

The Effect of Board of Directors' Diversity on Sustainability Reports with Enterprise Risk Management as a Moderation (Study on Non-Financial Sector Companies 2020-2023)

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ARTICLE INFO

Keywords: Enterprise Risk Management, Sustainability Report, Board Diversity

Received : 06 September

Revised : 06 October

Accepted: 08 November

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ABSTRACT

This study aims to examine the effect of gender diversity and background diversity of the board of directors on sustainability reports with enterprise risk management as a moderator in non-financial sector companies listed on the Indonesia Stock Exchange (2020-2023). This study used a simple random sampling method, including companies on the Indonesia Stock Exchange with the Non-Financial Sector classification of 2020-2023, thus covering 89 companies. Secondary data used in this study came from annual reports and sustainability reports. Hypothesis testing was conducted through Moderated Regression Analysis (MRA). The results showed that gender diversity of the board of directors had a positive and significant effect on sustainability reports, and diversity of educational backgrounds had a positive effect on sustainability reports. Enterprise risk management had a positive effect on the relationship between the gender diversity of directors and sustainability reports, and enterprise risk management had an effect on the diversity of educational backgrounds and sustainability reports.

INTRODUCTION

Non-monetary enterprises registered on the Indonesia Stock Exchange (IDX) cover a diverse variety of industries, including basic commodities, consumer goods, infrastructure, real estate, mining, and energy. In contrast to financial institutions, which are subject to more stringent reporting standards enforced by the Financial Services Authority (OJK) and the Central Bank, companies in the non-financial sector exhibit a wide range of governance frameworks and levels of compliance with sustainability reporting. In recent years, the IDX and OJK have increased their efforts to encourage all listed firms to provide comprehensive disclosures of their Environmental, Social, and Governance (ESG) performance through sustainability reports in order to improve transparency and accountability to stakeholders (OJK, 2021). However, sustainability report disclosures in non-financial companies still vary (Rashid & Barokah, 2024).

PwC (2022) indicates that 88% of firms on the Indonesia Stock Exchange (IDX) have released sustainability reports. This trend indicates that sustainability reporting practices have gained significant attention among issuers, including those in the non-financial sector. Sustainability reporting practices are growing rapidly both globally and nationally (Thoradeniya et al., 2022), as disclosure of corporate sustainability information contributes to increased market prices (Clarkson et al., 2020) and corporate performance (Qian & Schaltegger, 2020). However, the reality is that non-financial companies are still not optimal in implementing sustainability reports.

Research by Handajani et al. (2014) and Ismail et al. (2019) demonstrate that board diversity, encompassing gender, affects the extent of disclosure in Indonesia's non-financial sector. The presence of a gender-diverse board can broaden perspectives in decision-making, particularly when formulating policies related to sustainability across sectors and interests. The inclusion of women on boards of companies is regarded capable of broadening the organization's perspective and encouraging more transparent governance practices. This is due to women's tendency to be more concerned with ethical, social, and stakeholder interests. Chang et al. (2024) stated Companies with a greater proportion of women on their boards of directors generally exhibit a more robust commitment to transparency, accountability, and thorough sustainability reporting.

The presence of women on boards is now seen as a strategic element in improving the quality of sustainability reports. In the non-financial sector, male dominance in board structures remains very strong. In most cases, male-dominated boards tend to show lower levels of sensitivity to sustainability report disclosures (Zaid et al., 2020). This occurs due to leadership patterns that focus on financial aspects, short-term profitability, and a low priority on ESG practices (Kilic & Kuzey, 2016).

Gender and background diversity of the board of directors significantly contribute to the quality of sustainability reports. The educational background of the board of directors is a crucial dimension because it influences strategic decision-making, including sustainability reporting. In the non-financial sector, areas of expertise frequently confronted with environmental and social

challenges include environmental, legal, and accounting experts, who can contribute to establishing credible sustainability report indicators. Diverse educational backgrounds can enrich perspectives in preparing sustainability reports, emphasizing not just financial results, but also environmental and social factors that have long-term impacts (Hu & Loh, 2023). Companies with boards of directors with diverse educational backgrounds tend to produce more complex and comprehensive sustainability reports (Nugraha, 2024).

Enterprise risk management serves as a moderator in this study, setting it apart from others. An organization's sustainability report can benefit from effective risk management. Good risk management enables companies to proactively anticipate ESG (Environmental, Social, and Governance) issues and integrate them into sustainability reporting. This not only increases corporate transparency and accountability to stakeholders but also strengthens legitimacy and public trust. Sprčić et al. (2017) assert that a more moderate approach to enterprise risk management can enhance decision-making, leading to more sustainability report maximisation.

Enterprise risk management also contributes to coordinating the impact of diverse boards, particularly in terms of inclusive decision-making, strategic oversight, and mitigating complex ESG risks (Abdullah et al., 2022). According to COSO (2004), a crucial strategic policy for boards of directors is enterprise risk management. This is because we take a comprehensive approach to identifying threats to the organisation and then choose consistent actions to those threats. As a result, the success of a company's goals depends on its board of directors' ability to moderate risk effectively. The method directly affects the company's dedication to producing high-quality, transparent sustainability reports. To find out how enterprise risk management influences sustainability reports through the chosen board structure (here, gender diversity and educational background), this study presents a theoretical framework.

Because of the critical nature of honest and open sustainability reporting, the topic has recently risen to the forefront of corporate governance discussions. It is believed that the quality of sustainability reports is greatly affected by the gender and educational background diversity of the board. So, to find out how business risk management influences sustainability reports through the chosen board structure (here, gender diversity and educational background), this study creates a theoretical framework.

