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Judul: How ESG and Gender Diversity Affect Firm Performance

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Penulis: Johan Hadisurya, Joni Joni, Tan Kwang En, Sinta Setiana

No.	Perihal	Tanggal
1.	Bukti konfirmasi submit artikel dan artikel yang disubmit	31 May 2024
2.	Bukti konfirmasi submit revisi pertama, respon kepada reviewer, dan artikel yang diresubmit	23 Sept. 2024
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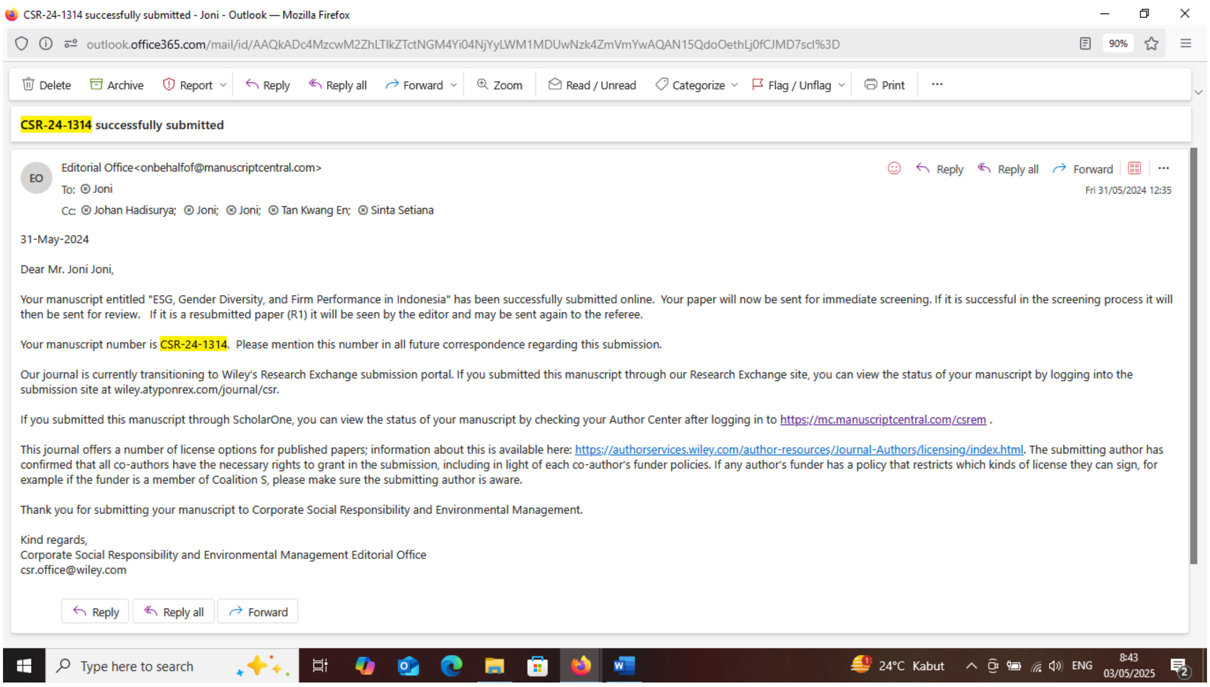

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Responses to Reviewer's comments

Many thanks for your insightful and suggestions to improve the quality of the paper submitted to Corporate Social Responsibility and Environmental Management. In this second revised version, we have made all necessary corrections and undertake additional as suggested and hope this time the revised paper will positive recommendation from you. Our responses are placed side-by-side to your comments.

Reviewer 1 #CSR-24-1314, R1

This draft is better but still quite rough. I did not review the regression analysis because the qualitative argument is still too confused. My updated opinion is the author(s) will likely get there and the paper can make an important contribution, but I think this draft remains a long distance from being publishable.

No.	Major Comments and Suggestions	Responses
1.	Abstract: The spelling convention is no comma after "Social" and this is a term of art, correct spelling to the following: Environmental, Social and Governance (ESG). There are several other instances in the paper of the same misspelling	Thank you. We have deleted comma after "Social" in all sentences in the manuscript.
2.	Research Design/Methodology/Approach: you underdescribe your sample by stating that it includes "all sectors of companies," whereas my understanding is that your study evaluated all listed companies with ESG disclosures (218 data samples?) and it will helpful for the reader if you will state upfront what your precise sample consists of and why	Thank you for your suggestion. We have revised our abstract and informed the sample precisely.
3.	Short Running Title: narrow to "an emerging economy" rather than "emerging economies" because your study only addresses Indonesia rather than emerging economies more broadly	Thank you. We have revised the short running title as suggested.
4.	Page 2, Line 12: I am not sure what you are saying here. Perhaps consider stating that some prior research has found that companies that employ ESG principles and disclosures in their business have been found to obtain a lower cost of capital.	Thank you. We made revision based on suggestion. "Efforts to integrate the economic, social, and environmental aspects are crucial for several reasons. First, some prior research has found that companies that employ ESG principles and disclosures in their business have experienced a lower cost of capital (e.g., Ramirez et al., 2022). Second, stakeholders believe that companies with extensive ESG disclosures experience improved firm value and reduced operational risks (e.g., Alsayegh et al., 2020).
5.	Page 2, Line 18: I think you intend to say that the positive correlation is with investors perceiving the companies in a positive light or good image, rather than than the good image of the investors themselves	Thank you. We made revision based on suggestion. "It is observed that companies with better ESG implementation in various countries, including Indonesia, are positively perceived by stakeholders, including investors and creditors (e.g., Eccles et al., 2020)."
6.	Page 2, Line 22 to Line 35: it will aid the reader to specifically describe what you mean by "company performance," you should specify upfront what specific correlation your data describes	Thank you. We have described tobin's q as proxy of company performance. "Pu (2022) also conducted a study of 232 Chinese companies and found a positive correlation between ESG activities and company's market performance proxied by Tobin's Q."

7.	Page 2, Line 49: "if the proportion of directors is women" I think you mean if the proportion of women increases to cause boards to become more gender balanced as compared against the base case of boards being comprised only of men; if so, restate so as to not undermine your results	Thank you, we have changed the explanation as suggested.
8.	Page 2, Line 52: this sentence does not make sense. If you remove the word "country" you are left with an empty statement, i.e., The more gender diversity is accepted as normative in a company, the more companies with gender diversity receive positive market assessments. Also, what does "high income levels" mean in this context? Take a look again at Zhang and try for a revised summary of that literature	We have revised the summary of Zhang (2020). See the explanation below: "Using the cross-country sample, Zhang (2020) examined how gender diversity and company performance are related. The results depend on the institutional context which differentiates between normative and regulatory environments. It is shown that gender diversity is positively associated with firm performance in normative environments, not in regulatory environments."
9.	Page 2, Line 60: I think you mean "its" rather than "their" unless you mean to reference the top management level rather than Indonesia itself. This isn't meant to be nitpicking, rather the argument needs to be clear to follow or the reader will be entirely lost.	You are right. Thank you. We have changed as suggested.
10.	Page 3, Line 10: this is much stronger, however, I think you mean the presence of women on boards of directors improves corporate performance, rather than that all female boards are best, which is quite a different conclusion	Thank you. Revision has considered all suggestions.
11.	Page 3, Line 13: "Third" should start a new paragraph so that a reader can follow the argument you are presenting	Thank you. We have removed the third point in a new paragraph.
12.	Page 3, Line 22: again, you say all company sectors listed rather than all listed companies. Need to clean this up throughout the paper, it is confusing and distracting.	Thank you, we have clean this up.
13.	Page 3, Line 26: performed significantly better at what?	We have revised and made a clear sentence. Thank you. "This study found that companies with high levels of ESG disclosure and gender diversity on their boards experience higher firm performance."
14.	Page 4, Line 55: are you arguing for Boards consisting only of women because they have a superior way of making decisions? If so, then you are short on citations and development; if not then careful clarification is needed as I noted in my comments to your last draft	The argument is not boards consisting only women, but the presence of women. Here is the revision made: "Jouber (2022) stated that the presence of women as board members could provide a different perspective from the superiority of their way of thinking when making a decision, thereby enhancing the precision of decision-making and the oversight of the company. Studies suggest that an increase in the proportion of women's boards in companies has a positive effect on a company's operational performance (e.g., Sun & Zou, 2021)."

15.	Page 5, Line 10: Why is Kartini remarkable? You need to educate the reader on who this historical figure was that died more than 100 years ago (and nearly 80 years prior to the 1945 Constitution?) and what difference it makes to modern Indonesia and the effort of women for more gender balance. Either explain to the reader and provide context so they are better educated on Indonesia or remove the reference entirely so it does not distract.	We have removed the story of Kartini to avoid distraction. Thank you.
16.	Page 5, Line 16: "benefits benefiting" is nonsensical. No citation for next statement about the rural/urban divide. What was Presidential Decree No. 9 of 2000, why are gender issues unresolved? Who, specifically, says women are still underrepresented in Indonesia politics, where is the citation and how does it compare to your discussion on Page 8 Line 15-17? What did the RPP do in 2006, 18 years ago? Your data set only addresses 2018-2022 because of POJK Number 51/POJK 03/2017 because I understand you to be saying you are trying to isolate the effects of a regulatory enactment. The historical context needs to be consistent and you need some more detailed explanation for what the 2017 regulation accomplished because that is what your regression analysis is seemingly testing. My suggestion would be to take your time here and be careful and trust that your audience wants to better understand the Indonesian context.	We have revised the whole paragraph to make a clear argument. Thank you. Here is the new paragraph. "Indonesian society has been affected by a patriarchal system in which men are regarded as more powerful than women (Areneke et al., 2023). It is rooted in Islamic culture or the Islamic religion (Syariah Rezaee et al., 2019). However, in terms of governance in Indonesia, the number of women as top managers is growing, making gender diversity an issue of interest. Essentially, the 1945 Constitution, particularly Article 27, Paragraph 1, states that gender equality in administration and law is required. Next, Presidential Decree No. 9 of 2000 on Gender Mainstreaming is aimed to decrease the gap between women and men in accessing development benefits and to improve the participation of women in the development process. To address the issue of limited women representatives at the executive, judicial, bureaucratic, and political party level in Indonesian politics, the Ministry of Women's Empowerment and Child Protection (KPPPA) also developed a Draft Government Regulation (RPP) on Gender Equality in 2006. It increased the participation of women in making strategic decision."
17.	Page 5, Line 25: what is a board of commissioners in the Indonesian context? If the audience is international (a portion certainly is) then you have to find a way to explain the local context and salient considerations, including the historical development, in a way that allows a reader to follow along.	We have revised the whole paragraph to make better understanding on Indonesian dual board system. "The issue of gender diversity on the company's top management structure has received attention from a variety of groups, including the public, practitioners, and academics (e.g., Liu et al., 2020; Brahma et al., 2021). This is because the participation of women on a company's structure is viewed as a value driver in the company's strategy. Following the Dutch corporate structure, Indonesia applies two-tier board system which consists of board of director who responsible for company's operation and supervisory board (also called as board of commissioner) who conduct monitoring and supervising functions (Joni et al., 2020a). It is important to explore the role of gender diversity in the context of Indonesian dual board system where the board of commissioners can make long-term decision and strategically involved. Moreover, the participation of women as board

		members is positively viewed by capital holders, including investors (e.g., Almarayeh, 2023). Stakeholder support is needed to increase the number of women on the company's board (e.g., Hazaea et al., 2023). In addition, the regulations in several nations mandate the presence of women on company boards. For example, the Norwegian government mandates that at least 40 percent of a company's board members be women (Garcia-Blandon et al., 2022)."
18.	Page 18, Line 16: the results are gleaned from regression analysis, and, as such, they suggest answers rather than answering questions. The distinction is important for credibility of the findings. Line 18, "This" should be replaced with "The results indicate" Line 20, what does "Thus" mean here?. Line 23, replace with something like "We recommend public policymakers in Indonesia, and countries with like characteristics as described, implement ESG practices and pursue compulsory disclosure." And then explain why. This is seemingly the recommendation that follows from the data and analysis and, whatever it is, it must be clearly stated.	Thank you, we have revised as suggested. "The results of this study have implications for policymakers, practitioners, and academics as they can answer questions regarding whether companies with ESG disclosures and the presence of gender diversity among company board members affect the enhancement of company performance in the context of a patriarchal society. The findings indicate that companies in developing countries that disclose ESG information and have gender diversity on their boards of directors exhibit superior performance. Also, corporate social responsibility and sustainability efforts are increasingly being integrated into business operations and play an important role in influencing a company's performance. We recommend public policymakers in Indonesia, and countries with like characteristics as described, implement ESG practices and pursue compulsory disclosure."

Reviewer 2 #CSR-24-1314

No.	Major Comments and Suggestions	Responses
1.	This article states that this article is original but needs to be supported by sufficient evidence. Therefore, it is necessary to add a review article on the theme in the introduction (research map for this theme) so that the originality of this research is truly known.	Thank you for the suggestion. The review of articles related to the theme in the introduction has been addressed. Please find these three paragraph that showing how our study is different compared to other related studies. "This study differs from previous research in several ways. First, it was conducted in the context of a developing country that places little emphasis on environmental, social and governance issues. This is reflected in the low number of listed companies with ESG disclosure in Indonesia (Harymawan et al., 2021). Few studies (e.g., Gutiérrez-Ponce & Wibowo, 2023; Rahmaniati & Ekawati, 2024) that address listed companies in Indonesia have investigated the association between ESG and performance. Prior studies have focused on the banking industry and non-financial performance. This study uses all listed companies in Indonesia to examine the effect of ESG disclosure on operating and market performance. Second, this study

		investigates the impact of board characteristics on company performance, which is an important governance issue in Indonesia, namely, gender diversity on the company's board of commissioners. Based on the findings of empirical research, Chen et al. (2018) show that the amount of ESG investment and innovation increases if the proportion of women increases to cause boards to become more gender balanced as compared against the base case of boards being comprised only of men. In the context of England, Brahma et al. (2021) showed that when women are involved as board members, there is a positive and significant correlation between gender diversity and company performance. Using the cross-country sample, Zhang (2020) examined how gender diversity and company performance are related. The results depend on the institutional context which differentiates between normative and regulatory environments. It is shown that gender diversity is positively associated with firm performance in normative environments, not in regulatory environments. Second, the issue of gender diversity at the top management level in Indonesia is unique because of the characteristics of its businesses and society, which are deeply affected by Islamic culture (Rezaee et al., 2019). Consequently, the orientation of business governance in Indonesia is profoundly patriarchal, where women are marginalized in their leadership, capabilities, and assertiveness (Areneke et al., 2023). In the context of patriarchal culture, women are perceived differently than men in the workplace, including job assignment, performance evaluation, and reward systems (Castro et al., 2023). Our findings indicate that the presence of women on boards of directors improves corporate performance. This is in line with the 'queen bee syndrome' argument suggesting that female boards tend to pattern themselves in a masculine way or a patriarchal culture to achieve personal and organizational successes as a sign of the adaptability process (Corwin et al., 2022). Third, many studies have been conducted to determine whether companies that disclose ESG can improve their performance (e.g., Dong et al., 2022). However, this study goes into greater detail to answer questions regarding the current topics of discussion. In analyzing the empirical results, this study employs two main variables, ESG and gender diversity, which are then tested for their effect on company performance, as measured by Return on Assets and Earnings per share. This study employs Ordinary Least Squares regression model analysis, which is aided by firm size, number of board members in the company, and leverage as control variables, as well as year of study and industry type as fixed effects. This study uses all listed companies on the Indonesia Stock Exchange from 2018 to 2022, which can be accessed through the Thomson Reuters DataStream.”
2.	Gender differences in this study are still inconsistent with the gender board of directors or board of commissioners. The	Thank you for your observation. We have replaced all gender board of director with gender board of commissioner as focus of our study.

	content of the article is still inconsistent in mentioning it	
3.	The model includes a control variable for the number of board of directors, and on the other hand, there is a gender variable measured by the proportion of the board of directors (the ratio of the number of female genders to the number); this is likely to cause multicollinearity in the model	Thank you. We have check multicollinearity issue using VIF test, with the results indicating that the model in this research is free of multicollinearity issues in Table 4.
4.	The observation period is during the pandemic period, where the pandemic has a major impact on the Company that it will affect the research model, so it needs to be included in the model with the impact of the pandemic	Thank you. We have addressed the effect of pandemic period in additional test (section 5.3). And the results are presented in Table 6.
5.	To see the strength of the model, an analysis using the Eviews technique can be added to find the right model for this study. The Partial Least Square technique can also be used to see the model simultaneously.	Thank you for the suggestion. To run our analysis, we use the Stata application which is widely and generally used in finance and accounting fields if it is compared to eViews software. Then the Partial Least Square is also not appropriate for our models since the variables of our models are not latent. All variables are continuous variables.

How ESG and gender diversity affect firm performance

Abstract

Objective – This study investigates the impact of Environmental, Social and Governance (ESG) disclosure and the presence of gender diversity on the board of commissioners on operating and market performance based on Indonesian companies listed from 2018 to 2022.

Research Design/Methodology/Approach – The sample for this study consists of all listed companies in Indonesia with ESG disclosures. Ordinary Least Squares regression was used to test this affiliation. The generalized moment method was also applied to address the endogeneity problem.

Findings – Based on 218 observations, this empirical research found that ESG disclosure and gender diversity on the board of commissioners have a positive and statistically significant effect on company performance. The results remained consistent after endogeneity testing.

Research Implications – The findings of this study have practical implications for academics and policymakers interested in the role of ESG and gender diversity in improving company performance in developing countries, such as mobilizing resources to support ESG and increasing the percentage of women on the corporate boards of commissioners. The findings of this study can also help investors decide whether to invest in companies in developing countries that have implemented ESG.

Originality/Value – This study differs from previous research in that it was conducted in Indonesia, a developing country. Meanwhile, most previous studies have been conducted in developed countries, such as China and Europe. This study examines the Indonesian state, which has a distinct corporate governance system, and where the patriarchal system still influences governance in Indonesia.

Short Running Title: How ESG practices and gender diversity affect firm performance in an emerging economy influenced by the patriarchal system.

Keywords: ESG, gender diversity, dual board governance, operating and market performances, emerging country, the patriarchal system.

1. Introduction

This study aims to investigate the effect of Environmental, Social and Governance (ESG) and gender diversity on the performance of companies listed on the Indonesia Stock Exchange from 2018 to 2022. ESG-related issues are important and of concern to practitioners and academics (Eccles et al., 2020). According to Becchetti et al. (2022), ESG is a standard used by companies to follow certain criteria so that economic activities carried out by companies can have a positive effect on the environment, social or community and corporate governance. Efforts to integrate the economic, social, and environmental aspects are crucial for several reasons. First, some prior research has found that companies that employ ESG principles and disclosures in their business have experienced a lower cost of capital (e.g., Ramirez et al., 2022). Second, stakeholders believe that companies with extensive ESG disclosures experience improved firm value and reduced operational risks (e.g., Alsayegh et al., 2020). It is observed that companies with better ESG implementation in various countries, including Indonesia, are positively perceived by stakeholders, including investors and creditors (e.g., Eccles et al., 2020).

Additionally, empirical findings show that companies that focus on developing ESG outperform companies that do not in a global context. Alodat & Hao (2024) examine the relationship between ESG and corporate performance using European listing companies. They show that firms with better ESG scores improve their operating performance. In China, Dong et al. (2022) indicated that increasing ESG activities can boost company performance. This is due to the fact that ESG activities are regarded as a competitive advantage for the company, with the potential to improve long-term performance. Pu (2022) also conducted a study of 232 Chinese companies and found a positive correlation between ESG activities and company's market performance proxied by Tobin's Q. Next, Gutiérrez-Ponce and Wibowo (2023), for example, examined the relationship between ESG and performance in a sample of Indonesian banking companies from 2010 to 2020. Their findings indicate a positive association between ESG disclosures and company performance.

This study differs from previous research in several ways. First, it was conducted in the context of a developing country that places little emphasis on environmental, social and governance issues. This is reflected in the low number of listed companies with ESG disclosure in Indonesia (Harymawan et al., 2021). Few studies (e.g., Gutiérrez-Ponce & Wibowo, 2023; Rahmaniati & Ekawati, 2024) that address listed companies in Indonesia have investigated the association between ESG and performance. Prior studies have focused on the banking industry and non-financial performance. This study uses all listed companies in Indonesia to examine the effect of ESG disclosure on operating and market performance. Second, this study investigates the impact of board characteristics on company performance, which is an important governance issue in Indonesia, namely, gender diversity on the company's board of commissioners. Based on the findings of empirical research, Chen et al. (2018) show that the amount of ESG investment and innovation increases if the proportion of women increases to cause boards to become more gender balanced as compared against the base case of boards being comprised only of men. In the context of England, Brahma et al. (2021) showed that when women are involved as board members, there is a positive and significant correlation between gender diversity and company performance. Using the cross-country sample, Zhang (2020) examined how gender diversity and company performance are related. The results depend on the institutional context which differentiates between normative and regulatory environments. It is shown that gender diversity is positively associated with firm performance in normative environments, not in regulatory environments.

Second, the issue of gender diversity at the top management level in Indonesia is unique because of the characteristics of its businesses and society, which are deeply affected by Islamic culture (Rezaee et al., 2019). Consequently, the orientation of business governance in Indonesia is profoundly patriarchal, where women are marginalized in their leadership, capabilities, and assertiveness (Areneke et al., 2023). In the context of patriarchal culture, women are perceived differently than men in the workplace, including job assignment, performance evaluation, and reward systems (Castro et al., 2023). Our findings indicate that the presence of women on boards of commissioners improves corporate performance. This is in line with the 'queen bee syndrome' argument suggesting that female boards tend to pattern themselves in a masculine way or a patriarchal culture to achieve personal and organizational successes as a sign of the adaptability process (Corwin et al., 2022).

Third, many studies have been conducted to determine whether companies that disclose ESG can improve their performance (e.g., Dong et al., 2022). However, this study goes into greater detail to answer questions regarding the current topics of discussion. In analyzing the empirical results, this study employs two main variables, ESG and gender diversity, which are then tested for their effect on company performance, as measured by Return on Assets and Earnings per share. This study employs Ordinary Least Squares regression model analysis, which is aided by firm size, number of board members in the company, and leverage as control variables, as well as year of study and industry type as fixed effects. This study uses all listed companies on the Indonesia Stock Exchange from 2018 to 2022, which can be accessed through the Thomson Reuters DataStream.

This study found that companies with high levels of ESG disclosure and gender diversity on their boards experience higher firm performance. In other words, the findings of this study suggest answering questions about the related topic that companies with good ESG disclosure and gender diversity on their boards of commisioners affect improving company performance. Compared with the findings of previous research, this study makes two contributions. First, it contributes to prior research that examines the effect of ESG disclosure on company performance in developing nations, such as Indonesia, where ESG issues are still given little attention. Second, it investigates the effect of board characteristics, specifically gender diversity, on company performance in Indonesia, where the patriarchal system continues to influence governance. It is argued that female boards improve firm performance because they may imitate the masculine culture in men-dominated environments to achieve professional success. It is in line with the 'queen bee syndrome' justification.

This paper is divided into six sections. Section 1 of this paper is the introduction. Section 2 describes the institutional context, followed by a discussion of the theory and the development of the hypotheses in Section 3. Section 4 discusses the research methodology used in this study. Section 5 discusses the findings of this study, and Section 6 concludes the paper with recommendations.

2. Institutional Background

2.1 ESG development in Indonesia

ESG began to emerge and gained recognition in 2011 as a result of the establishment of the Sustainability Accounting Standards Board (SASB), an institution responsible for establishing ESG disclosure standards. This standard can be applied globally to businesses to foster a healthier economy. Trahan and Jantz (2023) explained the issues related to ESG with respect to definitional bias and how to score ESG, raising many questions regarding the economic ramifications of ESG ratings. The lack of agreement on ESG ratings (scoring) is a second issue related to ESG, which can be seen among the ESG ratings themselves, which lack strong correspondence (Berg et al., 2019). This issue is demonstrated by Carlsson Hauff and Nilsson (2023), who argue that within accounting, the pool of funds invested in accordance with ESG-related principles is subject to numerous variations for a given ESG investment strategy. These issues are important because ESG investment is a highly influential topic in the business world. The PRI (2020) reports that 3,038 investors representing assets worth more than $100 trillion have signed an agreement to incorporate ESG disclosure information into investment decisions. Then, according to data compiled by Morningstar (2022), approximately $2.47 trillion in global assets is now managed based on the ESG criteria of international funds.

