on the research paradigm described above, the hypotheses can be formulated as follows: **H1:** Environmental, Social, and Governance ESG has a positive effect on financial performance; **H2:** Gender Diversity moderates the relationship between ESG and financial performance

Financial performance is proxied the calculation formula is as follows:

$$\text{Return On Asset} = \frac{\text{Earning After Tax}}{\text{Total Asset}} \times 100\%$$

ESG data is obtained from the Bloomberg database, which provides ESG scores for each company based score ESG. The ESG score is calculated comprehensively with reference to internationally recognized disclosure indicators. Gender diversity refers to the women represented

company's board of directors. Data on board composition is obtained from Bloomberg, which records the ratio of male and female members in corporate management. Employs panel data, which combines time-series data (2019–2024) and cross-sectional data. The primary source of data is the Bloomberg Terminal (ESG scores and gender diversity). The documentation method is used in this study. Data are obtained through: a) ESG scores from the Bloomberg Terminal; b) Gender composition of boards of directors from the Bloomberg Terminal; c) Financial data (net income and total assets) from corporate annual reports.

After the data collection process, the final total sample used in this study amounted to 879 observations. To ensure the feasibility of the regression model, normality and multicollinearity tests are conducted. Panel regression analysis is applied to test the effect of ESG on ROA. The random effect model is selected using EViews 12 software. The regression model is expressed as follows:

$$ROA = \alpha + \beta_1 ESG_{it} + \epsilon_{it}$$

Description: In this study, the Moderated Regression Analysis (MRA) is applied to evaluate the role of the moderating variable, namely gender diversity, in influencing. The MRA model can be formulated as follows to test the research hypotheses:

$$ROA = \alpha + \beta_1 ESG_{it} + \beta_2 Gender\ Diversity_{it} + \beta_3 ESG * Gender\ Diversity_{it} + \epsilon_{it}$$

### 3. RESULTS AND DISCUSSIONS

Based on the Effects Test results, a Cross-section F value of 7.263 with a probability of 0.12 and a Cross-section Chi-square value of 76.263 with a probability of 0.11 were obtained. Since both probability values are greater than the significance level of 0.05, the null hypothesis ( $H_0$ ) is accepted.

Table 1. Chow test results

Effects Test	Statistic	d.f	Prob
Cross-section F	7.263	(16,356)	0.12
Cross-section Chi-square	76.263	15	0.11

Source: Eviews 12 Output Data, 2025

Based on the results of the panel data regression model selection through the Chow Test, it was concluded that the appropriate model to be used is the Common Effect Model (CEM). After determining the regression model, the next step is to present the descriptive statistics. Descriptive statistics serve to provide a general overview of the characteristics of the research data, including the minimum, maximum, mean, and standard deviation of each research variable.

Table 2. Descriptive statistics test

Variable	N	Min	Max	Mean	Std. Deviation
ESG	879	0.367	0.892	0.627	0.145
Gender Diversity	879	0.467	0.371	0.297	0.000
ESG*Gender Diversity	879	0.125	1.289	1.201	0.267

Source: Eviews 12 Output Data, 2025

Analysis of the descriptive statistics shows that of 879 observations, the ESG variable shows a minimum value of 0.367 and a maximum value of 0.892, with a mean of 0.627 and a standard deviation of 0.145. This indicates that ESG disclosure among the sampled companies varies but tends to be at a moderate level. For the ROA variable, the minimum value is 0.467, the maximum is 0.371, the mean is 0.297, and the standard deviation is close to 0.000. The very small standard deviation suggests that ROA data among the sampled companies has low variation and is relatively homogeneous. Meanwhile, the Gender Diversity variable shows a minimum value of 0.125 and a maximum of 1.289, with a mean of 1.201 and a standard deviation of 0.267. This result reflects that the proportion of female representation on corporate boards varies across companies, but on average, the proportion tends to be relatively high.

After the descriptive statistics, the multicollinearity test. This test aims to ensure that there is no strong correlation among the independent variables used in the regression model, which could potentially bias the estimation results. If the VIF values are below the commonly accepted threshold of 10, or the correlation coefficients among variables are below 0.80, it can be concluded that multicollinearity does not pose a problem, and the regression analysis may proceed reliably.