ESG grew in popularity in Indonesia in the 2010s, when it entered the mainstream financial industry. In the beginning, ESG implementation for the financial industry was regulated by the Financial Services Authority Regulation (POJK) Number 51/POJK 03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies. In accordance with POJK Article 1 paragraphs 8 and 9, sustainable finance is defined as the overall support of the financial services sector with the aim of achieving sustainable economic growth by balancing economic, social and environmental interests. This is in line with Law No. 32 of 2009 on the Protection and Management of the Environment. Article 33 of the 1945 Constitution contains additional provisions pertaining to these regulations. Based on these regulations, ESG implementation is required for listed companies in the financial industry. However, this is voluntary for listed companies in other sectors.

2.2 Corporate Governance System in Indonesia

Based on Law No. 40 of 2007 concerning Limited Liability Companies, the corporate governance system in Indonesia employs a dual-board system with a separation of functions between the board of directors, whose role is to carry out management and operational functions, and the board of commissioners, whose role is to perform supervisory functions. The board of commissioners plays a strategic role in this governance system, being responsible for monitoring the performance of the board of directors and balancing various decisions made, including fulfilling the rights of shareholders and company stakeholders. Therefore, in a dual-board governance system, the board of commissioners holds a strategic position in a company (Joni et al., 2020b). This is because the board of commissioners is responsible for overseeing all operational activities of the company, including those of the board of directors. This differs from governance in the United States, which uses a one-tier (unitary) system in which the duties and responsibilities of the Board of Directors and the Board of Commissioners are combined (Joni et al., 2020a). Jouber (2022) stated that the presence of women as board members could provide a different perspective from the superiority of their way of thinking when making a decision, thereby enhancing the precision of decision-making and the oversight of the company. Studies suggest that an increase in the proportion of women's boards in companies has a positive effect on a company's operational performance (e.g., Sun & Zou, 2021).

2.3 Social and Corporate Structure in Indonesia

Indonesian society has been affected by a patriarchal system in which men are regarded as more powerful than women (Areneke et al., 2023). It is rooted in Islamic culture or the Islamic religion (Syariah Rezaee et al., 2019). However, in terms of governance in Indonesia, the number of women as top managers is growing, making gender diversity an issue of interest. Essentially, the 1945 Constitution, particularly Article 27, Paragraph 1, states that gender equality in administration and law is required. Next, Presidential Decree No. 9 of 2000 on Gender Mainstreaming is aimed to decrease the gap between women and men in accessing development benefits and to improve the participation of women in the development process. To address the issue of limited women representatives at the executive, judicial, bureaucratic, and political party level in Indonesian politics, the Ministry of Women's Empowerment and Child Protection (KPPPA) also developed a Draft Government Regulation (RPP) on Gender Equality in 2006. It increased the participation of women in making strategic decision.

The issue of gender diversity on the company's top management structure has received attention from a variety of groups, including the public, practitioners, and academics (e.g., Liu et al., 2020; Brahma et al., 2021). This is because the participation of women on a company's structure is viewed as a value driver in the company's strategy. Following the Dutch corporate structure, Indonesia applies two-tier board system which consists of board of director who responsible for company's operation and supervisory board (also called as board of commissioner) who conduct monitoring and supervising functions (Joni et al., 2020a). It is important to explore the role of gender diversity in the context of Indonesian dual board system where the board of commissioners can make long-term decision and strategically involved. Moreover, the participation of women as board members is positively viewed by capital holders, including investors (e.g., Almarayeh, 2023). Stakeholder support is needed to increase the number of women on the company's board (e.g., Hazaea et al., 2023). In addition, the regulations in several nations mandate the presence of women on company boards. For example, the Norwegian government mandates that at least 40 percent of a company's board members be women (Garcia-Blandon et al., 2022).

3. Theoretical Foundation and Hypothesis Development

Stakeholder Theory and Agency Theory are two related arguments that explain how ESG and gender diversity influence corporate performance. According to stakeholder theory, companies not only focus on maximizing profits for company owners but also on parties with an interest in companies such as the government, society and the social environment (Freeman, 2023). This theory contends that the support provided by stakeholders can influence the existence of a company or organization. The greater the quality of ESG disclosures made by a company, the greater the number of stakeholders who will provide full support to all companies with the aim of enhancing performance and achieving expected profit. Aydoğmuş et al. (2022) apply Stakeholder Theory to examine the effect of ESG disclosure on firm profitability. Their study reveals a strong positive relationship between ESG scores and business profitability. This also shows that the support and confidence of stakeholders has a positive effect on the value of the company.

Next, the agency theory proposed by Jensen and Meckling (2019) explains that agency relations occur when there is a separation of interests between the company owner (principal) and the company manager (agent), in which one or more owners (principal) request that another party (agent) take action or have the authority to make a decision. In this case, the owners and managers of a company are distinct entities with frequently divergent interests and objectives, resulting in agency conflicts. Company managers, as decision-making parties, are responsible for maximizing their utility while ignoring the interests of company owners. On the other hand, ESG is used by company owners (principals) to increase company transparency, which can reduce information asymmetry, and thus reduce conflicts of interest between management and owners, which can reduce agency costs and improve company performance (Tang, 2022).

Ullah et al. (2020) applied agency theory to investigate the effect of gender diversity on firm performance on corporate boards. Their findings revealed that female board members can also improve the monitoring process and increase managerial accountability because they can be independent and in a wise way of thinking when making decisions that may reduce agency conflicts (Brahma et al., 2021). Their study found that gender diversity on corporate boards had a positive and significant effect on company performance. Ain et al. (2021) support this expression by stating that women show positive values concerning the welfare of others when making a decision.

3.1 ESG and Corporate Performance

ESG disclosure is expected to become an investment in the company's social environment to satisfy the interests of stakeholders, which will later contribute to improving company performance in both developed and developing countries. According to the findings of empirical research by Buallay (2019), disclosing non-financial reports such as ESG will generate demand and high growth rates for companies in European countries because ESG disclosures can attract the attention of company stakeholders. Albitar et al. (2020) find a positive and significant relationship between ESG disclosure scores and the financial performance of companies in the United Kingdom. Chouaibi et al. (2022) explored the impact of ESG practices on firm performance in the UK and Germany. They find that firms with better ESG commitments have better firm value. Pulino et al. (2022) explored the association between ESG and performance in a sample of Italian companies from 2011 to 2020. The results show a positive relationship between ESG disclosure and company performance. Recently, using the European market, Alodat & Hao (2024) found that ESG improves operating performance.

In the context of China, Dong et al. (2022) find that investors value companies that engage in ESG disclosure. In this case, investors see the company's disclosure of ESG as a worthwhile investment. Zeng and Jiang (2023) suggested that ESG is associated with corporate performance based on 156 listed agricultural and forestry companies in China. Naeem et al. (2021) examined the performance of listed companies that disclose ESG in India. Their findings show a positive and significant relationship between ESG disclosures and company performance. Using an Indonesian sample, Gutiérrez-Ponce and Wibowo (2023) conducted a study determined the effect of sustainability on financial performance in banking-listed companies. Their findings indicate that sustainability activities have a positive impact on banking financial performance. Good environmental performance results in a high return on equity and an increase in the value of the company. This is further supported by Rahmaniati and Ekawati (2024), who examine the effect of ESG disclosure on non-financial performance in Indonesian listed companies. Their research indicates that ESG disclosures have a positive and significant impact on firm value.

Based on the results of empirical research conducted by previous researchers, the following hypotheses were tested:

H_1: ESG Disclosure has a positive effect on operating performance in Indonesia, ceteris paribus.

Good ESG disclosure by a company can also improve its stock market performance, attracting the attention of investors as a reference for making investment decisions. According to empirical research, a study conducted in the China context by Zhou et al. (2022) shows that ESG disclosure practices positively and significantly influence market performance. In the UK context of the United Kingdom, Ahmad et al. (2021) show that ESG disclosure has a positive and significant effect on a company's market value and earnings per share.

Based on the findings of previous empirical research, this study tested the following hypotheses:

H_2: ESG disclosure has a positive effect on a company's market performance in Indonesia ceteris paribus.

3.2 Gender Diversity and Corporate Performance

Gender diversity is one of the several board characteristics that can influence company performance (Brahma et al., 2021). In addition to ESG disclosures, the presence of a women's board can boost company performance. This is because female board members can improve the effectiveness of a company's internal governance (e.g., Srinidhi et al., 2020), increase public disclosure and share price informativeness (e.g., Eng et al., 2022; Marhfor et al., 2021; Ng & Rezaee, 2020), and increase the trust of larger company shareholders and other stakeholders (e.g., Zhu & Wang, 2024). For instance, Liu et al. (2020) found that within the context of the United States, a company's performance improves as the proportion of female board members increases. This is evidenced by the presence of female board members, who play a significant role in enhancing company performance by increasing environmental, social and corporate governance-centered corporate social responsibility. Ararat and Yurtoglu (2021) indicated that board diversity increases firm performance in Turkey. Green and Homroy (2018) demonstrate that the presence of female board members has a strong positive influence on company performance in European companies. In the UK, specifically, Brahma et al. (2021) asserted that companies with more female board members have better operating performance. This can be seen in companies where more female board members have higher returns on assets. In Jordan, Almarayeh (2023) reported a similar result.

Research on the impact of gender diversity on firm performance in Indonesia, where the governance system is influenced by patriarchal culture, is unique and limited (Areneke et al., 2023). It can be justified that the presence of female boards can positively affect corporate performance in patriarchal culture by the 'queen bee syndrome' argument (Brahma et al., 2021)). It is a phenomenon where women hold top management positions in male-dominated workplaces and distance themselves from other female colleagues (Corwin et al., 2022). Consequently, female managers are prone to apply masculine cultural roles and imitate their male colleagues' attributes to achieve professional success as part of the adaptation process (Castro et al., 2023). Several influential female leaders in Indonesia have strong leadership skills, resulting in high performance. The salient examples have been shown by several female top leaders, including the Minister of Finance of Indonesia from to 2019-2024 (Sri Muliani), the Minister for Foreign Affairs of Indonesia (Retno Marsudi) from to 2019-2024, the former president of Indonesia from to 2001-2004 (Megawati Soekarno Putri).

Based on the results of empirical research conducted by previous researchers, the following hypotheses were tested:

H_3: Gender Diversity has a positive effect on a company's operating performance in Indonesia ceteris paribus.

The presence of women on corporate boards can also affect a company's stock market performance worldwide. Based on empirical research in Pakistan, Khan et al. (2021) discovered that gender diversity on the board has a positive and significant influence on the stock exchange performance of a company. In the European context, Qureshi et al. (2020) show that increasing the representation of women on company boards can increase stakeholder trust and have a positive and significant influence on company value in the capital market. In addition, Brahma et al. (2021) found that gender diversity improves market performance in the UK. Using 111 Greek listed firms from 2008 to 2020, Arvanitis et al. (2022) showed that gender diversity can lead to maximum market performance when the proportion of female boards reaches 33%.

Based on the findings of previous empirical research, this study tested the following hypotheses:

H_4: Gender Diversity has a positive influence on a company's market performance in Indonesia ceteris paribus.

4. Research Design

4.1 Selection of Samples and Data Sources

As a sample for this empirical study, all listed companies on the Indonesia Stock Exchange from 2018 to 2022 that have implemented ESG scoring activities in their annual reports were used. The period of this study is selected due to the initiation of sustainable finance in Indonesia through POJK Number 51/POJK 03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions. This allowed us to observe the effects of ESG implementation after regulatory enactment.

This study relies on secondary data from Thomson Reuters DataStream or Refinitiv Eikon, including ESG data, gender diversity measures, ROA, earnings per share, company size, number of board members, leverage, years of study, and industry type. We applied two data-collection steps. First, we collected financial data from the Thomson database. Second, non-financial data such as the number of board members were manually collected from the company's annual reports. After collecting and processing samples, 218 company data samples from all listed companies in Indonesia were obtained over five years, from 2018 to 2022. This study limited the sample size based on the availability of data from the Thomson database and published annual reports.

4.2 Variable Measurement

Independent Variables

This study employs two independent variables as a result of the reduction hypothesis. The first independent variable is ESG disclosure, an important factor that influences company performance (Becchetti et al., 2022). In this study, ESG was calculated using values obtained from the Thomson Reuters DataStream (Revinitive Eikon) official website. Thomson Reuters is one of the most comprehensive databases in the world, covering over 7,000 public companies worldwide. It calculates over 400 different ESG measurements with over 178 subsets of comparable and relevant fields to strengthen the overall company assessment process (Refinitiv, 2022).

In the Thomson Reuters database, the ESG score consists of ten categories, which are then processed proportionally with the calculated measures in each category to form a three-pillar score and the final ESG score, which is the result of a representation of the company's ESG performance, commitment, and effectiveness based on publicly reported information. The scores from each of these categories were then aggregated into three pillar scores: environmental, social and corporate governance. Thomson Reuters uses Thomson Reuters Business Classification (TRBC) for industry classification as a benchmark to calculate environmental and social category scores because it has issues that are relevant and similar to companies in the same industry. To calculate the score for the governance category, Thomson Reuters uses the country's head office as a benchmark because it recognizes that each nation has distinct governance practices. Consequently, the governance score must be adapted to the conditions of the respective country. The final score for evaluating the ESG weight of each company will vary depending on the results of the calculations in the Thomson Reuters Database (Refinitiv, 2022).

Next, we used gender diversity (GEN_DIV), which is a measure of the number of women on company boards (Refinitiv, 2022). GEN_DIV is used as a metric to determine the percentage of women on the company's board of commissioners. Thomson Reuters provides the percentage of women on the company's board of commissioners.

Dependent Variables

Firm performance served as the dependent variable in this study. This performance is measured using the Return on Assets (ROA) ratio as a benchmark for measuring the operating performance of the company, and earnings per share (EPS) to measure the market performance of the company. Similarly, many researchers have used ROA and EPS as proxies to measure the operating performance and market performance of companies. For example, Naeem et al. (2021), Pu (2022), and Pulino et al. (2022) examined the effect of ESG disclosure on company performance using ROA as a yardstick to measure company operating performance. Ahmad et al. (2021) and Zhou et al. (2022) examine the effect of ESG disclosure on company market performance using EPS as a benchmark. Brahma et al. (2021) and Liu et al. (2020) used ROA as a metric to measure company performance to determine how gender diversity within company boards affects company performance. Khan et al. (2021) used EPS as a benchmark when examining the influence of gender diversity on a company's market performance.

Control Variables

Our study also included several related control variables in the models, such as company size, leverage, board size, year, and industry effects. Company size (F_SIZE) is a metric that can be calculated by taking the natural logarithm of the company's total assets (Zhou et al., 2022). As firms become larger, their profitability increases (Albitar et al., 2020). This is due to the fact that the larger a company is, the greater its market power, which enables it to set high product prices in order to improve its financial performance. This is supported by the findings of Pulino et al. (2022), who indicate that company size has a positive effect on ROA.

This study also includes leverage (LEV) and number of board members in the company (B_SIZE) as control variables. Leverage is a measure of how much of a company's financing comes from debt (Brahma et al., 2021). The number of board members is also used as a proxy for board size (Charumathi & Rahman, 2019). The study then determines the Fixed Effects, such as Year Effect (YR) and Industry Effect (IND), which are classified using the Global Industry Classification Standard (GICS).

Table 1: Definitions

Variable	Definition
Independent Variables	
ESG	ESG is using score calculated by the Thomson Reuters score (Refinitiv, 2022)
GEN_DIV	The proportion of female board members (Ahmad et al., 2021).
Dependent Variables	
ROA	This study uses the Return on Assets measure to measure a company's operational performance. ROA is the net income divided by the total assets (Naeem et al., 2021; Pu, 2022; Pulino et al., 2022).
EPS	This study also uses the Earning per Share measure as an indicator of company stock market performance (Khan et al., 2021).
Control Variables – Firm Characteristics	
F_SIZE	Natural logarithm of the company's total assets (Zhou et al., 2022).
B_SIZE	The total number of company board members reported at the end of the fiscal year (Brahma et al., 2021).
LEV	Total long-term debt is divided by the company's total assets (Brahma et al., 2021).
Control Variables – Fixed Effects	
YR	Vector indicator variable for the period 2018 – 2022.
IND	Variable vector of industry variables classified based on Global Industry Classification Standard (GICS).

4.3 Analysis Models

This study employs descriptive statistics, the Pearson correlation test, the multicollinearity test using the variance inflation factor (VIF), and ordinary least squares (OLS) regression to examine the effects of ESG and gender diversity on firm performance. First, we investigate the association between ESG and corporate performance in hypotheses 1 and 2. The empirical model in this study is defined as follows:

$ROA=\alpha_1+\beta_1 ESG+\beta_2 F\_SIZE+\beta_3 B\_SIZE+\beta_4 LEV+\beta_5 YR+\beta_6 IND+\varepsilon$ ----------------------Model 1

$EPS=\alpha_1+ \beta_1 GEN\_DIV+\beta_2 F\_SIZE+\beta_3 B\_SIZE+\beta_4 LEV+\beta_5 YR+\beta_6 IND+\varepsilon$ ---------------Model 2

Next, we explore whether gender diversity affects operating and market performance, as stated in Hypotheses 3 and 4: The models are as follows:

$ROA=\alpha_1+\beta_1 ESG+\beta_2 F\_SIZE+\beta_3 B\_SIZE+\beta_4 LEV+\beta_5 YR+\beta_6 IND+\varepsilon$ ----------------------Model 3

$EPS= \alpha_1+\beta_1 Gen\_Div+\beta_2 F\_SIZE+\beta_3 B\_SIZE+\beta_4 LEV+\beta_5 YR+\beta_6 IND+\varepsilon$ -----------------Model 4

4.4 Additional Testing

In the corporate governance literature, independent and dependent variables may influence each other, called simultaneity, which can cause bias in model estimation (Di Vito & Trottier, 2022). As companies with high performance may apply ESG effectively, this study employs the generalized moment method (GMM) model to test endogeneity issues. GMM incorporates lagged variables and individual-specific effects to result in unbiased model estimations (Khatib, 2024). It effectively applies dynamic panel data to deal with unobservable heterogeneity (Li et al., 2021). In addition, this study used an additional variable in the form of a dummy to conduct further tests related to the COVID-19 pandemic that occurred for two periods, namely 2020 – 2021 (COVID-19). A score of 1 was assigned to the study year when the pandemic occurred, which–2020-2021, and a score of 0 was assigned to the study years before and after the COVID-19 pandemic, which–2018-2019 and 2022, respectively). Finally, we use Tobin's Q as an additional proxy to measure a market-based measure of corporate performance. It is defined as the book value of total assets minus the book value of common equity, plus the market value of common equity (Brahma et al., 2021).

5. Results and Discussion

5.1 Descriptive Statistics

Table 2 reports the results of descriptive statistics with a total sample of 218 companies in the period 2018 to 2022 to see and test the relationship between companies that disclose ESG and gender diversity on operating performance and company market performance as measured using ROA and EPS. Table 2 displays the number of observations, the average value, the standard deviation, the minimum and maximum, and percentile values for each variable used in this study. The average ESG is 44.24, and gender diversity (GEN_DIV) is 0.13 with a minimum (maximum) value of 12.59 (87.86) and 0 (0.67). The lower quartile (p25) of ESG is 33.59, and the upper quartile (p75) is 68.97. It is shown that the gap in ESG implementation in Indonesia is on average. However, the gap in gender diversity is large (the lower quartile is 0, and the upper quartile is 20). The results of these descriptive statistics were found to be consistent with those of previous studies, such as those conducted by Pulino et al. (2022) and Brahma et al. (2021). The average values for ROA and leverage are 0.09 and 24.49, with minimum (maximum) values of 0.62 and 58.1, respectively. The average value of market performance as measured by EPS is 484.59, with a minimum (maximum) value of -125.40 (6213.32). Then, the average value of company size (F_SIZE) and the number of board members in the company (B_SIZE) is 21.82 and 6.38, with a minimum (maximum) value of 20.06 (28.24) and 3 (21) considered reasonable because it has a value consistent with previous studies (Charumathi & Rahman, 2019; Karim et al., 2019).

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max	p25	p75
ESG	218	44.24	22.82	12.59	87.86	33.59	68.97
GEN_DIV	218	0.13	0.17	0.00	0.67	0.00	20.00
ROA	218	0.09	0.09	0.00	0.62	0.03	0.11
EPS	218	484.59	1348.78	-125.40	6213.32	38.89	371.41
F_SIZE	218	21.82	1.92	20.06	28.24	23.86	25.40
B_SIZE	218	6.38	2.62	3.00	21.00	4.00	8.00
LEV	218	24.49	17.73	0.20	58.10	8.19	36.03

Table 2 presents summary statistics for the key variables. The number of observations consists of 218 data samples for the period 2018 – 2022. The definitions for each variable can be seen in Table 1.

A Paired Pearson correlation test was then presented to investigate the relationship between the key variables in the industry effects model (IND) and the year issued. Table 3 shows that the highest correlation (r = 0.26) exists between ESG and board size. In Table 4, this study presents a multicollinearity test using VIF, with the results indicating that the model in this research is free of multicollinearity issues.

Table 3: Correlation Matrix

	ROA	EPS	ESG	GEN_DIV	F_SIZE	B_SIZE	LEV
ROA	1.00						
EPS	0.04	1.00					
ESG	0.17**	0.22***	1.00				
GEN_DIV	0.20***	0.16**	0.07	1.00			
F_SIZE	0.13*	-0.01	-0.14**	0.03	1.00		
B_SIZE	-0.12*	0.12*	0.26***	-0.09	-0.02	1.00	
LEV	0.20***	-0.06	0.12*	-0.06	-0.03	0.02	1.00

Table 3 reports the Paired Pearson correlation matrix for a sample size of 218 company-year observations. The definitions of the variables used in Table 3 are listed in Table 1. The superscripts ***, **, and * indicate the level of significance at 1%, 5%, and 10%.

5.2 Effect of ESG Disclosure and Gender Diversity on Company Performance

The results of the ordinary least squares regression analysis to explore ESG and Gender Diversity affect operating performance as measured by ROA, which is then reported in Table 4. According to the results of Model 1, the ESG coefficient of ROA is positive and significant at the 1% level (coefficient = 0.00, t = 3.13). Leverage and company size have positive and significant effects on the operating performance of companies. However, board size was not statistically significant. This shows that H_1 is supported by providing evidence that the company's performance has improved as a result of its ESG disclosures. Model 2 indicates that the ESG coefficient of EPS is positive and statistically significant at the 1% level (coefficient = 12.12, t = 2.70). Statistically, firm size, board size, and leverage are not significant. These results indicate that a company’s market performance improves when ESG disclosures occur. This indicated that H_2 was acceptable.

The results from Models 1 and 2 are consistent with Stakeholder Theory and agency theory, which explains why companies that disclose ESG information tend to achieve a high level of company performance in terms of operating performance and market performance. Stakeholder theory asserts that the support provided by stakeholders can affect a company's viability. The greater the quality of a company's ESG disclosure, the greater the number of stakeholders that will provide full support for the company's aim to improve its operational and market performance. Further, ESG disclosure improves the monitoring function of a company, which reduces agency conflict and increases corporate performance. The findings of this test are consistent with those of previous studies, such as Naeem et al. (2021), Pu (2022), and Pulino et al. (2022), who tested the effect of ESG disclosure on company operating performance. Ahmad et al. (2021) and Zhou et al. (2022) investigate the impact of ESG disclosure on company market performance.

The third model shows that the Gender Diversity coefficient on ROA is also positive and significant at the 1% level (coefficient = 0.11 and t = 3.32). Leverage and company size have positive and significant effects on the operating performance of companies. However, board size was not statistically significant. This shows that gender diversity in board membership improves a company's operating performance while also showing that H_3 is accepted. Model 4 shows that the Gender Diversity coefficient on EPS is also positive and significant at the 1% level (coefficient = 1388.98 and t = 2.60). Firm size, board size, and leverage, on the other hand, are not statistically significant. Thus, H_4

is accepted by showing that gender diversity on company boards improves market performance. The results of testing Models 3 and 4 are consistent with agency theory, which states that agency problems occur when the owner (principal) requests another party (agent) to take action or has the authority to make decisions. In the context of gender diversity in corporate board membership, this theory posits that female board of commissioners have superior monitoring skills because they are more independent thinkers and decision-makers. In light of this opinion, the presence of gender diversity on a company's board of board of commissioners can improve its performance, operational performance, and market performance. The results of this test are consistent with those of previous studies by Brahma et al. (2021) and Liu et al. (2020), who analyzed the effect of gender diversity among board members on the operating performance of a company. Khan et al. (2021), Qureshi et al. (2020), and Brahma et al. (2021) examined the effect of gender diversity on company board members' market and operational performance.

Table 4: ESG, Gender Diversity, and Corporate Performance – OLS Regression

	Model 1 (ROA)	Model 2 (EPS)	Model 3 (ROA)	Model 4 (EPS)
INTERCEPT	13.40 (1.25)	-139837.50 (-0.84)	-2.11 (-0.21)	-344791.20** (2.21)
ESG	0.00*** (3.13)	12.12*** (2.70)		
GEN_DIV			0.11*** (3.32)	1388.98*** (2.60)
F_SIZE	0.01*** (2.60)	8.41 (0.18)	0.01** (2.08)	-13.44 (-0.29)
B_SIZE	-0.01*** (-2.87)	37.34 (1.04)	-0.00* (-1.68)	76.14** (-2.21)
LEV	0.00** (2.54)	-5.79 (-1.12)	0.00*** (3.37)	-2.43 (-0.47)
YR	Included	Included	Included	Included
IND	Included	Included	Included	Included
Average VIF	1.12	1.12	1.02	1.02
Adj. R^2	0.12	0.05	0.13	0.04
F	6.19	2.79	6.43	2.70
Prob>F	0.00***	0.01**	0.00***	0.02**
N	218	218	218	218

Table 4 reports the results of the OLS coefficient estimation. Indicator variables are included in the regression to control for fixed effects of year and type of industry. The definitions of the variables used in Table 4 are listed in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

5.3 Additional Testing

This study employed the generalized moment method to increase the dependability of the results. This study strengthens the evidence that companies with ESG disclosures and women on their boards of board of commissioners have a positive effect on company performance. Table 5 displays the results of an alternative analysis employing the GMM model to investigate endogeneity issues when examining the relationship between ESG disclosure of gender diversity and firm performance. After conducting the GMM test, the overall results of the data testing were the same.

Table 5: ESG, Gender Diversity, Corporate Performance-the GMM model

	Model 1 (ROA)	Model 2 (EPS)	Model 3 (ROA)	Model 4 (EPS)
INTERCEPT	13.39 (0.94)	-1398.50*** (-24.25)	-2.11 (-0.16)	-344791.20*** (-149.92)
ESG	0.00*** (2.49)	12.12** (2.40)		
GEN_DIV			0.11** (2.30)	1388.98** (2.12)
F_SIZE	0.01** (2.47)	8.41 (0.13)	0.01** (2.23)	-13.44 (-0.22)
B_SIZE	-0.01** (-2.40)	37.34 (1.32)	-0.00* (-1.68)	76.14** (2.18)
LEV	0.00*** (2.83)	-5.79 (-1.08)	0.00*** (3.62)	-2.43 (-0.47)
YR	Included	Included	Included	Included
IND	Included	Included	Included	Included
N	218	218	218	218

Table 5 reports the results of the common moment method (GMM). The definitions of the variables are described in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

Next, we investigated corporate performance during the COVID-19 pandemic. This additional test aims to determine the impact of the COVID-19 pandemic on the sample study data for five periods, namely, 2018 – 2022. The results of this test indicate that the COVID-19 pandemic has affected market performance but has no significant effect on operating performance. However, these results did not affect the overall model.

Table 6: ESG, Gender Diversity, Covid-19, Corporate Performance

	Model 1 (ROA)	Model 2 (EPS)	Model 3 (ROA)	Model 4 (EPS)
INTERCEPT	6.29 (0.38)	-1099048***(-4.55)	-8.49 (-0.55)	-1265325*** (-5.51)
ESG	0.00*** (3.05)	9.86**(2.32)		
GEN_DIV			0.11***(3.24)	1105.92** (2.18)
COVID-19	-0.01 (-5.07)	-1436.38***(-5.24)	-0.01 (-0.53)	-1436.73*** (-5.23)
F_SIZE	0.01**(2.51)	-17.49 (0.39)	0.01**(2.02)	-35.21 (-0.80)
B_SIZE	-0.01***(-2.90)	26.30 (0.77)	-0.00 (-1.72)	57.72 (1.77)
LEV	0.00**(2.49)	-7.70 (-1.57)	0.00***(3.29)	-4.98 (-1.03)
YR	Included	Included	Included	Included
IND	Included	Included	Included	Included
Average VIF	1.57	1.57	1.47	1.47
Adj. R^2	0.12	0.15	0.13	0.15
F	5.34	6.61	5.53	6.51
Prob>F	0.00***	0.00***	0.00***	0.00***
N	218	218	218	218

Table 6 reports the results of additional testing related to the COVID-19 pandemic that occurred during the study year for two periods (2020-2021). The definitions of the variables used in Table 6 are listed in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

In addition, our study tests the effect of ESG and gender diversity on different market-based performances, namely Tobin's Q, to claim the consistency of the main results, particularly Models 1 and 3 in Table 4 (see Table 7). Overall, the results presented in Table 7 are consistent with those in Table 4.

Table 7: ESG, Gender Diversity, Market-Based Performance (Tobin's Q)

	Model 1 (Tobin's Q)	Model 3 (Tobin's Q)
INTERCEPT	-0.43* (-1.57)	-0.55**(-1.99)
ESG	0.00*** (2.50)	
GEN_DIV		0.00*(1.67)
F_SIZE	0.02***(2.41)	0.03*** (3.26)
B_SIZE	-0.00 (-0.73)	0.00 (0.09)
LEV	0.00 (0.41)	-0.00 (-0.32)
YR	Included	Included
IND	Included	Included
Average VIF	1.78	1.62
Adj. R^2	0.42	0.46
F	10.01	9.65
Prob>F	0.00***	0.00***
N	218	218

Table 7 reports the results of additional testing related to Tobin's Q as a proxy of market performance. The definitions of the variables are listed in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

6. Conclusions

The results of this study have implications for policymakers, practitioners, and academics as they can answer questions regarding whether companies with ESG disclosures and the presence of gender diversity among company board members affect the enhancement of company performance in the context of a patriarchal society. The findings indicate that companies in developing countries that disclose ESG information and have gender diversity on their boards of board of commissioners exhibit superior performance. Also, corporate social responsibility and sustainability efforts are increasingly being integrated into business operations and play an important role in influencing a company's performance. We recommend public policymakers in Indonesia, and countries with like characteristics as described, implement ESG practices and pursue compulsory disclosure. The findings provide evidence for company managers and policymakers to mobilize resources to support ESG and increase the percentage of women on the company's board of commissioners. In a dual-board governance system, the board of commissioners plays a strategic role in the company because it is responsible for supervising all operational activities of the company, including overseeing the performance of the board of directors. The findings of this study can also help investors decide whether to invest in companies in developing countries that have implemented ESG. This study also investigates and addresses the issue of endogeneity when testing the relationship between gender diversity in ESG disclosure and firm performance. Endogeneity tests yielded consistent results across the board.

However, the results of this study require further interpretation owing to its limitations. First, it is limited to companies that use ESG and report their data in the Thomson Reuters Database. Companies that do not report their data may embrace the ESG concept. Second, the measure of gender diversity of the board of commissioners in this study is only seen from a gender perspective, ignoring other types of diversity, such as age, educational background, nationality, and culture. Therefore, future studies should include other dimensions of diversity to better capture the essence of diversity on a company's board of commissioners.

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3. Bukti konfirmasi submit revisi kedua, respon kepada reviewer, dan artikel yang diresubmit (04 Nov. 2024)

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Responses to Reviewer's comments

Many thanks for your insightful and suggestions to improve the quality of the paper submitted to Corporate Social Responsibility and Environmental Management. In this second revised version, we have made all necessary corrections and undertake additional as suggested and hope this time the revised paper will positive recommendation from you. Our responses are placed side-by-side to your comments.

Reviewer 1 #CSR-24-1314, R2

Overall: this manuscript is substantially improved from the initial submission.

No.	Major Comments and Suggestions	Responses
1.	Page 2, Line 42 - this sentence misrepresents the work that your study performs. Your descriptive statistics concern a subset of all listed companies on IDX during the four-year sample period, specifically the 218 companies with ESG disclosures, not all listed companies on IDX.	Thank you for the suggestion. We have adjusted "all listed companies" with "218 companies with ESG disclosure to represent our sample".
2.	Section 4.1 - you state that the sample is all listed companies on the IDX that have implemented ESG scoring. So, more precisely, your sample size is the subset of 218 companies out of the ~ 934 companies listed during the duration of your sample period. I was following through your control variables and do not understand your approach to sector bias.	Thank you for the suggestion. We have adjusted "all listed companies" with "218 companies with ESG disclosure to represent our sample". Also, we control industry effects using the Global Industry Classification Standard (GICS).
3.	Page 5, Line 34 - why does Norwegian law matter to Indonesian companies? Is the idea that there is a global movement toward greater gender diversity and that supply chain and investor considerations suggest that Indonesia will benefit, from a trading perspective, from greater gender diversity on Boards of Commissioners because other countries will gain greater comfort? Something else?	Thank for your feedback. Our intention is in line with your suggestion. We use it as argument in our paper. The revision is as follows: "In addition, the regulations in several nations mandate the presence of women on company boards. For example, the Norwegian government mandates that at least 40 percent of a company's board members be women (Garcia-Blandon et al., 2022). It is argued that there is a global movement toward greater gender diversity and that supply chain and investor considerations suggest that Indonesia will benefit, from a trading perspective, from greater gender diversity on Boards of Commissioners because other countries will gain greater comfort."
4.	Page 6, Line 35 - "and in a wise way of thinking" is not consistent with what Brahma et al. state, in fact, it is nearly opposite of that study which sought to segregate and study specific characteristics of women rather than only treating gender as a simple, uniform characteristic. The study for the idea of independence cited in Brahma was from Adams and Ferreira (2009) and Adams et al. (2011). Brahma et al cite that study for the suggestion that women may provide an independent perspective. In a circumstance where a person of one gender is substantially	Thank you for your feedback. We have made corrections based on your suggestion in the revised manuscript. Here is the revision: "Next, in line with Adams and Ferreira (2009) and Adams et al. (2011), Brahma et al (2021) suggest that women may provide an independent perspective. In a circumstance where a person of one gender is substantially underrepresented on a Board the incidence of higher independence would seem sensible and unobjectionable. Ain et al. (2021) support

	underrepresented on a Board the incidence of higher independence would seem sensible and unobjectionable, more to the point, that is what the studies found to my understanding.	this expression by stating that gender diversity may reduce agency cost. "
5.	Page 15, Line 8 - Similar point that requires precision. I am relatively certain that your agency theory sources do not say that women have superior monitoring skills because they are more independent thinkers. Women are less represented on Boards than are men. Independence of thought may result from balancing out that disproportion, or some other reason. Otherwise you are arguing for an assigned gender perspective that I am not aware arises in that literature. My familiarity with the literature on agency theory in this respect suggests that diversity of perspectives increases understanding, and that gender is an attribute of an individual. You also have no citations here so I am left only with my understanding. This is not a nit, it is the difference between understanding human attributes and not.	Thank you for your suggestion. We do agree with your argument. We have revised it based on the suggestion. Here is the change: "In the context of gender diversity in corporate board membership, this theory posits that greater participation by female independent board of commissioners from a base of no women can enhance the monitoring function of the company. In light of this opinion, the presence of gender diversity on a company's board of independent board of commissioners can improve its operational performance and market performance."
6.	Relationally, as a global comment, you carefully state early on that Firm performance is improved with greater participation by women from a base case of no women (Page 2, Line 47). This is precisely stated and seems like the strongest possible argument, and, again, directly to the point, it is the finding supported by the empirical literature you review and cite. Later, you are less precise and often say that Firm performance is improved when the proportion of women is increased. If a reader does not read and remember the one sentence where you carefully state that your perspective concerns a base case of no women then the reader may be left with the fundamental question of "greater proportion as compared to what?" The greatest proportion in this context is 1/1, which is quite a different suggestion from what you expressing elsewhere.	Thank you for the suggestion. We have checked and carefully revised our comments on several parts of our manuscript regarding this issue. Here is an example: "For instance, Liu et al. (2020) found that within the context of the United States, A company's performance significantly increases when there is greater involvement of women, particularly when starting from a situation where no women are participating. Green and Homroy (2018) demonstrate that gender diversity is positively associated with company performance in European companies. Also, Ararat and Yurtoglu (2021) indicated that board diversity increases firm performance in Turkey. In the UK, specifically, Brahma et al. (2021) asserted that board diversity enhances operating performance. In Jordan, Almarayeh (2023) reported a similar result."

Reviewer 2 #CSR-24-1314, R2

No.	Major Comments and Suggestions	Responses
1.	The results of this article's revision have not been added to the pandemic control variable, so the analysis is not yet comprehensive.	We provide additional examination (Tabel 6) and discussion regarding the pandemic effect in additional test section 5.3. "Next, we investigated corporate performance during the COVID-19 pandemic. This additional test aims to determine the impact of the CsOVID-19 pandemic on the sample study data for five periods, namely, 2018 – 2022. The results of this test indicate that the COVID-19 pandemic has affected

		market performance but has no significant effect on operating performance. However, these results did not affect the overall model. "
2.	The results of the revision of this article that have been carried out on Originality still do not appear that this article is truly original or its grand theory is not yet clearly visible so that this article is not yet worthy of being published in Corporate Social Responsibility and Environmental Management.	In the paper, we have discussed the uniqueness of the paper compared to prior studies in detail in the introduction section. "This study differs from previous research in several respects. First, it was conducted in the context of a developing country that places little emphasis on environmental, social and governance issues. This is reflected in the low number of listed companies with ESG disclosure in Indonesia (Harymawan et al., 2021). Few studies (e.g., Gutiérrez-Ponce & Wibowo, 2023; Rahmaniati & Ekawati, 2024) that address listed companies in Indonesia have investigated the association between ESG and performance. Prior studies have focused on the banking industry and non-financial performance. This study uses all listed companies in Indonesia to examine the effect of ESG disclosure on operating and market performance. Second, this study investigates the impact of board characteristics on company performance, which is an important governance issue in Indonesia, namely, gender diversity on the company's board of commissioners. Based on the findings of empirical research, Chen et al. (2018) show that the amount of ESG investment and innovation increases if the proportion of women increases to cause boards to become more gender balanced as compared against the base case of boards being comprised only of men. In the context of England, Brahma et al. (2021) showed that when women are involved as board members, there is a positive and significant correlation between gender diversity and company performance. Using the cross-country sample, Zhang (2020) examined how gender diversity and company performance are related. The results depend on the institutional context which differentiates between normative and regulatory environments. It is shown that gender diversity is positively associated with firm performance in normative environments, not in regulatory environments. Next, the issue of gender diversity at the top management level in Indonesia is unique because of the characteristics of its businesses and society, which are deeply affected by Islamic culture (Rezaee et al., 2019). Consequently, the orientation of business governance in Indonesia is profoundly patriarchal, where women are marginalized in their leadership, capabilities, and assertiveness (Areneke et al., 2023). In the context of patriarchal culture, women are perceived differently than men in the workplace, including job assignment, performance evaluation, and reward systems (Castro et al., 2023). Our findings indicate that the presence of women on boards of commissioners improves corporate performance. This is in line with the 'queen bee syndrome' argument suggesting that female boards tend to pattern themselves in a masculine way or a patriarchal culture to achieve personal and organizational

		successes as a sign of the adaptability process (Corwin et al., 2022). Third, many studies have been conducted to determine whether companies that disclose ESG can improve their performance (e.g., Dong et al., 2022). However, this study goes into greater detail to answer questions regarding the current topics of discussion. In analyzing the empirical results, this study employs two main variables, ESG and gender diversity, which are then tested for their effect on company performance, as measured by Return on Assets and Earnings per share. This study employs Ordinary Least Squares regression model analysis, which is aided by firm size, number of board members in the company, and leverage as control variables, as well as year of study and industry type as fixed effects. This study uses the 218 listed companies on the Indonesia Stock Exchange with ESG disclosures from 2018 to 2022, which can be accessed through the Thomson Reuters DataStream. " Next, the grand theory is discussed in section 3. **"3.Theoretical Foundation and Hypothesis Development** Stakeholder Theory and Agency Theory are two related arguments that explain how ESG and gender diversity influence corporate performance. According to stakeholder theory, companies not only focus on maximizing profits for company owners but also on parties with an interest in companies such as the government, society and the social environment (Freeman, 2023). This theory contends that the support provided by stakeholders can influence the existence of a company or organization. The greater the quality of ESG disclosures made by a company, the greater the number of stakeholders who will provide full support to all companies with the aim of enhancing performance and achieving expected profit. Aydoğmuş et al. (2022) apply Stakeholder Theory to examine the effect of ESG disclosure on firm profitability. Their study reveals a strong positive relationship between ESG scores and business profitability. This also shows that the support and confidence of stakeholders has a positive effect on the value of the company. Next, the agency theory proposed by Jensen and Meckling (2019) explains that agency relations occur when there is a separation of interests between the company owner (principal) and the company manager (agent), in which one or more owners (principal) request that another party (agent) take action or have the authority to make a decision. In this case, the owners and managers of a company are distinct entities with frequently divergent interests and objectives, resulting in agency conflicts. Company managers, as decision-making parties, are responsible for maximizing their utility while ignoring the interests of company owners. On the other hand, ESG is used by company owners (principals) to increase company transparency, which can reduce information asymmetry, and thus reduce conflicts of interest between management and owners, which can reduce agency costs and improve company performance (Tang, 2022)."

How ESG and gender diversity affect firm performance

Abstract

Objective – This study investigates the impact of Environmental, Social and Governance (ESG) disclosure and gender diversity on the board of commissioners on operating and market performance in Indonesia from 2018 to 2022.

Research Design/Methodology/Approach – The sample for this study consisted of 218 listed companies in Indonesia with ESG disclosures. Ordinary Least Squares regression was used to test this affiliation. The generalized moment method was also applied to address the endogeneity problem.

Findings – This empirical research found that ESG disclosure and gender diversity on the board of commissioners have a positive and statistically significant effect on company performance in a patriarchal society where women experience negative stereotypes regarding their leadership and managerial skills. The results remained consistent after endogeneity testing.

Research Implications – The findings of this study have practical implications for academics and policymakers interested in the role of ESG and gender diversity in improving company performance in developing countries, such as mobilizing resources to support ESG and increasing the percentage of women on corporate boards of commissioners. The findings of this study can also help investors decide whether to invest in companies that have implemented ESG in developing countries.

Originality/Value – This study differs from previous research in that it was conducted in Indonesia, a developing country. Most previous studies have been conducted in developed countries, such as China and Europe. This study examines the associations in Indonesia, which has a distinct corporate governance mechanism called the dual-board system, and where the patriarchal system still influences corporate governance in Indonesia.

Short Running Title: How do ESG practices and gender diversity affect firm performance in an emerging economy influenced by the dual board system and patriarchal systems?

Keywords: ESG, gender diversity, dual board governance, operating and market performances, emerging country, the patriarchal society.

1. Introduction

This study investigates the effects of Environmental, Social and Governance (ESG) and gender diversity on the performance of companies listed on the Indonesia Stock Exchange from 2018 to 2022. ESG-related issues are important and of concern to practitioners and academics (Eccles et al., 2020). According to Becchetti et al. (2022), ESG is a standard used by companies to follow certain criteria so that economic activities carried out by companies can have a positive effect on the environment, social or community, and corporate governance. Efforts to integrate the economic, social, and environmental aspects are crucial for several reasons. First, prior research has found that companies that employ ESG principles and disclosures in their business experience a lower cost of capital (e.g., Ramirez et al., 2022). Second, stakeholders believe that companies with extensive ESG disclosure experience improve firm value and reduce operational risks (e.g., Alsayegh et al., 2020). Companies with better ESG implementation in various countries, including Indonesia, are positively perceived by stakeholders, including investors and creditors (e.g., Eccles et al., 2020).

Additionally, empirical findings show that companies that focus on developing ESG outperform companies that do not in the global context. Alodat and Hao (2024) examine the relationship between ESG and corporate performance using European listing companies. They show that firms with better ESG scores improve their operating performance. Dong et al. (2022) indicated that increasing ESG activities in China can boost company performance. This is due to the fact that ESG activities are regarded as a competitive advantage for the company, with the potential to improve long-term performance. Pu (2022) also conducted a study of 232 Chinese companies and found a positive correlation between ESG activities and company's market performance proxied by Tobin's Q. Next, Gutiérrez-Ponce and Wibowo (2023), for example, examined the relationship between ESG and performance in a sample of Indonesian banking companies from 2010 to 2020. Their findings indicate a positive association between ESG disclosures and company performance.

This study differs from previous research in several respects. First, it was conducted in the context of a developing country, which places little emphasis on environmental, social, and governance issues. This is reflected in the low number of listed companies with ESG disclosure in Indonesia (Harymawan et al., 2021). Few studies (e.g., Gutiérrez-Ponce and Wibowo, 2023; Rahmaniati and Ekawati, 2024) that address listed companies in Indonesia have investigated the association between ESG and performance. Prior studies have focused on the banking industry and non-financial performance. This study uses all listed companies in Indonesia to examine the effect of ESG disclosures on operating and market performance. Second, this study investigates the impact of board characteristics on company performance, an important governance issue in Indonesia, namely, gender diversity on the company's board of commissioners. Based on the findings of empirical research, Chen et al. (2018) show that the amount of ESG investment and innovation increases if the proportion of women increases, causing boards to become more gender balanced compared with the base case of boards comprising only men. In England, Brahma et al. (2021) showed that when women are involved as board members, there is a positive and significant correlation between gender diversity and company performance. Using a cross-country sample, Zhang (2020) examines the relationship between gender diversity and company performance. The results depend on the institutional context, which differentiates between normative and regulatory environments. Gender diversity is positively associated with firm performance in normative environments but not in regulatory environments.

Next, the issue of gender diversity at the top management level in Indonesia is unique because of the characteristics of its businesses and society, which are significantly affected by

Islamic culture (Rezaee et al., 2019). Consequently, the orientation of business governance in Indonesia is profoundly patriarchal, where women are marginalized in their leadership, capabilities, and assertiveness (Areneke et al., 2023). In the context of patriarchal culture, women are perceived differently than men in the workplace, including in job assignment, performance evaluation, and reward systems (Castro et al., 2023). Our findings indicate that the presence of women on commissioner boards improves corporate performance. This is in line with the 'queen bee syndrome' argument suggesting that female boards tend to pattern themselves in a masculine way or a patriarchal culture to achieve personal and organizational successes as a sign of the adaptability process (Corwin et al., 2022).

Third, many studies have been conducted to determine whether companies that disclose ESG can improve their performance (e.g., Dong et al., 2022). However, this study goes into greater detail to answer questions regarding current topics of discussion. In analyzing the empirical results, this study employs two main variables, ESG and gender diversity, which are then tested for their effect on company performance, as measured by Return on Assets and Earnings per share. This study employs an Ordinary Least Squares regression model analysis, aided by firm size, number of board members in the company, and leverage as control variables, as well as year of study and industry type as fixed effects. This study uses 218 listed companies on the Indonesia Stock Exchange with ESG disclosures from 2018 to 2022, which can be accessed through Thomson Reuters DataStream.