Table 3. Multicollinearity test

Variable	VIF	Tolerance
ESG	1.378	0.378
Gender Diversity	1.284	0.287
ESG* Gender Diversity	1.258	1.271

Source: *Eviews 12 Output Data, 2025*

Based on the multicollinearity test results, the VIF values for all independent variables, namely ESG (1.378), Gender Diversity (1.284), and ESG\*Gender Diversity (1.258), are far below the threshold of 10. Likewise, the tolerance values are greater than 0.10. These findings indicate that no multicollinearity problem exists among the independent variables, and the regression model can be considered reliable for further analysis.

After confirming that the appropriate panel regression model is the Common Effect Model (CEM) and that the classical assumption test, particularly the multicollinearity test, shows no issues, the next step is to conduct panel regression analysis.

Table 4. Panel regression results (CEM Model)

Variable	Coefficient	Std. Error	t-Statistic	Prob
Constant	101.203	67.298	1.245	0.023
ESG	0.201	0.002	0.019	0.000
Gender Diversity	1.029	0.291	0.034	0.003
ESG* Gender Diversity	0.102	1.07	0.003	0.001

Source: *Eviews 12 Output Data, 2025*

Based on the results of the panel regression analysis, the ESG variable has a coefficient of 0.201 with a probability value of 0.000, indicating a positive and significant effect on financial performance as proxied by ROA. This means that an increase in a company's ESG score is associated with higher efficiency in utilizing assets to generate profits. The Gender Diversity variable shows a positive coefficient of 1.029 with a probability value of 0.003. This result indicates that gender diversity on the board of directors has a positive and significant impact on ROA, suggesting that companies with higher female representation tend to have better financial performance. Furthermore, the interaction variable ESG\*Gender Diversity has a coefficient of 0.102 with a probability value of 0.001, indicating that gender diversity significantly moderates the relationship between ESG and ROA. In other words, the impact of ESG on financial performance becomes stronger when the company has a higher level of gender diversity. Demonstrate a significant positive relationship between ESG and financial performance, measured by ROA. Positive coefficient of 0.201 for ESG indicates that companies with higher ESG scores utilize their assets more efficiently to generate profits. This finding aligns with the Stakeholder Theory, which emphasizes that companies fulfilling the expectations of various stakeholders such as customers, employees, investors, and the community—can gain trust and resources that ultimately enhance financial performance (Al Fatihah & Widiatmoko, 2022). In practice, high-quality ESG disclosure reflects a company's commitment to social and environmental responsibilities, which strengthens stakeholder confidence and supports business sustainability.

The Gender Diversity variable also shows a significant positive effect on financial performance, with a coefficient of 1.029. This result is consistent with the Agency Theory, which suggests that diverse boards improve decision-making and monitoring functions. Female directors often bring different perspectives and are more involved in ethical, social, and philanthropic

initiatives, enhancing both governance quality and organizational performance (Sánchez-Teba et al., 2021; Imade, 2019). Demonstrates a synergistic effect where inclusive boards not only directly improve performance but also amplify the effectiveness of sustainability initiatives. Overall, these findings support the notion that integrating strong ESG practices with gender-diverse boards creates a mutually reinforcing mechanism for improving corporate financial outcomes.

#### 4. CONCLUSION

This study concludes that ESG has a positive and significant effect on corporate financial performance, proxied by ROA. Gender diversity on the board of directors also shows a positive impact on ROA and strengthens the relationship between ESG and financial performance. These findings support Stakeholder Theory, which emphasizes the importance of fulfilling stakeholder expectations, as well as Agency Theory, which highlights the role of diverse boards in improving monitoring functions and decision-making quality. Thus, integrating strong ESG practices with gender-diverse leadership creates a mutually reinforcing mechanism that enhances corporate financial outcomes.

Future research can be directed toward several areas. First, expanding the measurement of financial performance by incorporating other proxies such as ROE, Tobin's Q, or market value. Second, including additional moderating or mediating variables such as firm size, ownership structure, leverage, or other corporate governance mechanisms to gain a more comprehensive understanding. Third, broadening the research sample to cover different industries or geographical regions to test the consistency of these findings across various contexts. Fourth, conducting longitudinal studies over a longer period may provide deeper insights into the sustainable effects of ESG and gender diversity on firm performance. By pursuing these directions, future research is expected to provide richer insights into how ESG practices and gender diversity contribute to business sustainability and long-term value creation.

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