This study finds that companies with high levels of ESG disclosure and gender diversity on their boards experience higher firm performance. In other words, the findings of this study suggest answering questions about the related topic that companies with good ESG disclosure and gender diversity on their boards of commissioners affect improving company performance. Compared to the findings of previous research, this study makes two contributions. First, it contributes to prior research that examines the effect of ESG disclosure on company performance in developing nations such as Indonesia, where ESG issues are still given little attention. Second, it investigates the effects of board characteristics, specifically gender diversity, on company performance in Indonesia, where the patriarchal system continues to influence governance. It has been argued that female boards improve firm performance because they may imitate the masculine culture in men-dominated environments to achieve professional success. It is in line with the 'queen bee syndrome' justification.

This study is divided into six sections. Section 1 of this paper is the introduction. Section 2 describes the institutional context, followed by a discussion of the theory and development of the hypotheses in section 3. Section 4 discusses the study's research methodology. Section 5 discusses the findings of this study and Section 6 concludes the paper with recommendations.

2. Institutional Background

2.1 ESG development in Indonesia

ESG began to emerge and gain recognition in 2011 as a result of the establishment of the Sustainability Accounting Standards Board (SASB), an institution responsible for establishing ESG disclosure standards. This standard can be applied globally to businesses to foster a healthy economy. Trahan and Jantz (2023) explain the issues related to ESG with respect to definitional bias and how to score ESG, raising many questions regarding the economic ramifications of ESG ratings. The lack of agreement on ESG ratings (scoring) is a second issue related to ESG, which can be seen among the ESG ratings themselves that lack strong correspondence (Berg et al., 2019). This issue is demonstrated by Carlsson Hauff and Nilsson (2023), who argue that, within accounting, the pool of funds invested in accordance with ESG-related principles is subject to numerous variations for a given ESG investment strategy. These issues are important because ESG investments are a highly influential topic in the business world. The PRI (2020) reports that 3,038 investors representing assets worth more than $100 trillion have signed an agreement to incorporate ESG disclosure information into investment decisions. Then, according to data compiled by Morningstar (2022), approximately $2.47 trillion in global assets are now managed based on the ESG criteria of international funds.

ESG grew in popularity in Indonesia in the 2010s, when it entered the mainstream financial industry. Initially, ESG implementation for the financial industry was regulated by the Financial Services Authority Regulation (POJK) Number 51/POJK 03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies. In accordance with POJK Article 1 paragraphs 8 and 9, sustainable finance is defined as the overall support of the financial services sector with the aim of achieving sustainable economic growth by balancing economic, social, and environmental interests. This is in line with Law No. 32 of 2009 on Protection and Management of the Environment. Article 33 of the 1945 constitution contains additional provisions pertaining to these regulations. Based on these regulations, ESG implementation is necessary for listed companies in the financial industry. However, this is voluntary for companies listed in other sectors.

2.2 Corporate Governance System in Indonesia

Based on Law No. 40 of 2007 concerning Limited Liability Companies, the corporate governance system in Indonesia employs a dual-board system with a separation of functions between the board of directors, whose role is to perform management and operational functions, and the board of commissioners, whose role is to perform supervisory functions. The board of commissioners plays a strategic role in this governance system, being responsible for monitoring the performance of the board of directors and balancing the various decisions made, including fulfilling the rights of shareholders and company stakeholders. Therefore, in a dual-board governance system, the board of commissioners holds a strategic position in the company (Joni et al., 2020b). This is because the board of commissioners is responsible for overseeing all operational activities of the company, including those of its board of directors. This differs from governance in the United States, which uses a one-tier (unitary) system in which the duties and responsibilities of the Board of Directors and the Board of Commissioners are combined (Joni et al., 2020a). Jouber (2022) stated that the presence of women as board members could provide a different perspective from the superiority of their way of thinking when making a decision, thereby enhancing the precision of decision-making and oversight of the company. Studies suggest that board diversity has a positive effect on a company's operational performance (e.g., Sun and Zou, 2021).

2.3 Social and Corporate Structure in Indonesia

Indonesian society has been affected by a patriarchal system in which men are regarded as more powerful than women (Areneke et al., 2023). It is rooted in Islamic culture or religion (Syariah Rezaee et al., 2019). However, in terms of governance in Indonesia, the number of women as top managers is growing, making gender diversity an interesting issue. Essentially, the 1945 Constitution, particularly Article 27, Paragraph 1, states that gender equality in administration and law is essential. Next, Presidential Decree No. 9 of 2000 on Gender Mainstreaming aims to decrease the gap between women and men in accessing development benefits and to improve the participation of women in the development process. To address the issue of limited female representatives at the executive, judicial, bureaucratic, and political party levels in Indonesian politics, the Ministry of Women's Empowerment and Child Protection (KPPPA) developed a Draft Government Regulation (RPP) on Gender Equality in 2006. This increased women's participation in making strategic decisions.

The issue of gender diversity in a company's top management structure has received attention from a variety of groups, including the public, practitioners, and academics (e.g., Liu et al., 2020; Brahma et al., 2021). This is because women's participation in a company's structure is viewed as a value driver in the company's strategy. Following the Dutch corporate structure, Indonesia applies a two-tier board system that consists of a board of directors who are responsible for the company's operation and a supervisory board (also called the board of commissioner) who conducts monitoring and supervising functions (Joni et al., 2020a). It is important to explore the role of gender diversity in the Indonesian dual-board system, where the board of commissioners can make long-term decisions and is strategically involved. Moreover, the participation of women as board members is viewed positively by capital holders, including investors (e.g., Almarayeh, 2023). Stakeholder support is needed to increase the number of women on a company's board (e.g., Hazaea et al., 2023). In addition, regulations in several nations mandate the presence of women on company boards. For example, the Norwegian government mandates that at least 40 percent of a company's board members be women (Garcia-Blandon et al., 2022). It is argued that there is a global movement toward greater gender diversity and that supply chain and investor considerations suggest that Indonesia will benefit from a trading perspective, from greater gender diversity on the Boards of Commissioners, because other countries will gain greater comfort.

3. Theoretical Foundation and Hypothesis Development

Stakeholder and agency theories are two related arguments that explain how ESG and gender diversity influence corporate performance. According to stakeholder theory, companies not only focus on maximizing profits for company owners but also on parties with an interest in companies, such as the government, society, and the social environment (Freeman, 2023). This theory contends that the support provided by stakeholders can influence the existence of a company or organization. The greater the quality of ESG disclosures made by a company, the greater is the number of stakeholders who will provide full support to all companies with the aim of enhancing performance and achieving expected profit. Aydoğmuş et al. (2022) applied Stakeholder Theory to examine the effect of ESG disclosure on firm profitability. Their study reveals a strong positive relationship between ESG scores and business profitability. This also shows that the support and confidence of stakeholders has a positive effect on the value of the company.

The agency theory proposed by Jensen and Meckling (2019) explains that agency relations occur when there is a separation of interests between the company owner (principal) and the company manager (agent), in which one or more owners (principal) request that another party (agent) take action or have the authority to make a decision. In this case, a company's owners and managers are distinct entities with frequently divergent interests and objectives, resulting in agency conflicts. Company managers, as decision-making parties, are responsible for maximizing their utility, while ignoring the interests of company owners. On the other hand, ESG is used by company owners (principals) to increase company transparency, which can reduce information asymmetry, and thus reduce conflicts of interest between management and owners, which can reduce agency costs and improve company performance (Tang, 2022).

Ullah et al. (2020) applied agency theory to investigate the effect of gender diversity on corporate board performance. Their findings reveal that female board members can improve the monitoring process and increase managerial accountability. Next, in line with Adams and Ferreira (2009) and Adams et al. (2011), Brahma et al. (2021) suggested that women may provide an independent perspective. In circumstances in which a person of one gender is substantially underrepresented on a board, the incidence of higher independence seems sensible and unobjectionable. Ain et al. (2021) supported this expression by stating that gender diversity may reduce agency costs.

3.1 ESG and Corporate Performance

ESG disclosure is expected to become an investment in a company's social environment to satisfy the interests of stakeholders, which will later contribute to improving company performance in both developed and developing countries. According to the findings of empirical research by Buallay (2019), disclosing non-financial reports such as ESG will generate demand and high growth rates for companies in European countries because ESG disclosures can attract the attention of company stakeholders. Albitar et al. (2020) find a positive and significant relationship between ESG disclosure scores and financial performance of companies in the United Kingdom. Chouaibi et al. (2022) explored the impact of ESG practices on firm performance in the UK and Germany. They found that firms with better ESG commitments have better firm value. Pulino et al. (2022) explore the association between ESG and performance in a sample of Italian companies from 2011 to 2020. The results show a positive relationship between ESG disclosures and company performance. Recently, using the European market, Alodat and Hao (2024) found that ESG improves the operating performance.

Dong et al. (2022) find that investors value companies that engage in ESG disclosure in China. In this case, investors perceive the company's disclosure of ESG as a worthwhile investment. Zeng and Jiang (2023) suggested that ESG is associated with corporate performance, based on 156 listed agricultural and forestry companies in China. Naeem et al. (2021) examined the performance of listed companies in India that disclose ESG. Their findings show a positive and significant relationship between ESG disclosures and company performance. Using an Indonesian sample, Gutiérrez-Ponce and Wibowo (2023) conducted a study determined the effect of sustainability on financial performance in banking-listed companies. Their findings indicate that sustainability activities have a positive impact on banking financial performance. Good environmental performance results in a high return on equity and an increase in the value of the company. This is further supported by Rahmaniati and Ekawati (2024), who examine the effect of ESG disclosure on non-financial performance in Indonesian listed companies. Their research indicates that ESG disclosures have a positive and significant impact on firm value.

Based on the results of empirical research conducted by previous researchers, the following hypotheses were tested.

H_1: ESG Disclosure has a positive effect on operating performance in Indonesia ceteris paribus.

Good ESG disclosure by a company can also improve its stock market performance, attracting investor attention as a reference for making investment decisions. According to empirical research, a study conducted in the China context by Zhou et al. (2022) shows that ESG disclosure practices positively and significantly influence market performance. In the UK context of the United Kingdom, Ahmad et al. (2021) show that ESG disclosure has a positive and significant effect on a company's market value and earnings per share.

Based on the findings of previous empirical research, this study tested the following hypotheses.

H_2: ESG disclosure has a positive effect on a company's market performance in Indonesia ceteris paribus.

3.2 Gender Diversity and Corporate Performance

Gender diversity is one of the several board characteristics that can influence company performance (Brahma et al., 2021). In addition to ESG disclosures, the presence of a women's board can boost company performance. This is because female board members can improve the effectiveness of a company's internal governance (e.g., Srinidhi et al., 2020), increase public disclosure and share price informativeness (e.g., Eng et al., 2022; Marhfor et al., 2021; Ng and Rezaee, 2020), and increase the trust of larger company shareholders and other stakeholders (e.g., Zhu and Wang, 2024). For instance, Liu et al. (2020) found that, within the context of the United States, a company's performance significantly increases when women are more involved, particularly when starting from a situation where no women are participating. Green and Homroy (2018) demonstrated that gender diversity is positively associated with performance in European companies. In addition, Ararat and Yurtoglu (2021) indicate that board diversity increases firm performance in Turkey. In the UK, specifically, Brahma et al. (2021) asserted that board diversity enhances operating performance. Almarayeh (2023) reported a similar result in Jordan.

Research on the impact of gender diversity on firm performance in Indonesia, where the governance system is influenced by patriarchal culture, is unique and limited (Areneke et al., 2023). It can be justified that the presence of female boards can positively affect corporate performance in patriarchal culture by the 'queen bee syndrome' argument (Brahma et al., 2021)). Women hold top management positions in male-dominated workplaces and distance themselves from other female colleagues (Corwin et al., 2022). Consequently, female managers are prone to applying masculine cultural roles and imitating their male colleagues' attributes to achieve professional success as part of the adaptation process (Castro et al., 2023). Several influential female leaders in Indonesia have strong leadership skills, which result in high performance. The salient examples have been shown by several female top leaders, including the Minister of Finance of Indonesia from to 2019-2024 (Sri Muliani), the Minister for Foreign Affairs of Indonesia (Retno Marsudi) from to 2019-2024, the former president of Indonesia from to 2001-2004 (Megawati Soekarno Putri).

Based on the results of empirical research conducted by previous researchers, the following hypotheses were tested.

H_3: Gender Diversity has a positive effect on operating performance in Indonesia ceteris paribus.

Women's presence on corporate boards can affect a company's stock market performance worldwide. Based on empirical research in Pakistan, Khan et al. (2021) discovered that gender diversity on boards has a positive and significant influence on the stock exchange performance of a company. In the European context, Qureshi et al. (2020) show that increasing the representation of women on company boards can increase stakeholder trust and positively and significantly influence company value in the capital market. Brahma et al. (2021) found that gender diversity improves market performance in the UK. Using 111 Greek listed firms from 2008 to 2020, Arvanitis et al. (2022) show that gender diversity can lead to maximum market performance when the proportion of female boards reaches a certain level.

Based on the findings of previous empirical research, this study tested the following hypotheses.

H_4: Gender Diversity positively influences a company's market performance in Indonesia ceteris paribus.

4. Research Design

4.1 Selection of Samples and Data Sources

As a sample for this empirical study, 218 companies listed on the Indonesia Stock Exchange from 2018 to 2022 that have implemented ESG scoring activities in their annual reports were used. The period of this study was selected based on the initiation of sustainable finance in Indonesia through POJK Number 51/POJK 03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions. This allowed us to observe the effects of ESG implementation after the regulatory enactment. hundred 218 companies with ESG disclosures

This study relies on secondary data from Thomson Reuters DataStream or Refinitiv Eikon, including ESG data, gender diversity measures, return on asset, earnings per share, company size, number of board members, leverage, years of study, and industry type. We applied two data collection steps. First, we collect financial data from the Thomson database. Second, non-financial data such as the number of board members were manually collected from the company's annual reports. After collecting and processing samples, 218 company data samples from all listed companies in Indonesia were obtained over five years from 2018 to 2022. This study had a limited sample size based on the availability of data from the Thomson database and published annual reports.

4.2 Variable Measurement

Independent Variables

This study employs two independent variables as a result of the reduction hypothesis. The first independent variable is ESG disclosure, which is an important factor that influences company performance (Becchetti et al., 2022). In this study, ESG was calculated using values obtained from the Thomson Reuters DataStream (Revinitive Eikon) official website. Thomson Reuters is one of the most comprehensive databases in the world, covering over 7,000 public companies worldwide. It calculates over 400 different ESG measurements, with over 178 subsets of comparable and relevant fields, to strengthen the overall company assessment process (Refinitiv, 2022).

In the Thomson Reuters database, the ESG score consists of ten categories, which are then processed proportionally with the calculated measures in each category to form a three-pillar score and the final ESG score, which is the result of a representation of the company's ESG performance, commitment, and effectiveness based on publicly reported information. The scores from each category were then aggregated into three pillar scores: environmental, social, and corporate governance. Thomson Reuters uses Thomson Reuters Business Classification (TRBC) for industry classification as a benchmark to calculate environmental and social category scores, because it has issues that are relevant and similar to companies in the same industry. To calculate the score for the governance category, Thomson Reuters uses the country's head office as a benchmark, because it recognizes that each nation has distinct governance practices. Consequently, the governance score must be adapted to the conditions of the respective country. The final score for evaluating the ESG weight of each company will vary depending on the results of the calculations in the Thomson Reuters Database (Refinitiv, 2022).

Next, we used gender diversity (GEN_DIV), a measure of the number of women on company boards (Refinitiv, 2022). GEN_DIV was used as a metric to determine the percentage of women on the company's board of commissioners. Thomson Reuters provides the percentage of women on the company board of commissioners.

Dependent Variables

Firm performance is the dependent variable in this study. This performance is measured using the Return on Assets (ROA) ratio as a benchmark for measuring the operating performance of the company and earnings per share (EPS) to measure the market performance of the company. Similarly, many researchers have used ROA and EPS as proxies to measure companies' operating performance and market performance. For example, Naeem et al. (2021), Pu (2022), and Pulino et al. (2022) examine the effect of ESG disclosure on company performance using ROA as a yardstick to measure company operating performance. Ahmad et al. (2021) and Zhou et al. (2022) examine the effect of ESG disclosure on company market performance using EPS as a benchmark. Brahma et al. (2021) and Liu et al. (2020) used ROA as a metric to measure company performance and determine how gender diversity within company boards affects company performance. Khan et al. (2021) use EPS as a benchmark to examine the influence of gender diversity on a company's market performance.

Control Variables

Our study also includes several related control variables in the models, such as company size, leverage, board size, year, and industry effects. Company size (F_SIZE) is a metric that can be calculated by taking the natural logarithm of a company's total assets (Zhou et al., 2022). As firms become larger, their profitability increases (Albitar et al., 2020). This is due to the fact that the larger a company is, the greater its market power, which enables it to set high product prices in order to improve its financial performance. This finding is supported by Pulino et al. (2022), who indicate that company size has a positive effect on ROA.

This study also includes leverage (LEV) and number of board members in the company (B_SIZE) as control variables. Leverage is a measure of how much of a company's financing comes from debt (Brahma et al., 2021). The number of board members is also used as a proxy for board size (Charumathi and Rahman, 2019). The study then determines the Fixed Effects, such as Year Effect (YR) and Industry Effect (IND), which are classified using the Global Industry Classification Standard (GICS).

Table 1: Definitions

Variable	Definition
Independent Variables	
ESG	ESG is using score calculated by the Thomson Reuters score (Refinitiv, 2022)
GEN_DIV	The proportion of female board members (Ahmad et al., 2021).
Dependent Variables	
ROA	This study uses the return on assets measure to measure a company's operational performance. ROA is the net income divided by the total assets (Naeem et al., 2021; Pu, 2022; Pulino et al., 2022).
EPS	This study also uses the earning per share measure as an indicator of company stock market performance (Khan et al., 2021).
Control Variables – Firm Characteristics	
F_SIZE	Natural logarithm of the company's total assets (Zhou et al., 2022).
B_SIZE	The total number of company board members reported at the end of the fiscal year (Brahma et al., 2021).
LEV	Total long-term debt is divided by the company's total assets (Brahma et al., 2021).
Control Variables – Fixed Effects	
YR	Vector indicator variable for the period 2018 – 2022.
IND	Variable vector of industry variables classified based on Global Industry Classification Standard (GICS).

4.3 Analysis Models

This study employs descriptive statistics, the Pearson correlation test, and the multicollinearity test using the variance inflation factor (VIF) and ordinary least squares (OLS) regression to examine the effects of ESG and gender diversity on firm performance. First, we investigate the association between ESG and corporate performance in hypotheses 1 and 2. The empirical model used in this study is defined as follows:

$ROA=\alpha_1+\beta_1 ESG+\beta_2 F\_SIZE+\beta_3 B\_SIZE+\beta_4 LEV+\beta_5 YR+\beta_6 IND+\varepsilon$ ----------------------Model 1

$EPS=\alpha_1+ \beta_1 GEN\_DIV+\beta_2 F\_SIZE+\beta_3 B\_SIZE+\beta_4 LEV+\beta_5 YR+\beta_6 IND+\varepsilon$ ---------------Model 2

Next, we explore whether gender diversity affects operating and market performance, as stated in Hypotheses 3 and 4: The models are as follows:

$ROA=\alpha_1+\beta_1 ESG+\beta_2 F\_SIZE+\beta_3 B\_SIZE+\beta_4 LEV+\beta_5 YR+\beta_6 IND+\varepsilon$ ----------------------Model 3

$EPS= \alpha_1+\beta_1 Gen\_Div+\beta_2 F\_SIZE+\beta_3 B\_SIZE+\beta_4 LEV+\beta_5 YR+\beta_6 IND+\varepsilon$ -----------------Model 4

4.4 Additional Testing

In corporate governance literature, independent and dependent variables may influence each other, called simultaneity, which can cause bias in model estimation (Di Vito and Trottier, 2022). As high-performance companies may apply ESG effectively, this study employs the generalized moment method (GMM) model to test endogeneity issues. The GMM incorporates lagged variables and individual-specific effects to result in unbiased model estimations (Khatib, 2024). It effectively applies dynamic panel data to address unobservable heterogeneity (Li et al., 2021). In addition, this study used an additional variable in the form of a dummy to conduct further tests related to the COVID-19 pandemic that occurred for two periods, namely, 2020 – 2021 (COVID-19). A score of 1 was assigned to the study year when the pandemic occurred, which–2020-2021, and a score of 0 was assigned to the study years before and after the COVID-19 pandemic, which–2018-2019 and 2022, respectively). Finally, we use Tobin's Q as an additional proxy to measure market-based corporate performance. It is defined as the book value of total assets minus the book value of common equity, plus the market value of common equity (Brahma et al., 2021).

5. Results and Discussion

5.1 Descriptive Statistics

Table 2 reports the results of descriptive statistics with a total sample of 218 companies in the period 2018 to 2022 to see and test the relationship between companies that disclose ESG and gender diversity on operating performance and company market performance as measured using ROA and EPS. Table 2 displays the number of observations, the average value, the standard deviation, the minimum and maximum, and percentile values for each variable used in this study. The average ESG is 44.24, and gender diversity (GEN_DIV) is 0.13 with a minimum (maximum) value of 12.59 (87.86) and 0 (0.67). The lower quartile (p25) of ESG is 33.59, and the upper quartile (p75) is 68.97. It is shown that the gap in ESG implementation in Indonesia is on average. However, the gap in gender diversity is large (the lower quartile is 0, and the upper quartile is 20). The results of these descriptive statistics were found to be consistent with those of previous studies, such as those conducted by Pulino et al. (2022) and Brahma et al. (2021). The average values for ROA and leverage are 0.09 and 24.49, with minimum (maximum) values of 0.62 and 58.1, respectively. The average value of market performance as measured by EPS is 484.59, with a minimum (maximum) value of -125.40 (6213.32). Then, the average value of company size (F_SIZE) and the number of board members in the company (B_SIZE) is 21.82 and 6.38, with a minimum (maximum) value of 20.06 (28.24) and 3 (21) considered reasonable because it has a value consistent with previous studies (Charumathi and Rahman, 2019; Karim et al., 2019).

Table 2: Descriptive Statistics

Variable	N	Mean	Std. dev.	Min	Max	p25	p75
ESG	218	44.24	22.82	12.59	87.86	33.59	68.97
GEN_DIV	218	0.13	0.17	0.00	0.67	0.00	20.00
ROA	218	0.09	0.09	0.00	0.62	0.03	0.11
EPS	218	484.59	1348.78	-125.40	6213.32	38.89	371.41
F_SIZE	218	21.82	1.92	20.06	28.24	23.86	25.40
B_SIZE	218	6.38	2.62	3.00	21.00	4.00	8.00
LEV	218	24.49	17.73	0.20	58.10	8.19	36.03

Table 2 presents summary statistics for the key variables. The number of observations consists of 218 data samples for the period 2018 – 2022. The definitions for each variable can be seen in Table 1.

A Paired Pearson correlation test was conducted to investigate the relationship between the key variables in the industry effects model (IND) and the year issued. Table 3 shows that the highest correlation (r = 0.26) exists between ESG and board size. Table 4 presents a multicollinearity test using VIF, and the results indicate that the model in this study is free of multicollinearity issues.

Table 3: Correlation Matrix

	ROA	EPS	ESG	GEN_DIV	F_SIZE	B_SIZE	LEV
ROA	1.00						
EPS	0.04	1.00					
ESG	0.17**	0.22***	1.00				
GEN_DIV	0.20***	0.16**	0.07	1.00			
F_SIZE	0.13*	-0.01	-0.14**	0.03	1.00		
B_SIZE	-0.12*	0.12*	0.26***	-0.09	-0.02	1.00	
LEV	0.20***	-0.06	0.12*	-0.06	-0.03	0.02	1.00

Table 3 reports the Paired Pearson correlation matrix for a sample size of 218 company-year observations. The definitions of the variables used in Table 3 are listed in Table 1. The superscripts ***, **, and * indicate the level of significance at 1%, 5%, and 10%.

5.2 Effect of ESG Disclosure and Gender Diversity on Company Performance

The results of the ordinary least squares regression analysis to explore how ESG and Gender Diversity affect operating performance as measured by ROA are reported in Table 4. According to the results of Model 1, the ESG coefficient of ROA was positive and significant at the 1% level (coefficient = 0.00, t = 3.13). Leverage and company size have positive and significant effects on operating performance. However, the board size was not statistically significant. This shows that H_1 is supported by evidence that the company's performance has improved as a result of its ESG disclosures. Model 2 indicates that the ESG coefficient of EPS was positive and statistically significant at the 1% level (coefficient = 12.12, t = 2.70). Statistically, firm size, board size, and leverage are not significant. These results indicate that a company’s market performance improves when ESG disclosures occur. This indicated that H_2 was acceptable.

The results from Models 1 and 2 are consistent with Stakeholder Theory and agency theory, which explains why companies that disclose ESG information tend to achieve a high level of company performance in terms of operating performance and market performance. The stakeholder theory asserts that the support provided by stakeholders can affect a company's viability. The greater the quality of a company's ESG disclosure, the greater is the number of stakeholders that will provide full support for the company's aim to improve its operational and market performance. Further, ESG disclosure improves a company’s monitoring function, which reduces agency conflict and increases corporate performance. The findings of this test are consistent with those of previous studies such as Naeem et al. (2021), Pu (2022), and Pulino et al. (2022), who tested the effect of ESG disclosure on company operating performance. Ahmad et al. (2021) and Zhou et al. (2022) investigate the impact of ESG disclosure on company market performance.

The third model shows that the Gender Diversity coefficient on ROA is also positive and significant at the 1% level (coefficient = 0.11 and t = 3.32). Leverage and company size have positive and significant effects on operating performance. However, the board size was not statistically significant. This shows that gender diversity in board membership improves a company's operating performance while also showing that H_3 is accepted. Model 4 shows that the Gender Diversity coefficient on EPS is also positive and significant at the 1% level (coefficient = 1388.98 and t = 2.60). Firm size, board size, and leverage, on the other hand, are not statistically significant. Thus, H_4 is supported by

showing that gender diversity on company boards improves market performance. The results of testing Models 3 and 4 are consistent with agency theory, which states that agency problems occur when the owner (principal) requests that another party (agent) take action or has the authority to make decisions. In the context of gender diversity in corporate board membership, this theory posits that greater participation by independent female boards of commissioners from the base of no women can enhance the monitoring function of the company. In light of this opinion, the presence of gender diversity on a company's board of independent commissioners can improve its operational performance and market performance. The results of this test are consistent with those of previous studies by Brahma et al. (2021) and Liu et al. (2020), who analyzed the effect of gender diversity among board members on the operating performance of a company. Khan et al. (2021), Qureshi et al. (2020), and Brahma et al. (2021) examined the effect of gender diversity on the market and operational performance of company board members.

Table 4: ESG, Gender Diversity, and Corporate Performance – OLS Regression

	Model 1 (ROA)	Model 2 (EPS)	Model 3 (ROA)	Model 4 (EPS)
INTERCEPT	13.40 (1.25)	-139837.50 (-0.84)	-2.11 (-0.21)	-344791.20** (2.21)
ESG	0.00*** (3.13)	12.12*** (2.70)		
GEN_DIV			0.11*** (3.32)	1388.98*** (2.60)
F_SIZE	0.01*** (2.60)	8.41 (0.18)	0.01** (2.08)	-13.44 (-0.29)
B_SIZE	-0.01*** (-2.87)	37.34 (1.04)	-0.00* (-1.68)	76.14** (-2.21)
LEV	0.00** (2.54)	-5.79 (-1.12)	0.00*** (3.37)	-2.43 (-0.47)
YR	Included	Included	Included	Included
IND	Included	Included	Included	Included
Average VIF	1.12	1.12	1.02	1.02
Adj. R^2	0.12	0.05	0.13	0.04
F	6.19	2.79	6.43	2.70
Prob>F	0.00***	0.01**	0.00***	0.02**
N	218	218	218	218

Table 4 reports the results of the OLS coefficient estimation. Indicator variables are included in the regression to control for fixed effects of year and type of industry. The definitions of the variables used in Table 4 are listed in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

5.3 Additional Testing

This study employed the generalized moment method to increase the dependability of the results. This study strengthens the evidence that companies with ESG disclosures and women on their boards of board of commissioners have a positive effect on company performance. Table 5 displays the results of an alternative analysis employing the GMM model to investigate endogeneity issues when examining the relationship between the ESG disclosure of gender diversity and firm performance. After conducting the GMM test, the overall results of data testing were the same.

Table 5: ESG, Gender Diversity, Corporate Performance-the GMM model

	Model 1 (ROA)	Model 2 (EPS)	Model 3 (ROA)	Model 4 (EPS)
INTERCEPT	13.39 (0.94)	-1398.50*** (-24.25)	-2.11 (-0.16)	-344791.20*** (-149.92)
ESG	0.00*** (2.49)	12.12** (2.40)		
GEN_DIV			0.11** (2.30)	1388.98** (2.12)
F_SIZE	0.01** (2.47)	8.41 (0.13)	0.01** (2.23)	-13.44 (-0.22)
B_SIZE	-0.01** (-2.40)	37.34 (1.32)	-0.00* (-1.68)	76.14** (2.18)
LEV	0.00*** (2.83)	-5.79 (-1.08)	0.00*** (3.62)	-2.43 (-0.47)
YR	Included	Included	Included	Included
IND	Included	Included	Included	Included
N	218	218	218	218

Table 5 reports the results of the common moment method (GMM). The definitions of the variables are described in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

Next, we investigated corporate performance during the COVID-19 pandemic. This additional test aims to determine the impact of the COVID-19 pandemic on the sample study data for five periods, namely 2018 – 2022. The results of this test indicate that the COVID-19 pandemic has affected market performance but has no significant effect on operating performance. However, these results did not affect the overall model.

Table 6: ESG, Gender Diversity, Covid-19, Corporate Performance

	Model 1 (ROA)	Model 2 (EPS)	Model 3 (ROA)	Model 4 (EPS)
INTERCEPT	6.29 (0.38)	-1099048***(-4.55)	-8.49 (-0.55)	-1265325*** (-5.51)
ESG	0.00*** (3.05)	9.86**(2.32)		
GEN_DIV			0.11***(3.24)	1105.92** (2.18)
COVID-19	-0.01 (-5.07)	-1436.38***(-5.24)	-0.01 (-0.53)	-1436.73*** (-5.23)
F_SIZE	0.01**(2.51)	-17.49 (0.39)	0.01**(2.02)	-35.21 (-0.80)
B_SIZE	-0.01***(-2.90)	26.30 (0.77)	-0.00 (-1.72)	57.72 (1.77)
LEV	0.00**(2.49)	-7.70 (-1.57)	0.00***(3.29)	-4.98 (-1.03)
YR	Included	Included	Included	Included
IND	Included	Included	Included	Included
Average VIF	1.57	1.57	1.47	1.47
Adj. R^2	0.12	0.15	0.13	0.15
F	5.34	6.61	5.53	6.51
Prob>F	0.00***	0.00***	0.00***	0.00***
N	218	218	218	218

Table 6 reports the results of additional testing related to the COVID-19 pandemic that occurred during the study year for two periods (2020-2021). The definitions of the variables used in Table 6 are listed in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

In addition, our study tests the effect of ESG and gender diversity on different market-based performances, namely, Tobin's Q, to confirm the consistency of the main results,

particularly Models 1 and 3 in Table 4 (see Table 7). Overall, the results in Table 7 are consistent with those in Table 4.

Table 7: ESG, Gender Diversity, Market-Based Performance (Tobin's Q)

	Model 1 (Tobin's Q)	Model 3 (Tobin's Q)
INTERCEPT	-0.43* (-1.57)	-0.55**(-1.99)
ESG	0.00*** (2.50)	
GEN_DIV		0.00*(1.67)
F_SIZE	0.02***(2.41)	0.03*** (3.26)
B_SIZE	-0.00 (-0.73)	0.00 (0.09)
LEV	0.00 (0.41)	-0.00 (-0.32)
YR	Included	Included
IND	Included	Included
Average VIF	1.78	1.62
Adj. R^2	0.42	0.46
F	10.01	9.65
Prob>F	0.00***	0.00***
N	218	218

Table 7 reports the results of additional testing related to Tobin's Q as a proxy of market performance. The definitions of the variables are listed in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

6. Conclusions

The results of this study have implications for policymakers, practitioners, and academics because they can answer questions regarding whether companies with ESG disclosures and the presence of gender diversity among company board members affect the enhancement of company performance in the context of a patriarchal society. These findings indicate that companies in developing countries that disclose ESG information and have gender diversity on their boards of commissioners exhibit superior performance. Also, corporate social responsibility and sustainability efforts are increasingly being integrated into business operations and play an important role in influencing a company's performance. We recommend that public policymakers in Indonesia and countries with similar characteristics implement ESG practices and pursue compulsory disclosure. The findings provide evidence for company managers and policymakers to mobilize resources to support ESG and increase the percentage of women on the company's board of commissioners. In a dual-board governance system, the board of commissioners plays a strategic role because it is responsible for supervising all operational activities of the company, including overseeing the performance of the board of directors. The findings of this study can also help investors decide whether to invest in companies that have implemented ESG in developing countries. This study also investigates and addresses endogeneity when testing the relationship between gender diversity in ESG disclosure and firm performance. Endogeneity tests yielded consistent results across boards.

However, the results of this study require further interpretation, owing to their limitations. First, it is limited to companies that use ESG and report their data in the Thomson Reuters Database. Companies that do not report their data may embrace the concept of ESG. Second, the measure of gender diversity of the board of commissioners in this study is only seen from a gender perspective, ignoring other types of diversity such as age, educational background, nationality, and culture. Therefore, future studies should include other dimensions of diversity to capture the essence of diversity on a company's board of commissioners better.

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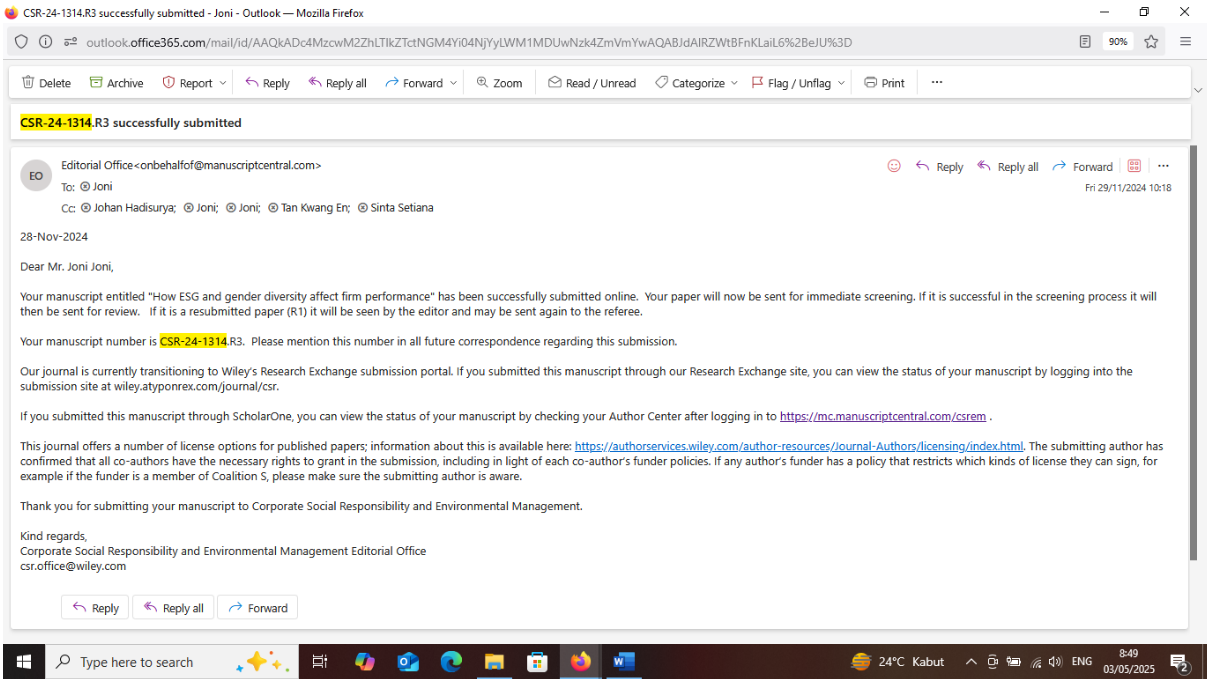

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Many thanks for your insightful and suggestions to improve the quality of the paper submitted to Corporate Social Responsibility and Environmental Management. In this fourth revised version, we have made all necessary corrections and undertake additional as suggested and hope this time the revised paper will positive recommendation from you. Our responses are placed side-by-side to your comments.

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The referee(s) have recommended publication, but also suggest some minor revisions to your manuscript.

No.	Major Comments and Suggestions	Responses
1.	Page 1, Line 59: This should read "Third" rather than "Next".	Thank you for the suggestion, we have revised the manuscript as suggested.
2.	Page 2, Line 14: "Fourth"	Thank you for the suggestion, we have revised the manuscript as suggested.
3.	Page 2, Line 27-40: The second sentence you are perhaps saying the findings of the study suggest answers to whether gender diversity on boards of commissioners and ESG disclosures impact company performance.	Thank you. The revised manuscript has included the suggestion. Here is the revision: "This study finds that companies with high levels of ESG disclosure and gender diversity on their boards experience higher firm performance. In other words, the findings of the study suggest answers to whether gender diversity on boards of commissioners and ESG disclosures impact company performance. Compared to the findings of previous research, this study makes two contributions. First, it contributes to prior research that examines the effect of ESG disclosure on company performance in developing nations such as Indonesia, where ESG issues are still given little attention. Second, it investigates the effects of board characteristics, specifically gender diversity, on company performance in Indonesia, where the patriarchal system continues to influence governance. It has been argued that female boards improve firm performance because they may imitate the masculine culture in men-dominated environments to achieve professional success. It is in line with the 'queen bee syndrome' justification."
4.	Page 9, Line 12: you seem to have errant text	We have revised the paper based on the suggestion. Thank you. Here is the revision: "Similarly, many researchers have used ROA and EPS as proxies to measure companies' operating performance and market performance (Brahma et al., 2021; Liu et al., 2020; Khan et al., 2021). For example, Naeem et al. (2021), Pu (2022), and Pulino et al. (2022) examine the effect of ESG disclosure on company performance using ROA as a yardstick to measure company operating performance. Ahmad et al. (2021) and Zhou et al. (2022) examine the effect of

		ESG disclosure on company market performance using EPS as a benchmark.“
5.	Page 12, Line 11: Tobin's Q is still not satisfactorily explained. As you know, the original metric was a ratio. There have been several subsequent iterations to control for market performance. State why you used this formulation to assure the reader that your controls were well considered.	Thank you for the suggestion. We have added an argument of using Tobins Q in Section 4.4. Here is the argument: “Finally, we use Tobin’s Q as an additional proxy to measure market-based corporate performance. It is defined as the book value of total assets minus the book value of common equity, plus the market value of common equity (Brahma et al., 2021). In our study, we utilize Tobin’s Q as a metric for assessing market performance, as it quantifies the anticipated future growth of the company, thereby addressing the concerns of shareholders (e.g., Joni et al., 2020b).”
6.	Page 21: Jensen & Meckling can be read in its original and cited accordingly	Thank you. We have changed the Jensen & Meckling in its original. “Jensen, M.C. and Meckling, W.H. (1979), Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure, Springer.”

How ESG and gender diversity affect firm performance

Abstract

Objective – This study investigates the impact of Environmental, Social and Governance (ESG) disclosure and gender diversity on the board of commissioners on operating and market performance in Indonesia from 2018 to 2022.

Research Design/Methodology/Approach – The sample for this study consisted of 218 listed companies in Indonesia with ESG disclosures. Ordinary Least Squares regression was used to test this affiliation. The generalized moment method was also applied to address the endogeneity problem.

Findings – This empirical research found that ESG disclosure and gender diversity on the board of commissioners have a positive and statistically significant effect on company performance in a patriarchal society where women experience negative stereotypes regarding their leadership and managerial skills. The results remained consistent after endogeneity testing.

Research Implications – The findings of this study have practical implications for academics and policymakers interested in the role of ESG and gender diversity in improving company performance in developing countries, such as mobilizing resources to support ESG and increasing the percentage of women on corporate boards of commissioners. The findings of this study can also help investors decide whether to invest in companies that have implemented ESG in developing countries.

Originality/Value – This study differs from previous research in that it was conducted in Indonesia, a developing country. Most previous studies have been conducted in developed countries, such as China and Europe. This study examines the associations in Indonesia, which has a distinct corporate governance mechanism called the dual-board system, and where the patriarchal system still influences corporate governance in Indonesia.

Short Running Title: How do ESG practices and gender diversity affect firm performance in an emerging economy influenced by the dual board system and patriarchal systems?

Keywords: ESG, gender diversity, dual board governance, operating and market performances, emerging country, the patriarchal society.

1. Introduction

This study investigates the effects of Environmental, Social and Governance (ESG) and gender diversity on the performance of companies listed on the Indonesia Stock Exchange from 2018 to 2022. ESG-related issues are important and of concern to practitioners and academics (Eccles et al., 2020). According to Becchetti et al. (2022), ESG is a standard used by companies to follow certain criteria so that economic activities carried out by companies can have a positive effect on the environment, social or community, and corporate governance. Efforts to integrate the economic, social, and environmental aspects are crucial for several reasons. First, prior research has found that companies that employ ESG principles and disclosures in their business experience a lower cost of capital (e.g., Ramirez et al., 2022). Second, stakeholders believe that companies with extensive ESG disclosure experience improve firm value and reduce operational risks (e.g., Alsayegh et al., 2020; Mulia and Joni, 2019). Companies with better ESG implementation in various countries, including Indonesia, are positively perceived by stakeholders, including investors and creditors (e.g., Eccles et al., 2020; Hamdani et al., 2024; Sari et al., 2024).

Additionally, empirical findings show that companies that focus on developing ESG outperform companies that do not in the global context. Alodat and Hao (2024) examine the relationship between ESG and corporate performance using European listing companies. They show that firms with better ESG scores improve their operating performance. Dong et al. (2022) indicated that increasing ESG activities in China can boost company performance. This is due to the fact that ESG activities are regarded as a competitive advantage for the company, with the potential to improve long-term performance. Pu (2022) also conducted a study of 232 Chinese companies and found a positive correlation between ESG activities and company's market performance proxied by Tobin's Q. Next, Gutiérrez-Ponce and Wibowo (2023), for example, examined the relationship between ESG and performance in a sample of Indonesian banking companies from 2010 to 2020. Their findings indicate a positive association between ESG disclosures and company performance.

This study differs from previous research in several respects. First, it was conducted in the context of a developing country, which places little emphasis on environmental, social, and governance issues. This is reflected in the low number of listed companies with ESG disclosure in Indonesia (Harymawan et al., 2021). Few studies (e.g., Gutiérrez-Ponce and Wibowo, 2023; Rahmaniati and Ekawati, 2024) that address listed companies in Indonesia have investigated the association between ESG and performance. Prior studies have focused on the banking industry and non-financial performance. This study uses all listed companies in Indonesia to examine the effect of ESG disclosures on operating and market performance. Second, this study investigates the impact of board characteristics on company performance, an important governance issue in Indonesia, namely, gender diversity on the company's board of commissioners. Based on the findings of empirical research, Chen et al. (2018) show that the amount of ESG investment and innovation increases if the proportion of women increases, causing boards to become more gender balanced compared with the base case of boards comprising only men. In England, Brahma et al. (2021) showed that when women are involved as board members, there is a positive and significant correlation between gender diversity and company performance. Using a cross-country sample, Zhang (2020) examines the relationship between gender diversity and company performance. The results depend on the institutional context, which differentiates between normative and regulatory environments. Gender diversity is positively associated with firm performance in normative environments but not in regulatory environments.

Third, the issue of gender diversity at the top management level in Indonesia is unique because of the characteristics of its businesses and society, which are significantly affected by Islamic culture (Rezaee et al., 2019). Consequently, the orientation of business governance in Indonesia is profoundly patriarchal, where women are marginalized in their leadership, capabilities, and assertiveness (Areneke et al., 2023). In the context of patriarchal culture, women are perceived differently than men in the workplace, including in job assignment, performance evaluation, and reward systems (Castro et al., 2023). Our findings indicate that the presence of women on commissioner boards improves corporate performance. This is in line with the 'queen bee syndrome' argument suggesting that female boards tend to pattern themselves in a masculine way or a patriarchal culture to achieve personal and organizational successes as a sign of the adaptability process (Corwin et al., 2022).

Fourth, many studies have been conducted to determine whether companies that disclose ESG can improve their performance (e.g., Dong et al., 2022). However, this study goes into greater detail to answer questions regarding current topics of discussion. In analyzing the empirical results, this study employs two main variables, ESG and gender diversity, which are then tested for their effect on company performance, as measured by Return on Assets and Earnings per share. This study employs an Ordinary Least Squares regression model analysis, aided by firm size, number of board members in the company, and leverage as control variables, as well as year of study and industry type as fixed effects. This study uses 218 listed companies on the Indonesia Stock Exchange with ESG disclosures from 2018 to 2022, which can be accessed through Thomson Reuters DataStream.

This study finds that companies with high levels of ESG disclosure and gender diversity on their boards experience higher firm performance. In other words, the findings of the study suggest answers to whether gender diversity on boards of commissioners and ESG disclosures impact company performance. Compared to the findings of previous research, this study makes two contributions. First, it contributes to prior research that examines the effect of ESG disclosure on company performance in developing nations such as Indonesia, where ESG issues are still given little attention. Second, it investigates the effects of board characteristics, specifically gender diversity, on company performance in Indonesia, where the patriarchal system continues to influence governance. It has been argued that female boards improve firm performance because they may imitate the masculine culture in men-dominated environments to achieve professional success. It is in line with the 'queen bee syndrome' justification.

This study is divided into six sections. Section 1 of this paper is the introduction. Section 2 describes the institutional context, followed by a discussion of the theory and development of the hypotheses in section 3. Section 4 discusses the study's research methodology. Section 5 discusses the findings of this study and Section 6 concludes the paper with recommendations.

2. Institutional Background

2.1 ESG development in Indonesia

ESG began to emerge and gain recognition in 2011 as a result of the establishment of the Sustainability Accounting Standards Board (SASB), an institution responsible for establishing ESG disclosure standards. This standard can be applied globally to businesses to foster a healthy economy. Trahan and Jantz (2023) explain the issues related to ESG with respect to definitional bias and how to score ESG, raising many questions regarding the economic ramifications of ESG ratings. The lack of agreement on ESG ratings (scoring) is a second issue related to ESG, which can be seen among the ESG ratings themselves that lack strong correspondence (Berg et al., 2019). This issue is demonstrated by Carlsson Hauff and Nilsson (2023), who argue that, within accounting, the pool of funds invested in accordance with ESG-related principles is subject to numerous variations for a given ESG investment strategy. These issues are important because ESG investments are a highly influential topic in the business world. The PRI (2020) reports that 3,038 investors representing assets worth more than $100 trillion have signed an agreement to incorporate ESG disclosure information into investment decisions. Then, according to data compiled by Morningstar (2022), approximately $2.47 trillion in global assets are now managed based on the ESG criteria of international funds.

ESG grew in popularity in Indonesia in the 2010s, when it entered the mainstream financial industry. Initially, ESG implementation for the financial industry was regulated by the Financial Services Authority Regulation (POJK) Number 51/POJK 03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies. In accordance with POJK Article 1 paragraphs 8 and 9, sustainable finance is defined as the overall support of the financial services sector with the aim of achieving sustainable economic growth by balancing economic, social, and environmental interests. This is in line with Law No. 32 of 2009 on Protection and Management of the Environment. Article 33 of the 1945 constitution contains additional provisions pertaining to these regulations. Based on these regulations, ESG implementation is necessary for listed companies in the financial industry. However, this is voluntary for companies listed in other sectors.

2.2 Corporate Governance System in Indonesia

Based on Law No. 40 of 2007 concerning Limited Liability Companies, the corporate governance system in Indonesia employs a dual-board system with a separation of functions between the board of directors, whose role is to perform management and operational functions, and the board of commissioners, whose role is to perform supervisory functions. The board of commissioners plays a strategic role in this governance system, being responsible for monitoring the performance of the board of directors and balancing the various decisions made, including fulfilling the rights of shareholders and company stakeholders. Therefore, in a dual-board governance system, the board of commissioners holds a strategic position in the company (Joni et al., 2020b; Joni et al., 2021; Selin et al., 2023; Joni et al., 2023; Dharmawan et al., 2024). This is because the board of commissioners is responsible for overseeing all operational activities of the company, including those of its board of directors. This differs from governance in the United States, which uses a one-tier (unitary) system in which the duties and responsibilities of the Board of Directors and the Board of Commissioners are combined (Joni et al., 2020a). Jouber (2022) stated that the presence of women as board members could provide a different perspective from the superiority of their way of thinking when making a decision, thereby enhancing the precision of decision-making and oversight of the company. Studies suggest that board diversity has a positive effect on a company's operational performance (e.g., Sun and Zou, 2021).

2.3 Social and Corporate Structure in Indonesia

Indonesian society has been affected by a patriarchal system in which men are regarded as more powerful than women (Areneke et al., 2023). It is rooted in Islamic culture or religion (Syariah Rezaee et al., 2019). However, in terms of governance in Indonesia, the number of women as top managers is growing, making gender diversity an interesting issue. Essentially, the 1945 Constitution, particularly Article 27, Paragraph 1, states that gender equality in administration and law is essential. Next, Presidential Decree No. 9 of 2000 on Gender Mainstreaming aims to decrease the gap between women and men in accessing development benefits and to improve the participation of women in the development process. To address the issue of limited female representatives at the executive, judicial, bureaucratic, and political party levels in Indonesian politics, the Ministry of Women's Empowerment and Child Protection (KPPPA) developed a Draft Government Regulation (RPP) on Gender Equality in 2006. This increased women's participation in making strategic decisions.

The issue of gender diversity in a company's top management structure has received attention from a variety of groups, including the public, practitioners, and academics (e.g., Liu et al., 2020; Brahma et al., 2021). This is because women's participation in a company's structure is viewed as a value driver in the company's strategy. Following the Dutch corporate structure, Indonesia applies a two-tier board system that consists of a board of directors who are responsible for the company's operation and a supervisory board (also called the board of commissioner) who conducts monitoring and supervising functions (Joni et al., 2020a). It is important to explore the role of gender diversity in the Indonesian dual-board system, where the board of commissioners can make long-term decisions and is strategically involved. Moreover, the participation of women as board members is viewed positively by capital holders, including investors (e.g., Almarayeh, 2023). Stakeholder support is needed to increase the number of women on a company's board (e.g., Hazaea et al., 2023). In addition, regulations in several nations mandate the presence of women on company boards. For example, the Norwegian government mandates that at least 40 percent of a company's board members be women (Garcia-Blandon et al., 2022). It is argued that there is a global movement toward greater gender diversity and that supply chain and investor considerations suggest that Indonesia will benefit from a trading perspective, from greater gender diversity on the Boards of Commissioners, because other countries will gain greater comfort.

3. Theoretical Foundation and Hypothesis Development

Stakeholder and agency theories are two related arguments that explain how ESG and gender diversity influence corporate performance. According to stakeholder theory, companies not only focus on maximizing profits for company owners but also on parties with an interest in companies, such as the government, society, and the social environment (Freeman, 2023). This theory contends that the support provided by stakeholders can influence the existence of a company or organization. The greater the quality of ESG disclosures made by a company, the greater is the number of stakeholders who will provide full support to all companies with the aim of enhancing performance and achieving expected profit. Aydoğmuş et al. (2022) applied Stakeholder Theory to examine the effect of ESG disclosure on firm profitability. Their study reveals a strong positive relationship between ESG scores and business profitability. This also shows that the support and confidence of stakeholders has a positive effect on the value of the company.

The agency theory proposed by Jensen and Meckling (1979) explains that agency relations occur when there is a separation of interests between the company owner (principal) and the company manager (agent), in which one or more owners (principal) request that another party (agent) take action or have the authority to make a decision. In this case, a company's owners and managers are distinct entities with frequently divergent interests and objectives, resulting in agency conflicts. Company managers, as decision-making parties, are responsible for maximizing their utility, while ignoring the interests of company owners. On the other hand, ESG is used by company owners (principals) to increase company transparency, which can reduce information asymmetry, and thus reduce conflicts of interest between management and owners, which can reduce agency costs and improve company performance (Tang, 2022).

Ullah et al. (2020) applied agency theory to investigate the effect of gender diversity on corporate board performance. Their findings reveal that female board members can improve the monitoring process and increase managerial accountability. Next, in line with Adams and Ferreira (2009) and Adams et al. (2011), Brahma et al. (2021) suggested that women may provide an independent perspective. In circumstances in which a person of one gender is substantially underrepresented on a board, the incidence of higher independence seems sensible and unobjectionable. Ain et al. (2021) supported this expression by stating that gender diversity may reduce agency costs.

3.1 ESG and Corporate Performance

ESG disclosure is expected to become an investment in a company's social environment to satisfy the interests of stakeholders, which will later contribute to improving company performance in both developed and developing countries. According to the findings of empirical research by Buallay (2019), disclosing non-financial reports such as ESG will generate demand and high growth rates for companies in European countries because ESG disclosures can attract the attention of company stakeholders. Albitar et al. (2020) find a positive and significant relationship between ESG disclosure scores and financial performance of companies in the United Kingdom. Chouaibi et al. (2022) explored the impact of ESG practices on firm performance in the UK and Germany. They found that firms with better ESG commitments have better firm value. Pulino et al. (2022) explore the association between ESG and performance in a sample of Italian companies from 2011 to 2020. The results show a positive relationship between ESG disclosures and company performance. Recently, using the European market, Alodat and Hao (2024) found that ESG improves the operating performance.

Dong et al. (2022) find that investors value companies that engage in ESG disclosure in China. In this case, investors perceive the company's disclosure of ESG as a worthwhile investment. Zeng and Jiang (2023) suggested that ESG is associated with corporate performance, based on 156 listed agricultural and forestry companies in China. Naeem et al. (2021) examined the performance of listed companies in India that disclose ESG. Their findings show a positive and significant relationship between ESG disclosures and company performance. Using an Indonesian sample, Gutiérrez-Ponce and Wibowo (2023) conducted a study determined the effect of sustainability on financial performance in banking-listed companies. Their findings indicate that sustainability activities have a positive impact on banking financial performance. Good environmental performance results in a high return on equity and an increase in the value of the company. This is further supported by Rahmaniati and Ekawati (2024), who examine the effect of ESG disclosure on non-financial performance in Indonesian listed companies. Their research indicates that ESG disclosures have a positive and significant impact on firm value.

Based on the results of empirical research conducted by previous researchers, the following hypotheses were tested.

H_1: ESG Disclosure has a positive effect on operating performance in Indonesia ceteris paribus.

Good ESG disclosure by a company can also improve its stock market performance, attracting investor attention as a reference for making investment decisions. According to empirical research, a study conducted in the China context by Zhou et al. (2022) shows that ESG disclosure practices positively and significantly influence market performance. In the UK context of the United Kingdom, Ahmad et al. (2021) show that ESG disclosure has a positive and significant effect on a company's market value and earnings per share.

Based on the findings of previous empirical research, this study tested the following hypotheses.

H_2: ESG disclosure has a positive effect on a company's market performance in Indonesia ceteris paribus.

3.2 Gender Diversity and Corporate Performance

Gender diversity is one of the several board characteristics that can influence company performance (Brahma et al., 2021). In addition to ESG disclosures, the presence of a women's board can boost company performance. This is because female board members can improve the effectiveness of a company's internal governance (e.g., Srinidhi et al., 2020), increase public disclosure and share price informativeness (e.g., Eng et al., 2022; Marhfor et al., 2021; Ng and Rezaee, 2020), and increase the trust of larger company shareholders and other stakeholders (e.g., Zhu and Wang, 2024). For instance, Liu et al. (2020) found that, within the context of the United States, a company's performance significantly increases when women are more involved, particularly when starting from a situation where no women are participating. Green and Homroy (2018) demonstrated that gender diversity is positively associated with performance in European companies. In addition, Ararat and Yurtoglu (2021) indicate that board diversity increases firm performance in Turkey. In the UK, specifically, Brahma et al. (2021) asserted that board diversity enhances operating performance. Almarayeh (2023) reported a similar result in Jordan.

Research on the impact of gender diversity on firm performance in Indonesia, where the governance system is influenced by patriarchal culture, is unique and limited (Areneke et al., 2023). It can be justified that the presence of female boards can positively affect corporate performance in patriarchal culture by the 'queen bee syndrome' argument (Brahma et al., 2021)). Women hold top management positions in male-dominated workplaces and distance themselves from other female colleagues (Corwin et al., 2022). Consequently, female managers are prone to applying masculine cultural roles and imitating their male colleagues' attributes to achieve professional success as part of the adaptation process (Castro et al., 2023). Several influential female leaders in Indonesia have strong leadership skills, which result in high performance. The salient examples have been shown by several female top leaders, including the Minister of Finance of Indonesia from to 2019-2024 (Sri Muliani), the Minister for Foreign Affairs of Indonesia (Retno Marsudi) from to 2019-2024, the former president of Indonesia from to 2001-2004 (Megawati Soekarno Putri).

Based on the results of empirical research conducted by previous researchers, the following hypotheses were tested.

H_3: Gender Diversity has a positive effect on operating performance in Indonesia ceteris paribus.

Women's presence on corporate boards can affect a company's stock market performance worldwide. Based on empirical research in Pakistan, Khan et al. (2021) discovered that gender diversity on boards has a positive and significant influence on the stock exchange performance of a company. In the European context, Qureshi et al. (2020) show that increasing the representation of women on company boards can increase stakeholder trust and positively and significantly influence company value in the capital market. Brahma et al. (2021) found that gender diversity improves market performance in the UK. Using 111 Greek listed firms from 2008 to 2020, Arvanitis et al. (2022) show that gender diversity can lead to maximum market performance when the proportion of female boards reaches a certain level.

Based on the findings of previous empirical research, this study tested the following hypotheses.

H_4: Gender Diversity positively influences a company's market performance in Indonesia ceteris paribus.

4. Research Design

4.1 Selection of Samples and Data Sources

As a sample for this empirical study, 218 companies listed on the Indonesia Stock Exchange from 2018 to 2022 that have implemented ESG scoring activities in their annual reports were used. The period of this study was selected based on the initiation of sustainable finance in Indonesia through POJK Number 51/POJK 03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions. This allowed us to observe the effects of ESG implementation after the regulatory enactment.

This study relies on secondary data from Thomson Reuters DataStream or Refinitiv Eikon, including ESG data, gender diversity measures, return on asset, earnings per share, company size, number of board members, leverage, years of study, and industry type. We applied two data collection steps. First, we collect financial data from the Thomson database. Second, non-financial data such as the number of board members were manually collected from the company's annual reports. After collecting and processing samples, 218 company data samples from all listed companies in Indonesia were obtained over five years from 2018 to 2022. This study had a limited sample size based on the availability of data from the Thomson database and published annual reports.

4.2 Variable Measurement

Independent Variables

This study employs two independent variables as a result of the reduction hypothesis. The first independent variable is ESG disclosure, which is an important factor that influences company performance (Becchetti et al., 2022). In this study, ESG was calculated using values obtained from the Thomson Reuters DataStream (Revinitive Eikon) official website. Thomson Reuters is one of the most comprehensive databases in the world, covering over 7,000 public companies worldwide. It calculates over 400 different ESG measurements, with over 178 subsets of comparable and relevant fields, to strengthen the overall company assessment process (Refinitiv, 2022).

In the Thomson Reuters database, the ESG score consists of ten categories, which are then processed proportionally with the calculated measures in each category to form a three-pillar score and the final ESG score, which is the result of a representation of the company's ESG performance, commitment, and effectiveness based on publicly reported information. The scores from each category were then aggregated into three pillar scores: environmental, social, and corporate governance. Thomson Reuters uses Thomson Reuters Business Classification (TRBC) for industry classification as a benchmark to calculate environmental and social category scores, because it has issues that are relevant and similar to companies in the same industry. To calculate the score for the governance category, Thomson Reuters uses the country's head office as a benchmark, because it recognizes that each nation has distinct governance practices. Consequently, the governance score must be adapted to the conditions of the respective country. The final score for evaluating the ESG weight of each company will vary depending on the results of the calculations in the Thomson Reuters Database (Refinitiv, 2022).

Next, we used gender diversity (GEN_DIV), a measure of the number of women on company boards (Refinitiv, 2022). GEN_DIV was used as a metric to determine the percentage of women on the company's board of commissioners. Thomson Reuters provides the percentage of women on the company board of commissioners.

Dependent Variables

Firm performance is the dependent variable in this study. This performance is measured using the Return on Assets (ROA) ratio as a benchmark for measuring the operating performance of the company and earnings per share (EPS) to measure the market performance of the company. Similarly, many researchers have used ROA and EPS as proxies to measure companies' operating performance and market performance (Brahma et al., 2021; Liu et al., 2020; Khan et al., 2021). For example, Naeem et al. (2021), Pu (2022), and Pulino et al. (2022) examine the effect of ESG disclosure on company performance using ROA as a yardstick to measure company operating performance. Ahmad et al. (2021) and Zhou et al. (2022) examine the effect of ESG disclosure on company market performance using EPS as a benchmark.

Control Variables

Our study also includes several related control variables in the models, such as company size, leverage, board size, year, and industry effects. Company size (F_SIZE) is a metric that can be calculated by taking the natural logarithm of a company's total assets (Zhou et al., 2022). As firms become larger, their profitability increases (Albitar et al., 2020). This is due to the fact that the larger a company is, the greater its market power, which enables it to set high product prices in order to improve its financial performance. This finding is supported by Pulino et al. (2022), who indicate that company size has a positive effect on ROA.

This study also includes leverage (LEV) and number of board members in the company (B_SIZE) as control variables. Leverage is a measure of how much of a company's financing comes from debt (Brahma et al., 2021). The number of board members is also used as a proxy for board size (Charumathi and Rahman, 2019). The study then determines the Fixed Effects, such as Year Effect (YR) and Industry Effect (IND), which are classified using the Global Industry Classification Standard (GICS).

Table 1: Definitions

Variable	Definition
Independent Variables	
ESG	ESG is using score calculated by the Thomson Reuters score (Refinitiv, 2022)
GEN_DIV	The proportion of female board members (Ahmad et al., 2021).
Dependent Variables	
ROA	This study uses the return on assets measure to measure a company's operational performance. ROA is the net income divided by the total assets (Naeem et al., 2021; Pu, 2022; Pulino et al., 2022).
EPS	This study also uses the earning per share measure as an indicator of company stock market performance (Khan et al., 2021).
Control Variables – Firm Characteristics	
F_SIZE	Natural logarithm of the company's total assets (Zhou et al., 2022).
B_SIZE	The total number of company board members reported at the end of the fiscal year (Brahma et al., 2021).
LEV	Total long-term debt is divided by the company's total assets (Brahma et al., 2021).
Control Variables – Fixed Effects	
YR	Vector indicator variable for the period 2018 – 2022.
IND	Variable vector of industry variables classified based on Global Industry Classification Standard (GICS).

4.3 Analysis Models

This study employs descriptive statistics, the Pearson correlation test, and the multicollinearity test using the variance inflation factor (VIF) and ordinary least squares (OLS) regression to examine the effects of ESG and gender diversity on firm performance. First, we investigate the association between ESG and corporate performance in hypotheses 1 and 2. The empirical model used in this study is defined as follows:

$ROA=\alpha_1+\beta_1ESG+\beta_2F\_SIZE+\beta_3B\_SIZE+\beta_4LEV+\beta_5YR+\beta_6IND+\varepsilon$ ----------------------Model 1

$EPS=\alpha_1+ \beta_1GEN\_DIV+\beta_2F\_SIZE+\beta_3B\_SIZE+\beta_4LEV+\beta_5YR+\beta_6IND+\varepsilon$ ---------------Model 2

Next, we explore whether gender diversity affects operating and market performance, as stated in Hypotheses 3 and 4: The models are as follows:

$ROA=\alpha_1+\beta_1ESG+\beta_2F\_SIZE+\beta_3B\_SIZE+\beta_4LEV+\beta_5YR+\beta_6IND+\varepsilon$ ----------------------Model 3

$EPS= \alpha_1+\beta_1Gen\_Div+\beta_2F\_SIZE+\beta_3B\_SIZE+\beta_4LEV+\beta_5YR+\beta_6IND+\varepsilon$ -----------------Model 4

4.4 Additional Testing

In corporate governance literature, independent and dependent variables may influence each other, called simultaneity, which can cause bias in model estimation (Di Vito and Trottier, 2022). As high-performance companies may apply ESG effectively, this study employs the generalized moment method (GMM) model to test endogeneity issues. The GMM incorporates lagged variables and individual-specific effects to result in unbiased model estimations (Khatib, 2024). It effectively applies dynamic panel data to address unobservable heterogeneity (Li et al., 2021). In addition, this study used an additional variable in the form of a dummy to conduct further tests related to the COVID-19 pandemic that occurred for two periods, namely, 2020 – 2021 (COVID-19). A score of 1 was assigned to the study year when the pandemic occurred, which–2020-2021, and a score of 0 was assigned to the study years before and after the COVID-19 pandemic, which–2018-2019 and 2022, respectively). Finally, we use Tobin's Q as an additional proxy to measure market-based corporate performance. It is defined as the book value of total assets minus the book value of common equity, plus the market value of common equity (Brahma et al., 2021). In our study, we utilize Tobin's Q as a metric for assessing market performance, as it quantifies the anticipated future growth of the company, thereby addressing the concerns of shareholders (e.g., Joni et al., 2020b).

5. Results and Discussion

5.1 Descriptive Statistics

Table 2 reports the results of descriptive statistics with a total sample of 218 companies in the period 2018 to 2022 to see and test the relationship between companies that disclose ESG and gender diversity on operating performance and company market performance as measured using ROA and EPS. Table 2 displays the number of observations, the average value, the standard deviation, the minimum and maximum, and percentile values for each variable used in this study. The average ESG is 44.24, and gender diversity (GEN_DIV) is 0.13 with a minimum (maximum) value of 12.59 (87.86) and 0 (0.67). The lower quartile (p25) of ESG is 33.59, and the upper quartile (p75) is 68.97. It is shown that the gap in ESG implementation in Indonesia is on average. However, the gap in gender diversity is large (the lower quartile is 0, and the upper quartile is 20). The results of these descriptive statistics were found to be consistent with those of previous studies, such as those conducted by Pulino et al. (2022) and Brahma et al. (2021). The average values for ROA and leverage are 0.09 and 24.49, with minimum (maximum) values of 0.62 and 58.1, respectively. The average value of market performance as measured by EPS is 484.59, with a minimum (maximum) value of -125.40 (6213.32). Then, the average value of company size (F_SIZE) and the number of board members in the company (B_SIZE) is 21.82 and 6.38, with a minimum (maximum) value of 20.06 (28.24) and 3 (21) considered reasonable because it has a value consistent with previous studies (Charumathi and Rahman, 2019; Karim et al., 2019).

Table 2: Descriptive Statistics

Variable	N	Mean	Std. dev.	Min	Max	p25	p75
ESG	218	44.24	22.82	12.59	87.86	33.59	68.97
GEN_DIV	218	0.13	0.17	0.00	0.67	0.00	20.00
ROA	218	0.09	0.09	0.00	0.62	0.03	0.11
EPS	218	484.59	1348.78	-125.40	6213.32	38.89	371.41
F_SIZE	218	21.82	1.92	20.06	28.24	23.86	25.40
B_SIZE	218	6.38	2.62	3.00	21.00	4.00	8.00
LEV	218	24.49	17.73	0.20	58.10	8.19	36.03

Table 2 presents summary statistics for the key variables. The number of observations consists of 218 data samples for the period 2018 – 2022. The definitions for each variable can be seen in Table 1.

A Paired Pearson correlation test was conducted to investigate the relationship between the key variables in the industry effects model (IND) and the year issued. Table 3 shows that the highest correlation (r = 0.26) exists between ESG and board size. Table 4 presents a multicollinearity test using VIF, and the results indicate that the model in this study is free of multicollinearity issues.

Table 3: Correlation Matrix

	ROA	EPS	ESG	GEN_DIV	F_SIZE	B_SIZE	LEV
ROA	1.00						
EPS	0.04	1.00					
ESG	0.17**	0.22***	1.00				
GEN_DIV	0.20***	0.16**	0.07	1.00			
F_SIZE	0.13*	-0.01	-0.14**	0.03	1.00		
B_SIZE	-0.12*	0.12*	0.26***	-0.09	-0.02	1.00	
LEV	0.20***	-0.06	0.12*	-0.06	-0.03	0.02	1.00

Table 3 reports the Paired Pearson correlation matrix for a sample size of 218 company-year observations. The definitions of the variables used in Table 3 are listed in Table 1. The superscripts ***, **, and * indicate the level of significance at 1%, 5%, and 10%.

5.2 Effect of ESG Disclosure and Gender Diversity on Company Performance

The results of the ordinary least squares regression analysis to explore how ESG and Gender Diversity affect operating performance as measured by ROA are reported in Table 4. According to the results of Model 1, the ESG coefficient of ROA was positive and significant at the 1% level (coefficient = 0.00, t = 3.13). Leverage and company size have positive and significant effects on operating performance. However, the board size was not statistically significant. This shows that H_1 is supported by evidence that the company's performance has improved as a result of its ESG disclosures. Model 2 indicates that the ESG coefficient of EPS was positive and statistically significant at the 1% level (coefficient = 12.12, t = 2.70). Statistically, firm size, board size, and leverage are not significant. These results indicate that a company's market performance improves when ESG disclosures occur. This indicated that H_2 was acceptable.

The results from Models 1 and 2 are consistent with Stakeholder Theory and agency theory, which explains why companies that disclose ESG information tend to achieve a high level of company performance in terms of operating performance and market performance. The stakeholder theory asserts that the support provided by stakeholders can affect a company's viability. The greater the quality of a company's ESG disclosure, the greater is the number of stakeholders that will provide full support for the company's aim to improve its operational and market performance. Further, ESG disclosure improves a company's monitoring function, which reduces agency conflict and increases corporate performance. The findings of this test are consistent with those of previous studies such as Naeem et al. (2021), Pu (2022), and Pulino et al. (2022), who tested the effect of ESG disclosure on company operating performance. Ahmad et al. (2021) and Zhou et al. (2022) investigate the impact of ESG disclosure on company market performance.

The third model shows that the Gender Diversity coefficient on ROA is also positive and significant at the 1% level (coefficient = 0.11 and t = 3.32). Leverage and company size have positive and significant effects on operating performance. However, the board size was not statistically significant. This shows that gender diversity in board membership improves a company's operating performance while also showing that H_3 is accepted. Model 4 shows that the Gender Diversity coefficient on EPS is also positive and significant at the 1% level (coefficient = 1388.98 and t = 2.60). Firm size, board size, and leverage, on the other hand, are not statistically significant. Thus, H_4 is supported by

showing that gender diversity on company boards improves market performance. The results of testing Models 3 and 4 are consistent with agency theory, which states that agency problems occur when the owner (principal) requests that another party (agent) take action or has the authority to make decisions. In the context of gender diversity in corporate board membership, this theory posits that greater participation by independent female boards of commissioners from the base of no women can enhance the monitoring function of the company. In light of this opinion, the presence of gender diversity on a company's board of independent commissioners can improve its operational performance and market performance. The results of this test are consistent with those of previous studies by Brahma et al. (2021) and Liu et al. (2020), who analyzed the effect of gender diversity among board members on the operating performance of a company. Khan et al. (2021), Qureshi et al. (2020), and Brahma et al. (2021) examined the effect of gender diversity on the market and operational performance of company board members.

Table 4: ESG, Gender Diversity, and Corporate Performance – OLS Regression

	Model 1 (ROA)	Model 2 (EPS)	Model 3 (ROA)	Model 4 (EPS)
INTERCEPT	13.40 (1.25)	-139837.50 (-0.84)	-2.11 (-0.21)	-344791.20** (2.21)
ESG	0.00*** (3.13)	12.12*** (2.70)		
GEN_DIV			0.11*** (3.32)	1388.98*** (2.60)
F_SIZE	0.01*** (2.60)	8.41 (0.18)	0.01** (2.08)	-13.44 (-0.29)
B_SIZE	-0.01*** (-2.87)	37.34 (1.04)	-0.00* (-1.68)	76.14** (-2.21)
LEV	0.00** (2.54)	-5.79 (-1.12)	0.00*** (3.37)	-2.43 (-0.47)
YR	Included	Included	Included	Included
IND	Included	Included	Included	Included
Average VIF	1.12	1.12	1.02	1.02
Adj. R^2	0.12	0.05	0.13	0.04
F	6.19	2.79	6.43	2.70
Prob>F	0.00***	0.01**	0.00***	0.02**
N	218	218	218	218

Table 4 reports the results of the OLS coefficient estimation. Indicator variables are included in the regression to control for fixed effects of year and type of industry. The definitions of the variables used in Table 4 are listed in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

5.3 Additional Testing

This study employed the generalized moment method to increase the dependability of the results. This study strengthens the evidence that companies with ESG disclosures and women on their boards of board of commissioners have a positive effect on company performance. Table 5 displays the results of an alternative analysis employing the GMM model to investigate endogeneity issues when examining the relationship between the ESG disclosure of gender diversity and firm performance. After conducting the GMM test, the overall results of data testing were the same.

Table 5: ESG, Gender Diversity, Corporate Performance-the GMM model

	Model 1 (ROA)	Model 2 (EPS)	Model 3 (ROA)	Model 4 (EPS)
INTERCEPT	13.39 (0.94)	-1398.50*** (-24.25)	-2.11 (-0.16)	-344791.20*** (-149.92)
ESG	0.00*** (2.49)	12.12** (2.40)		
GEN_DIV			0.11** (2.30)	1388.98** (2.12)
F_SIZE	0.01** (2.47)	8.41 (0.13)	0.01** (2.23)	-13.44 (-0.22)
B_SIZE	-0.01** (-2.40)	37.34 (1.32)	-0.00* (-1.68)	76.14** (2.18)
LEV	0.00*** (2.83)	-5.79 (-1.08)	0.00*** (3.62)	-2.43 (-0.47)
YR	Included	Included	Included	Included
IND	Included	Included	Included	Included
N	218	218	218	218

Table 5 reports the results of the common moment method (GMM). The definitions of the variables are described in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

Next, we investigated corporate performance during the COVID-19 pandemic. This additional test aims to determine the impact of the COVID-19 pandemic on the sample study data for five periods, namely 2018 – 2022. The results of this test indicate that the COVID-19 pandemic has affected market performance but has no significant effect on operating performance. However, these results did not affect the overall model.

Table 6: ESG, Gender Diversity, Covid-19, Corporate Performance

	Model 1 (ROA)	Model 2 (EPS)	Model 3 (ROA)	Model 4 (EPS)
INTERCEPT	6.29 (0.38)	-1099048***(-4.55)	-8.49 (-0.55)	-1265325*** (-5.51)
ESG	0.00*** (3.05)	9.86**(2.32)		
GEN_DIV			0.11***(3.24)	1105.92** (2.18)
COVID-19	-0.01 (-5.07)	-1436.38***(-5.24)	-0.01 (-0.53)	-1436.73*** (-5.23)
F_SIZE	0.01**(2.51)	-17.49 (0.39)	0.01**(2.02)	-35.21 (-0.80)
B_SIZE	-0.01***(-2.90)	26.30 (0.77)	-0.00 (-1.72)	57.72 (1.77)
LEV	0.00**(2.49)	-7.70 (-1.57)	0.00***(3.29)	-4.98 (-1.03)
YR	Included	Included	Included	Included
IND	Included	Included	Included	Included
Average VIF	1.57	1.57	1.47	1.47
Adj. R^2	0.12	0.15	0.13	0.15
F	5.34	6.61	5.53	6.51
Prob>F	0.00***	0.00***	0.00***	0.00***
N	218	218	218	218

Table 6 reports the results of additional testing related to the COVID-19 pandemic that occurred during the study year for two periods (2020-2021). The definitions of the variables used in Table 6 are listed in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

In addition, our study tests the effect of ESG and gender diversity on different market-based performances, namely, Tobin's Q, to confirm the consistency of the main results,

particularly Models 1 and 3 in Table 4 (see Table 7). Overall, the results in Table 7 are consistent with those in Table 4.

Table 7: ESG, Gender Diversity, Market-Based Performance (Tobin's Q)

	Model 1 (Tobin's Q)	Model 3 (Tobin's Q)
INTERCEPT	-0.43* (-1.57)	-0.55**(-1.99)
ESG	0.00*** (2.50)	
GEN_DIV		0.00*(1.67)
F_SIZE	0.02***(2.41)	0.03*** (3.26)
B_SIZE	-0.00 (-0.73)	0.00 (0.09)
LEV	0.00 (0.41)	-0.00 (-0.32)
YR	Included	Included
IND	Included	Included
Average VIF	1.78	1.62
Adj. R^2	0.42	0.46
F	10.01	9.65
Prob>F	0.00***	0.00***
N	218	218

Table 7 reports the results of additional testing related to Tobin's Q as a proxy of market performance. The definitions of the variables are listed in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

6. Conclusions

The results of this study have implications for policymakers, practitioners, and academics because they can answer questions regarding whether companies with ESG disclosures and the presence of gender diversity among company board members affect the enhancement of company performance in the context of a patriarchal society. These findings indicate that companies in developing countries that disclose ESG information and have gender diversity on their boards of commissioners exhibit superior performance. Also, corporate social responsibility and sustainability efforts are increasingly being integrated into business operations and play an important role in influencing a company's performance. We recommend that public policymakers in Indonesia and countries with similar characteristics implement ESG practices and pursue compulsory disclosure. The findings provide evidence for company managers and policymakers to mobilize resources to support ESG and increase the percentage of women on the company's board of commissioners. In a dual-board governance system, the board of commissioners plays a strategic role because it is responsible for supervising all operational activities of the company, including overseeing the performance of the board of directors. The findings of this study can also help investors decide whether to invest in companies that have implemented ESG in developing countries. This study also investigates and addresses endogeneity when testing the relationship between gender diversity in ESG disclosure and firm performance. Endogeneity tests yielded consistent results across boards.

However, the results of this study require further interpretation, owing to their limitations. First, it is limited to companies that use ESG and report their data in the Thomson Reuters Database. Companies that do not report their data may embrace the concept of ESG. Second, the measure of gender diversity of the board of commissioners in this study is only seen from a gender perspective, ignoring other types of diversity such as age, educational background, nationality, and culture. Therefore, future studies should include other dimensions of diversity to capture the essence of diversity on a company's board of commissioners better.

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1.	Search and remove this errant text (it appears on page nine in the discussion of POJK Number 51): "hundred 218 companies with ESG disclosures"	Thank you for the suggestion, we have removed the errant text as suggested.

How ESG and gender diversity affect firm performance

Abstract

Objective – This study investigates the impact of Environmental, Social and Governance (ESG) disclosure and gender diversity on the board of commissioners on operating and market performance in Indonesia from 2018 to 2022.

Research Design/Methodology/Approach – The sample for this study consisted of 218 listed companies in Indonesia with ESG disclosures. Ordinary Least Squares regression was used to test this affiliation. The generalized moment method was also applied to address the endogeneity problem.

Findings – This empirical research found that ESG disclosure and gender diversity on the board of commissioners have a positive and statistically significant effect on company performance in a patriarchal society where women experience negative stereotypes regarding their leadership and managerial skills. The results remained consistent after endogeneity testing.

Research Implications – The findings of this study have practical implications for academics and policymakers interested in the role of ESG and gender diversity in improving company performance in developing countries, such as mobilizing resources to support ESG and increasing the percentage of women on corporate boards of commissioners. The findings of this study can also help investors decide whether to invest in companies that have implemented ESG in developing countries.

Originality/Value – This study differs from previous research in that it was conducted in Indonesia, a developing country. Most previous studies have been conducted in developed countries, such as China and Europe. This study examines the associations in Indonesia, which has a distinct corporate governance mechanism called the dual-board system, and where the patriarchal system still influences corporate governance in Indonesia.

Short Running Title: How do ESG practices and gender diversity affect firm performance in an emerging economy influenced by the dual board system and patriarchal systems?

Keywords: ESG, gender diversity, dual board governance, operating and market performances, emerging country, the patriarchal society.

1. Introduction

This study investigates the effects of Environmental, Social and Governance (ESG) and gender diversity on the performance of companies listed on the Indonesia Stock Exchange from 2018 to 2022. ESG-related issues are important and of concern to practitioners and academics (Eccles et al., 2020). According to Becchetti et al. (2022), ESG is a standard used by companies to follow certain criteria so that economic activities carried out by companies can have a positive effect on the environment, social or community, and corporate governance. Efforts to integrate the economic, social, and environmental aspects are crucial for several reasons. First, prior research has found that companies that employ ESG principles and disclosures in their business experience a lower cost of capital (e.g., Ramirez et al., 2022). Second, stakeholders believe that companies with extensive ESG disclosure experience improve firm value and reduce operational risks (e.g., Alsayegh et al., 2020; Mulia and Joni, 2019). Companies with better ESG implementation in various countries, including Indonesia, are positively perceived by stakeholders, including investors and creditors (e.g., Eccles et al., 2020; Hamdani et al., 2024; Sari et al., 2024).

Additionally, empirical findings show that companies that focus on developing ESG outperform companies that do not in the global context. Alodat and Hao (2024) examine the relationship between ESG and corporate performance using European listing companies. They show that firms with better ESG scores improve their operating performance. Dong et al. (2022) indicated that increasing ESG activities in China can boost company performance. This is due to the fact that ESG activities are regarded as a competitive advantage for the company, with the potential to improve long-term performance. Pu (2022) also conducted a study of 232 Chinese companies and found a positive correlation between ESG activities and company's market performance proxied by Tobin's Q. Next, Gutiérrez-Ponce and Wibowo (2023), for example, examined the relationship between ESG and performance in a sample of Indonesian banking companies from 2010 to 2020. Their findings indicate a positive association between ESG disclosures and company performance.

This study differs from previous research in several respects. First, it was conducted in the context of a developing country, which places little emphasis on environmental, social, and governance issues. This is reflected in the low number of listed companies with ESG disclosure in Indonesia (Harymawan et al., 2021). Few studies (e.g., Gutiérrez-Ponce and Wibowo, 2023; Rahmaniati and Ekawati, 2024) that address listed companies in Indonesia have investigated the association between ESG and performance. Prior studies have focused on the banking industry and non-financial performance. This study uses all listed companies in Indonesia to examine the effect of ESG disclosures on operating and market performance. Second, this study investigates the impact of board characteristics on company performance, an important governance issue in Indonesia, namely, gender diversity on the company's board of commissioners. Based on the findings of empirical research, Chen et al. (2018) show that the amount of ESG investment and innovation increases if the proportion of women increases, causing boards to become more gender balanced compared with the base case of boards comprising only men. In England, Brahma et al. (2021) showed that when women are involved as board members, there is a positive and significant correlation between gender diversity and company performance. Using a cross-country sample, Zhang (2020) examines the relationship between gender diversity and company performance. The results depend on the institutional context, which differentiates between normative and regulatory environments. Gender diversity is positively associated with firm performance in normative environments but not in regulatory environments.

Third, the issue of gender diversity at the top management level in Indonesia is unique because of the characteristics of its businesses and society, which are significantly affected by Islamic culture (Rezaee et al., 2019). Consequently, the orientation of business governance in Indonesia is profoundly patriarchal, where women are marginalized in their leadership, capabilities, and assertiveness (Areneke et al., 2023). In the context of patriarchal culture, women are perceived differently than men in the workplace, including in job assignment, performance evaluation, and reward systems (Castro et al., 2023). Our findings indicate that the presence of women on commissioner boards improves corporate performance. This is in line with the 'queen bee syndrome' argument suggesting that female boards tend to pattern themselves in a masculine way or a patriarchal culture to achieve personal and organizational successes as a sign of the adaptability process (Corwin et al., 2022).

Fourth, many studies have been conducted to determine whether companies that disclose ESG can improve their performance (e.g., Dong et al., 2022). However, this study goes into greater detail to answer questions regarding current topics of discussion. In analyzing the empirical results, this study employs two main variables, ESG and gender diversity, which are then tested for their effect on company performance, as measured by Return on Assets and Earnings per share. This study employs an Ordinary Least Squares regression model analysis, aided by firm size, number of board members in the company, and leverage as control variables, as well as year of study and industry type as fixed effects. This study uses 218 listed companies on the Indonesia Stock Exchange with ESG disclosures from 2018 to 2022, which can be accessed through Thomson Reuters DataStream.

This study finds that companies with high levels of ESG disclosure and gender diversity on their boards experience higher firm performance. In other words, the findings of the study suggest answers to whether gender diversity on boards of commissioners and ESG disclosures impact company performance. Compared to the findings of previous research, this study makes two contributions. First, it contributes to prior research that examines the effect of ESG disclosure on company performance in developing nations such as Indonesia, where ESG issues are still given little attention. Second, it investigates the effects of board characteristics, specifically gender diversity, on company performance in Indonesia, where the patriarchal system continues to influence governance. It has been argued that female boards improve firm performance because they may imitate the masculine culture in men-dominated environments to achieve professional success. It is in line with the 'queen bee syndrome' justification.

This study is divided into six sections. Section 1 of this paper is the introduction. Section 2 describes the institutional context, followed by a discussion of the theory and development of the hypotheses in section 3. Section 4 discusses the study's research methodology. Section 5 discusses the findings of this study and Section 6 concludes the paper with recommendations.

2. Institutional Background

2.1 ESG development in Indonesia

ESG began to emerge and gain recognition in 2011 as a result of the establishment of the Sustainability Accounting Standards Board (SASB), an institution responsible for establishing ESG disclosure standards. This standard can be applied globally to businesses to foster a healthy economy. Trahan and Jantz (2023) explain the issues related to ESG with respect to definitional bias and how to score ESG, raising many questions regarding the economic ramifications of ESG ratings. The lack of agreement on ESG ratings (scoring) is a second issue related to ESG, which can be seen among the ESG ratings themselves that lack strong correspondence (Berg et al., 2019). This issue is demonstrated by Carlsson Hauff and Nilsson (2023), who argue that, within accounting, the pool of funds invested in accordance with ESG-related principles is subject to numerous variations for a given ESG investment strategy. These issues are important because ESG investments are a highly influential topic in the business world. The PRI (2020) reports that 3,038 investors representing assets worth more than $100 trillion have signed an agreement to incorporate ESG disclosure information into investment decisions. Then, according to data compiled by Morningstar (2022), approximately $2.47 trillion in global assets are now managed based on the ESG criteria of international funds.

ESG grew in popularity in Indonesia in the 2010s, when it entered the mainstream financial industry. Initially, ESG implementation for the financial industry was regulated by the Financial Services Authority Regulation (POJK) Number 51/POJK 03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions, Issuers, and Public Companies. In accordance with POJK Article 1 paragraphs 8 and 9, sustainable finance is defined as the overall support of the financial services sector with the aim of achieving sustainable economic growth by balancing economic, social, and environmental interests. This is in line with Law No. 32 of 2009 on Protection and Management of the Environment. Article 33 of the 1945 constitution contains additional provisions pertaining to these regulations. Based on these regulations, ESG implementation is necessary for listed companies in the financial industry. However, this is voluntary for companies listed in other sectors.

2.2 Corporate Governance System in Indonesia

Based on Law No. 40 of 2007 concerning Limited Liability Companies, the corporate governance system in Indonesia employs a dual-board system with a separation of functions between the board of directors, whose role is to perform management and operational functions, and the board of commissioners, whose role is to perform supervisory functions. The board of commissioners plays a strategic role in this governance system, being responsible for monitoring the performance of the board of directors and balancing the various decisions made, including fulfilling the rights of shareholders and company stakeholders. Therefore, in a dual-board governance system, the board of commissioners holds a strategic position in the company (Joni et al., 2020b; Joni et al., 2021; Selin et al., 2023; Joni et al., 2023; Dharmawan et al., 2024). This is because the board of commissioners is responsible for overseeing all operational activities of the company, including those of its board of directors. This differs from governance in the United States, which uses a one-tier (unitary) system in which the duties and responsibilities of the Board of Directors and the Board of Commissioners are combined (Joni et al., 2020a). Jouber (2022) stated that the presence of women as board members could provide a different perspective from the superiority of their way of thinking when making a decision, thereby enhancing the precision of decision-making and oversight of the company. Studies suggest that board diversity has a positive effect on a company's operational performance (e.g., Sun and Zou, 2021).

2.3 Social and Corporate Structure in Indonesia

Indonesian society has been affected by a patriarchal system in which men are regarded as more powerful than women (Areneke et al., 2023). It is rooted in Islamic culture or religion (Syariah Rezaee et al., 2019). However, in terms of governance in Indonesia, the number of women as top managers is growing, making gender diversity an interesting issue. Essentially, the 1945 Constitution, particularly Article 27, Paragraph 1, states that gender equality in administration and law is essential. Next, Presidential Decree No. 9 of 2000 on Gender Mainstreaming aims to decrease the gap between women and men in accessing development benefits and to improve the participation of women in the development process. To address the issue of limited female representatives at the executive, judicial, bureaucratic, and political party levels in Indonesian politics, the Ministry of Women's Empowerment and Child Protection (KPPPA) developed a Draft Government Regulation (RPP) on Gender Equality in 2006. This increased women's participation in making strategic decisions.

The issue of gender diversity in a company's top management structure has received attention from a variety of groups, including the public, practitioners, and academics (e.g., Liu et al., 2020; Brahma et al., 2021). This is because women's participation in a company's structure is viewed as a value driver in the company's strategy. Following the Dutch corporate structure, Indonesia applies a two-tier board system that consists of a board of directors who are responsible for the company's operation and a supervisory board (also called the board of commissioner) who conducts monitoring and supervising functions (Joni et al., 2020a). It is important to explore the role of gender diversity in the Indonesian dual-board system, where the board of commissioners can make long-term decisions and is strategically involved. Moreover, the participation of women as board members is viewed positively by capital holders, including investors (e.g., Almarayeh, 2023). Stakeholder support is needed to increase the number of women on a company's board (e.g., Hazaea et al., 2023). In addition, regulations in several nations mandate the presence of women on company boards. For example, the Norwegian government mandates that at least 40 percent of a company's board members be women (Garcia-Blandon et al., 2022). It is argued that there is a global movement toward greater gender diversity and that supply chain and investor considerations suggest that Indonesia will benefit from a trading perspective, from greater gender diversity on the Boards of Commissioners, because other countries will gain greater comfort.

3. Theoretical Foundation and Hypothesis Development

Stakeholder and agency theories are two related arguments that explain how ESG and gender diversity influence corporate performance. According to stakeholder theory, companies not only focus on maximizing profits for company owners but also on parties with an interest in companies, such as the government, society, and the social environment (Freeman, 2023). This theory contends that the support provided by stakeholders can influence the existence of a company or organization. The greater the quality of ESG disclosures made by a company, the greater is the number of stakeholders who will provide full support to all companies with the aim of enhancing performance and achieving expected profit. Aydoğmuş et al. (2022) applied Stakeholder Theory to examine the effect of ESG disclosure on firm profitability. Their study reveals a strong positive relationship between ESG scores and business profitability. This also shows that the support and confidence of stakeholders has a positive effect on the value of the company.

The agency theory proposed by Jensen and Meckling (1979) explains that agency relations occur when there is a separation of interests between the company owner (principal) and the company manager (agent), in which one or more owners (principal) request that another party (agent) take action or have the authority to make a decision. In this case, a company's owners and managers are distinct entities with frequently divergent interests and objectives, resulting in agency conflicts. Company managers, as decision-making parties, are responsible for maximizing their utility, while ignoring the interests of company owners. On the other hand, ESG is used by company owners (principals) to increase company transparency, which can reduce information asymmetry, and thus reduce conflicts of interest between management and owners, which can reduce agency costs and improve company performance (Tang, 2022).

Ullah et al. (2020) applied agency theory to investigate the effect of gender diversity on corporate board performance. Their findings reveal that female board members can improve the monitoring process and increase managerial accountability. Next, in line with Adams and Ferreira (2009) and Adams et al. (2011), Brahma et al. (2021) suggested that women may provide an independent perspective. In circumstances in which a person of one gender is substantially underrepresented on a board, the incidence of higher independence seems sensible and unobjectionable. Ain et al. (2021) supported this expression by stating that gender diversity may reduce agency costs.

3.1 ESG and Corporate Performance

ESG disclosure is expected to become an investment in a company's social environment to satisfy the interests of stakeholders, which will later contribute to improving company performance in both developed and developing countries. According to the findings of empirical research by Buallay (2019), disclosing non-financial reports such as ESG will generate demand and high growth rates for companies in European countries because ESG disclosures can attract the attention of company stakeholders. Albitar et al. (2020) find a positive and significant relationship between ESG disclosure scores and financial performance of companies in the United Kingdom. Chouaibi et al. (2022) explored the impact of ESG practices on firm performance in the UK and Germany. They found that firms with better ESG commitments have better firm value. Pulino et al. (2022) explore the association between ESG and performance in a sample of Italian companies from 2011 to 2020. The results show a positive relationship between ESG disclosures and company performance. Recently, using the European market, Alodat and Hao (2024) found that ESG improves the operating performance.

Dong et al. (2022) find that investors value companies that engage in ESG disclosure in China. In this case, investors perceive the company's disclosure of ESG as a worthwhile investment. Zeng and Jiang (2023) suggested that ESG is associated with corporate performance, based on 156 listed agricultural and forestry companies in China. Naeem et al. (2021) examined the performance of listed companies in India that disclose ESG. Their findings show a positive and significant relationship between ESG disclosures and company performance. Using an Indonesian sample, Gutiérrez-Ponce and Wibowo (2023) conducted a study determined the effect of sustainability on financial performance in banking-listed companies. Their findings indicate that sustainability activities have a positive impact on banking financial performance. Good environmental performance results in a high return on equity and an increase in the value of the company. This is further supported by Rahmaniati and Ekawati (2024), who examine the effect of ESG disclosure on non-financial performance in Indonesian listed companies. Their research indicates that ESG disclosures have a positive and significant impact on firm value.

Based on the results of empirical research conducted by previous researchers, the following hypotheses were tested.

H_1: ESG Disclosure has a positive effect on operating performance in Indonesia ceteris paribus.

Good ESG disclosure by a company can also improve its stock market performance, attracting investor attention as a reference for making investment decisions. According to empirical research, a study conducted in the China context by Zhou et al. (2022) shows that ESG disclosure practices positively and significantly influence market performance. In the UK context of the United Kingdom, Ahmad et al. (2021) show that ESG disclosure has a positive and significant effect on a company's market value and earnings per share.

Based on the findings of previous empirical research, this study tested the following hypotheses.

H_2: ESG disclosure has a positive effect on a company's market performance in Indonesia ceteris paribus.

3.2 Gender Diversity and Corporate Performance

Gender diversity is one of the several board characteristics that can influence company performance (Brahma et al., 2021). In addition to ESG disclosures, the presence of a women's board can boost company performance. This is because female board members can improve the effectiveness of a company's internal governance (e.g., Srinidhi et al., 2020), increase public disclosure and share price informativeness (e.g., Eng et al., 2022; Marhfor et al., 2021; Ng and Rezaee, 2020), and increase the trust of larger company shareholders and other stakeholders (e.g., Zhu and Wang, 2024). For instance, Liu et al. (2020) found that, within the context of the United States, a company's performance significantly increases when women are more involved, particularly when starting from a situation where no women are participating. Green and Homroy (2018) demonstrated that gender diversity is positively associated with performance in European companies. In addition, Ararat and Yurtoglu (2021) indicate that board diversity increases firm performance in Turkey. In the UK, specifically, Brahma et al. (2021) asserted that board diversity enhances operating performance. Almarayeh (2023) reported a similar result in Jordan.

Research on the impact of gender diversity on firm performance in Indonesia, where the governance system is influenced by patriarchal culture, is unique and limited (Areneke et al., 2023). It can be justified that the presence of female boards can positively affect corporate performance in patriarchal culture by the 'queen bee syndrome' argument (Brahma et al., 2021)). Women hold top management positions in male-dominated workplaces and distance themselves from other female colleagues (Corwin et al., 2022). Consequently, female managers are prone to applying masculine cultural roles and imitating their male colleagues' attributes to achieve professional success as part of the adaptation process (Castro et al., 2023). Several influential female leaders in Indonesia have strong leadership skills, which result in high performance. The salient examples have been shown by several female top leaders, including the Minister of Finance of Indonesia from to 2019-2024 (Sri Muliani), the Minister for Foreign Affairs of Indonesia (Retno Marsudi) from to 2019-2024, the former president of Indonesia from to 2001-2004 (Megawati Soekarno Putri).

Based on the results of empirical research conducted by previous researchers, the following hypotheses were tested.

H_3: Gender Diversity has a positive effect on operating performance in Indonesia ceteris paribus.

Women's presence on corporate boards can affect a company's stock market performance worldwide. Based on empirical research in Pakistan, Khan et al. (2021) discovered that gender diversity on boards has a positive and significant influence on the stock exchange performance of a company. In the European context, Qureshi et al. (2020) show that increasing the representation of women on company boards can increase stakeholder trust and positively and significantly influence company value in the capital market. Brahma et al. (2021) found that gender diversity improves market performance in the UK. Using 111 Greek listed firms from 2008 to 2020, Arvanitis et al. (2022) show that gender diversity can lead to maximum market performance when the proportion of female boards reaches a certain level.

Based on the findings of previous empirical research, this study tested the following hypotheses.

H_4: Gender Diversity positively influences a company's market performance in Indonesia ceteris paribus.

4. Research Design

4.1 Selection of Samples and Data Sources

As a sample for this empirical study, 218 companies listed on the Indonesia Stock Exchange from 2018 to 2022 that have implemented ESG scoring activities in their annual reports were used. The period of this study was selected based on the initiation of sustainable finance in Indonesia through POJK Number 51/POJK 03/2017 concerning the Implementation of Sustainable Finance for Financial Services Institutions. This allowed us to observe the effects of ESG implementation after the regulatory enactment.

This study relies on secondary data from Thomson Reuters DataStream or Refinitiv Eikon, including ESG data, gender diversity measures, return on asset, earnings per share, company size, number of board members, leverage, years of study, and industry type. We applied two data collection steps. First, we collect financial data from the Thomson database. Second, non-financial data such as the number of board members were manually collected from the company's annual reports. After collecting and processing samples, 218 company data samples from all listed companies in Indonesia were obtained over five years from 2018 to 2022. This study had a limited sample size based on the availability of data from the Thomson database and published annual reports.

4.2 Variable Measurement

Independent Variables

This study employs two independent variables as a result of the reduction hypothesis. The first independent variable is ESG disclosure, which is an important factor that influences company performance (Becchetti et al., 2022). In this study, ESG was calculated using values obtained from the Thomson Reuters DataStream (Revinitive Eikon) official website. Thomson Reuters is one of the most comprehensive databases in the world, covering over 7,000 public companies worldwide. It calculates over 400 different ESG measurements, with over 178 subsets of comparable and relevant fields, to strengthen the overall company assessment process (Refinitiv, 2022).

In the Thomson Reuters database, the ESG score consists of ten categories, which are then processed proportionally with the calculated measures in each category to form a three-pillar score and the final ESG score, which is the result of a representation of the company's ESG performance, commitment, and effectiveness based on publicly reported information. The scores from each category were then aggregated into three pillar scores: environmental, social, and corporate governance. Thomson Reuters uses Thomson Reuters Business Classification (TRBC) for industry classification as a benchmark to calculate environmental and social category scores, because it has issues that are relevant and similar to companies in the same industry. To calculate the score for the governance category, Thomson Reuters uses the country's head office as a benchmark, because it recognizes that each nation has distinct governance practices. Consequently, the governance score must be adapted to the conditions of the respective country. The final score for evaluating the ESG weight of each company will vary depending on the results of the calculations in the Thomson Reuters Database (Refinitiv, 2022).

Next, we used gender diversity (GEN_DIV), a measure of the number of women on company boards (Refinitiv, 2022). GEN_DIV was used as a metric to determine the percentage of women on the company's board of commissioners. Thomson Reuters provides the percentage of women on the company board of commissioners.

Dependent Variables

Firm performance is the dependent variable in this study. This performance is measured using the Return on Assets (ROA) ratio as a benchmark for measuring the operating performance of the company and earnings per share (EPS) to measure the market performance of the company. Similarly, many researchers have used ROA and EPS as proxies to measure companies' operating performance and market performance (Brahma et al., 2021; Liu et al., 2020; Khan et al., 2021). For example, Naeem et al. (2021), Pu (2022), and Pulino et al. (2022) examine the effect of ESG disclosure on company performance using ROA as a yardstick to measure company operating performance. Ahmad et al. (2021) and Zhou et al. (2022) examine the effect of ESG disclosure on company market performance using EPS as a benchmark.

Control Variables

Our study also includes several related control variables in the models, such as company size, leverage, board size, year, and industry effects. Company size (F_SIZE) is a metric that can be calculated by taking the natural logarithm of a company's total assets (Zhou et al., 2022). As firms become larger, their profitability increases (Albitar et al., 2020). This is due to the fact that the larger a company is, the greater its market power, which enables it to set high product prices in order to improve its financial performance. This finding is supported by Pulino et al. (2022), who indicate that company size has a positive effect on ROA.

This study also includes leverage (LEV) and number of board members in the company (B_SIZE) as control variables. Leverage is a measure of how much of a company's financing comes from debt (Brahma et al., 2021). The number of board members is also used as a proxy for board size (Charumathi and Rahman, 2019). The study then determines the Fixed Effects, such as Year Effect (YR) and Industry Effect (IND), which are classified using the Global Industry Classification Standard (GICS).

Table 1: Definitions

Variable	Definition
Independent Variables	
ESG	ESG is using score calculated by the Thomson Reuters score (Refinitiv, 2022)
GEN_DIV	The proportion of female board members (Ahmad et al., 2021).
Dependent Variables	
ROA	This study uses the return on assets measure to measure a company's operational performance. ROA is the net income divided by the total assets (Naeem et al., 2021; Pu, 2022; Pulino et al., 2022).
EPS	This study also uses the earning per share measure as an indicator of company stock market performance (Khan et al., 2021).
Control Variables – Firm Characteristics	
F_SIZE	Natural logarithm of the company's total assets (Zhou et al., 2022).
B_SIZE	The total number of company board members reported at the end of the fiscal year (Brahma et al., 2021).
LEV	Total long-term debt is divided by the company's total assets (Brahma et al., 2021).
Control Variables – Fixed Effects	
YR	Vector indicator variable for the period 2018 – 2022.
IND	Variable vector of industry variables classified based on Global Industry Classification Standard (GICS).

4.3 Analysis Models

This study employs descriptive statistics, the Pearson correlation test, and the multicollinearity test using the variance inflation factor (VIF) and ordinary least squares (OLS) regression to examine the effects of ESG and gender diversity on firm performance. First, we investigate the association between ESG and corporate performance in hypotheses 1 and 2. The empirical model used in this study is defined as follows:

$ROA=\alpha_1+\beta_1ESG+\beta_2F\_SIZE+\beta_3B\_SIZE+\beta_4LEV+\beta_5YR+\beta_6IND+\varepsilon$ ----------------------Model 1

$EPS=\alpha_1+ \beta_1GEN\_DIV+\beta_2F\_SIZE+\beta_3B\_SIZE+\beta_4LEV+\beta_5YR+\beta_6IND+\varepsilon$ ---------------Model 2

Next, we explore whether gender diversity affects operating and market performance, as stated in Hypotheses 3 and 4: The models are as follows:

$ROA=\alpha_1+\beta_1ESG+\beta_2F\_SIZE+\beta_3B\_SIZE+\beta_4LEV+\beta_5YR+\beta_6IND+\varepsilon$ ----------------------Model 3

$EPS= \alpha_1+\beta_1Gen\_Div+\beta_2F\_SIZE+\beta_3B\_SIZE+\beta_4LEV+\beta_5YR+\beta_6IND+\varepsilon$ -----------------Model 4

The detailed definition is presented in Table 1.

4.4 Additional Testing

In corporate governance literature, independent and dependent variables may influence each other, called simultaneity, which can cause bias in model estimation (Di Vito and Trottier, 2022). As high-performance companies may apply ESG effectively, this study employs the generalized moment method (GMM) model to test endogeneity issues. The GMM incorporates lagged variables and individual-specific effects to result in unbiased model estimations (Khatib, 2024). It effectively applies dynamic panel data to address unobservable heterogeneity (Li et al., 2021). In addition, this study used an additional variable in the form of a dummy to conduct further tests related to the COVID-19 pandemic that occurred for two periods, namely, 2020 – 2021 (COVID-19). A score of 1 was assigned to the study year when the pandemic occurred, which–2020-2021, and a score of 0 was assigned to the study years before and after the COVID-19 pandemic, which–2018-2019 and 2022, respectively). Finally, we use Tobin's Q as an additional proxy to measure market-based corporate performance. It is defined as the book value of total assets minus the book value of common equity, plus the market value of common equity (Brahma et al., 2021). In our study, we utilize Tobin's Q as a metric for assessing market performance, as it quantifies the anticipated future growth of the company, thereby addressing the concerns of shareholders (e.g., Joni et al., 2020b).

5. Results and Discussion

5.1 Descriptive Statistics

Table 2 reports the results of descriptive statistics with a total sample of 218 companies in the period 2018 to 2022 to see and test the relationship between companies that disclose ESG and gender diversity on operating performance and company market performance as measured using ROA and EPS. Table 2 displays the number of observations, the average value, the standard deviation, the minimum and maximum, and percentile values for each variable used in this study. The average ESG is 44.24, and gender diversity (GEN_DIV) is 0.13 with a minimum (maximum) value of 12.59 (87.86) and 0 (0.67). The lower quartile (p25) of ESG is 33.59, and the upper quartile (p75) is 68.97. It is shown that the gap in ESG implementation in Indonesia is on average. However, the gap in gender diversity is large (the lower quartile is 0, and the upper quartile is 20). The results of these descriptive statistics were found to be consistent with those of previous studies, such as those conducted by Pulino et al. (2022) and Brahma et al. (2021). The average values for ROA and leverage are 0.09 and 24.49, with minimum (maximum) values of 0.62 and 58.1, respectively. The average value of market performance as measured by EPS is 484.59, with a minimum (maximum) value of -125.40 (6213.32). Then, the average value of company size (F_SIZE) and the number of board members in the company (B_SIZE) is 21.82 and 6.38, with a minimum (maximum) value of 20.06 (28.24) and 3 (21) considered reasonable because it has a value consistent with previous studies (Charumathi and Rahman, 2019; Karim et al., 2019).

Table 2: Descriptive Statistics

Variable	N	Mean	Std. dev.	Min	Max	p25	p75
ESG	218	44.24	22.82	12.59	87.86	33.59	68.97
GEN_DIV	218	0.13	0.17	0.00	0.67	0.00	20.00
ROA	218	0.09	0.09	0.00	0.62	0.03	0.11
EPS	218	484.59	1348.78	-125.40	6213.32	38.89	371.41
F_SIZE	218	21.82	1.92	20.06	28.24	23.86	25.40
B_SIZE	218	6.38	2.62	3.00	21.00	4.00	8.00
LEV	218	24.49	17.73	0.20	58.10	8.19	36.03

Table 2 presents summary statistics for the key variables. The number of observations consists of 218 data samples for the period 2018 – 2022. The definitions for each variable can be seen in Table 1.

A Paired Pearson correlation test was conducted to investigate the relationship between the key variables in the industry effects model (IND) and the year issued. Table 3 shows that the highest correlation ($r = 0.26$) exists between ESG and board size. Table 4 presents a multicollinearity test using VIF, and the results indicate that the model in this study is free of multicollinearity issues.

Table 3: Correlation Matrix

	ROA	EPS	ESG	GEN_DIV	F_SIZE	B_SIZE	LEV
ROA	1.00						
EPS	0.04	1.00					
ESG	0.17**	0.22***	1.00				
GEN_DIV	0.20***	0.16**	0.07	1.00			
F_SIZE	0.13*	-0.01	-0.14**	0.03	1.00		
B_SIZE	-0.12*	0.12*	0.26***	-0.09	-0.02	1.00	
LEV	0.20***	-0.06	0.12*	-0.06	-0.03	0.02	1.00

Table 3 reports the Paired Pearson correlation matrix for a sample size of 218 company-year observations. The definitions of the variables used in Table 3 are listed in Table 1. The superscripts ***, **, and * indicate the level of significance at 1%, 5%, and 10%.

5.2 Effect of ESG Disclosure and Gender Diversity on Company Performance

The results of the ordinary least squares regression analysis to explore how ESG and Gender Diversity affect operating performance as measured by ROA are reported in Table 4. According to the results of Model 1, the ESG coefficient of ROA was positive and significant at the 1% level (coefficient = 0.00, t = 3.13). Leverage and company size have positive and significant effects on operating performance. However, the board size was not statistically significant. This shows that H_1 is supported by evidence that the company's performance has improved as a result of its ESG disclosures. Model 2 indicates that the ESG coefficient of EPS was positive and statistically significant at the 1% level (coefficient = 12.12, t = 2.70). Statistically, firm size, board size, and leverage are not significant. These results indicate that a company’s market performance improves when ESG disclosures occur. This indicated that H_2 was acceptable.

The results from Models 1 and 2 are consistent with Stakeholder Theory and agency theory, which explains why companies that disclose ESG information tend to achieve a high level of company performance in terms of operating performance and market performance. The stakeholder theory asserts that the support provided by stakeholders can affect a company's viability. The greater the quality of a company's ESG disclosure, the greater is the number of stakeholders that will provide full support for the company's aim to improve its operational and market performance. Further, ESG disclosure improves a company’s monitoring function, which reduces agency conflict and increases corporate performance. The findings of this test are consistent with those of previous studies such as Naeem et al. (2021), Pu (2022), and Pulino et al. (2022), who tested the effect of ESG disclosure on company operating performance. Ahmad et al. (2021) and Zhou et al. (2022) investigate the impact of ESG disclosure on company market performance.

The third model shows that the Gender Diversity coefficient on ROA is also positive and significant at the 1% level (coefficient = 0.11 and t = 3.32). Leverage and company size have positive and significant effects on operating performance. However, the board size was not statistically significant. This shows that gender diversity in board membership improves a company's operating performance while also showing that H_3 is accepted. Model 4 shows that the Gender Diversity coefficient on EPS is also positive and significant at the 1% level (coefficient = 1388.98 and t = 2.60). Firm size, board size, and leverage, on the other hand, are not statistically significant. Thus, H_4 is supported by

showing that gender diversity on company boards improves market performance. The results of testing Models 3 and 4 are consistent with agency theory, which states that agency problems occur when the owner (principal) requests that another party (agent) take action or has the authority to make decisions. In the context of gender diversity in corporate board membership, this theory posits that greater participation by independent female boards of commissioners from the base of no women can enhance the monitoring function of the company. In light of this opinion, the presence of gender diversity on a company's board of independent commissioners can improve its operational performance and market performance. The results of this test are consistent with those of previous studies by Brahma et al. (2021) and Liu et al. (2020), who analyzed the effect of gender diversity among board members on the operating performance of a company. Khan et al. (2021), Qureshi et al. (2020), and Brahma et al. (2021) examined the effect of gender diversity on the market and operational performance of company board members.

Table 4: ESG, Gender Diversity, and Corporate Performance – OLS Regression

	Model 1 (ROA)	Model 2 (EPS)	Model 3 (ROA)	Model 4 (EPS)
INTERCEPT	13.40 (1.25)	-139837.50 (-0.84)	-2.11 (-0.21)	-344791.20** (2.21)
ESG	0.00*** (3.13)	12.12*** (2.70)		
GEN_DIV			0.11*** (3.32)	1388.98*** (2.60)
F_SIZE	0.01*** (2.60)	8.41 (0.18)	0.01** (2.08)	-13.44 (-0.29)
B_SIZE	-0.01*** (-2.87)	37.34 (1.04)	-0.00* (-1.68)	76.14** (-2.21)
LEV	0.00** (2.54)	-5.79 (-1.12)	0.00*** (3.37)	-2.43 (-0.47)
YR	Included	Included	Included	Included
IND	Included	Included	Included	Included
Average VIF	1.12	1.12	1.02	1.02
Adj. R^2	0.12	0.05	0.13	0.04
F	6.19	2.79	6.43	2.70
Prob>F	0.00***	0.01**	0.00***	0.02**
N	218	218	218	218

Table 4 reports the results of the OLS coefficient estimation. Indicator variables are included in the regression to control for fixed effects of year and type of industry. The definitions of the variables used in Table 4 are listed in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

5.3 Additional Testing

This study employed the generalized moment method to increase the dependability of the results. This study strengthens the evidence that companies with ESG disclosures and women on their boards of board of commissioners have a positive effect on company performance. Table 5 displays the results of an alternative analysis employing the GMM model to investigate endogeneity issues when examining the relationship between the ESG disclosure of gender diversity and firm performance. After conducting the GMM test, the overall results of data testing were the same.

Table 5: ESG, Gender Diversity, Corporate Performance-the GMM model

	Model 1 (ROA)	Model 2 (EPS)	Model 3 (ROA)	Model 4 (EPS)
INTERCEPT	13.39 (0.94)	-1398.50*** (-24.25)	-2.11 (-0.16)	-344791.20*** (-149.92)
ESG	0.00*** (2.49)	12.12** (2.40)		
GEN_DIV			0.11** (2.30)	1388.98** (2.12)
F_SIZE	0.01** (2.47)	8.41 (0.13)	0.01** (2.23)	-13.44 (-0.22)
B_SIZE	-0.01** (-2.40)	37.34 (1.32)	-0.00* (-1.68)	76.14** (2.18)
LEV	0.00*** (2.83)	-5.79 (-1.08)	0.00*** (3.62)	-2.43 (-0.47)
YR	Included	Included	Included	Included
IND	Included	Included	Included	Included
N	218	218	218	218

Table 5 reports the results of the common moment method (GMM). The definitions of the variables are described in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

Next, we investigated corporate performance during the COVID-19 pandemic. This additional test aims to determine the impact of the COVID-19 pandemic on the sample study data for five periods, namely 2018 – 2022. The results of this test indicate that the COVID-19 pandemic has affected market performance but has no significant effect on operating performance. However, these results did not affect the overall model.

Table 6: ESG, Gender Diversity, Covid-19, Corporate Performance

	Model 1 (ROA)	Model 2 (EPS)	Model 3 (ROA)	Model 4 (EPS)
INTERCEPT	6.29 (0.38)	-1099048***(-4.55)	-8.49 (-0.55)	-1265325*** (-5.51)
ESG	0.00*** (3.05)	9.86**(2.32)		
GEN_DIV			0.11***(3.24)	1105.92** (2.18)
COVID-19	-0.01 (-5.07)	-1436.38***(-5.24)	-0.01 (-0.53)	-1436.73*** (-5.23)
F_SIZE	0.01**(2.51)	-17.49 (0.39)	0.01**(2.02)	-35.21 (-0.80)
B_SIZE	-0.01***(-2.90)	26.30 (0.77)	-0.00 (-1.72)	57.72 (1.77)
LEV	0.00**(2.49)	-7.70 (-1.57)	0.00***(3.29)	-4.98 (-1.03)
YR	Included	Included	Included	Included
IND	Included	Included	Included	Included
Average VIF	1.57	1.57	1.47	1.47
Adj. R^2	0.12	0.15	0.13	0.15
F	5.34	6.61	5.53	6.51
Prob>F	0.00***	0.00***	0.00***	0.00***
N	218	218	218	218

Table 6 reports the results of additional testing related to the COVID-19 pandemic that occurred during the study year for two periods (2020-2021). The definitions of the variables used in Table 6 are listed in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

In addition, our study tests the effect of ESG and gender diversity on different market-based performances, namely, Tobin's Q, to confirm the consistency of the main results,

particularly Models 1 and 3 in Table 4 (see Table 7). Overall, the results in Table 7 are consistent with those in Table 4.

Table 7: ESG, Gender Diversity, Market-Based Performance (Tobin's Q)

	Model 1 (Tobin's Q)	Model 3 (Tobin's Q)
INTERCEPT	-0.43* (-1.57)	-0.55**(-1.99)
ESG	0.00*** (2.50)	
GEN_DIV		0.00*(1.67)
F_SIZE	0.02***(2.41)	0.03*** (3.26)
B_SIZE	-0.00 (-0.73)	0.00 (0.09)
LEV	0.00 (0.41)	-0.00 (-0.32)
YR	Included	Included
IND	Included	Included
Average VIF	1.78	1.62
Adj. R^2	0.42	0.46
F	10.01	9.65
Prob>F	0.00***	0.00***
N	218	218

Table 7 reports the results of additional testing related to Tobin's Q as a proxy of market performance. The definitions of the variables are listed in Table 1. The superscripts ***, **, and * indicate two-way significance levels at 1%, 5%, and 10%.

6. Conclusions

The results of this study have implications for policymakers, practitioners, and academics because they can answer questions regarding whether companies with ESG disclosures and the presence of gender diversity among company board members affect the enhancement of company performance in the context of a patriarchal society. These findings indicate that companies in developing countries that disclose ESG information and have gender diversity on their boards of commissioners exhibit superior performance. Also, corporate social responsibility and sustainability efforts are increasingly being integrated into business operations and play an important role in influencing a company's performance. We recommend that public policymakers in Indonesia and countries with similar characteristics implement ESG practices and pursue compulsory disclosure. The findings provide evidence for company managers and policymakers to mobilize resources to support ESG and increase the percentage of women on the company's board of commissioners. In a dual-board governance system, the board of commissioners plays a strategic role because it is responsible for supervising all operational activities of the company, including overseeing the performance of the board of directors. The findings of this study can also help investors decide whether to invest in companies that have implemented ESG in developing countries. This study also investigates and addresses endogeneity when testing the relationship between gender diversity in ESG disclosure and firm performance. Endogeneity tests yielded consistent results across boards.

However, the results of this study require further interpretation, owing to their limitations. First, it is limited to companies that use ESG and report their data in the Thomson Reuters Database. Companies that do not report their data may embrace the concept of ESG. Second, the measure of gender diversity of the board of commissioners in this study is only seen from a gender perspective, ignoring other types of diversity such as age, educational background, nationality, and culture. Therefore, future studies should include other dimensions of diversity to capture the essence of diversity on a company's board of commissioners better.

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6. Bukti konfirmasi artikel accepted (02 Jan. 2025)

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To: Joni
Cc: Johan Hadisurya; Joni; Joni; Tan Kwang En; Sinta Setiana

Thu 02/01/2025 13:54

02-Jan-2025

Dear Mr. Joni,

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Sincerely,

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