There are still conceptual and empirical gaps about the mechanisms that increase the association between board diversity and sustainability report quality, even though several research have demonstrated this. Previous studies have shown inconsistent findings and were mostly conducted in developed countries. In Indonesia, the non-financial sector faces challenges in the suboptimal implementation of sustainability reporting and risk management. Furthermore, substantive board involvement in ESG aspects remains limited. Therefore, this study fills this gap by examining the moderating role of enterprise risk management on the influence of gender diversity and board educational background on sustainability report quality in non-financial companies in Indonesia.

This study adds fresh theoretical, empirical, and environmental dimensions. This study takes a theoretical approach to board diversity by examining the effects of gender diversity and educational background on the quality of sustainability reports at the same time. The complementary nature of board diversity and sustainability reporting has been underexplored in prior research since most studies have isolated one aspect of board diversity.

Furthermore, the impact of board diversity on sustainability reporting quality is examined in this study by introducing enterprise risk management as a moderating variable. This method builds upon earlier studies that often-treated risk management as an independent variable or control. This study adds to our knowledge of corporate governance tools that can improve the connection between board structure and sustainability practices in corporations in a new way.

While most prior research has concentrated on the financial sector and developed country contexts, this study aims to shed light on non-financial sector enterprises in Indonesia, which provide unique perspectives. Sustainability reporting and corporate risk management systems are still not widely used or standardised, especially in developing nations like Indonesia. The study's anticipated outcomes include a practical set of recommendations for regulators and business actors looking to better integrate risk management with corporate sustainability governance, as well as an empirical contribution to the growing body of literature on corporate governance and sustainability reporting in developing nations.

LITERATURE REVIEW

Stakeholder Theory

When a company's objectives succeed, it will have an impact on various groups and individuals. These people and organisations are known as stakeholders. According to stakeholder theory, businesses should do their best to meet the needs of all of their stakeholders (Branco & Rodrigues, 2018).

Customer, media, community, investor, business partner, civil society, and non-governmental organisation pressure is on the rise, particularly when it comes to social and environmental concerns (Kılıç & Kuzey, 2019). Company managers are influenced to reveal more information about operational activities, among other things, by stakeholder demand. Stakeholders are thus able to have a substantial impact on the social and environmental performance of a firm, according to the authors.

To achieve this, businesses inform their stakeholders of their socially, economically, and ecologically responsible operations through a variety of mediums, including websites, sustainability reports, and annual reports. This is due to the fact that the health, safety, and well-being of communities are affected by corporate activity.

Sustainability Report

To help businesses reveal their sustainability performance in full, sustainability reporting needs well-defined and organised standards. The Global Reporting Initiative (GRI) is a popular set of guidelines that has been adopted all

around the world. It includes both broad standards for things like corporate governance and pledges and strategies and more particular ones for things like economics, the environment, and society. The Global Reporting Initiative (GRI) is always working to improve its reporting structure so it can stay up with the latest trends in sustainability reporting around the world. This study looks at how corporations disclose their sustainability efforts using three different frameworks: GRI 200 for economic subjects (with 9 indicators), GRI 300 for environmental topics (with 34 indicators), and GRI 400 for social topics (with 48 indicators). According to GRI (2016), there are 91 items based on these disclosure indicators.

Gender Diversity

According to an increasing amount of research on corporate governance, boards should be organised in a way that puts social, ethical, and environmental concerns first (Martinez-Ferrero et al., 2021; and Uyar et al., 2020). Gender diversity has been highlighted as a means for boards of directors to meet stakeholder and public expectations for CSR and sustainability by taking a more privileged stance on these issues (Issa et al., 2022). Consequently, it is commonly believed that having women on boards promotes effective governance and encourages more openness and responsibility about matters other than money (Wasiuzzaman & Wan Mohammad, 2020). As a result of their different backgrounds, experiences, viewpoints, and networks, women board members are more likely to improve the company's internal decision-making processes and its capacity to satisfy the demands of diverse stakeholders, according to stakeholder theory (Manita et al., 2018). In terms of stakeholder orientation, democracy, and participation, women leaders outperform men (Zahid et al., 2019). Thus, female leaders are more likely to address stakeholder concerns and effectively convey the organization's values, objectives, and mission importance (Manita et al., 2018). To sum up, female directors are an important part of boards of directors, and they advocate for and back decisions that are good for stakeholders, society, and the environment (Wasiuzzaman & Wan Mohammad, 2020). Amidjaya (2023), Trireksani et al. (2024), Singhanian et al. (2024), Ghardallou & Abaalkhail (2024), and Zampone et al. (2022) all found that gender diversity positively affects sustainability reporting.

H1: Gender diversity has a positive effect on sustainability reports in non-financial companies on the Indonesia Stock Exchange in 2020-2023.

Diversity of Educational Backgrounds

Educational background is one board quality that might improve the logic of a company's strategic decisions (Hambrick, 2007). Corporate sustainability reporting is positively impacted by board education in industrialised nations, according to previous studies (Lau et al., 2016; Le et al., 2022). The viewpoint of the board becomes more progressive and inventive when directors from developed nations pursue education (Lau et al., 2016; Katmon et al., 2019). Upon they return to their home country, the board of directors puts into practice the

sustainability principles that have been established in industrialised nations in order to advance their country. So, according to Khan et al. (2019) and Pucheta-Martínez et al. (2019), having board directors from developed nations can enhance corporate governance and promote sustainability reporting. The rationale of board decisions and the accuracy of corporate reports can both benefit from a well-managed variety of views (Alazzani et al., 2019). According to Harjoto et al. (2019), boards of directors that are varied in background are better able to address the interests of all stakeholders because they bring different viewpoints to the table. There is a positive correlation between the educational diversity of the board of directors and sustainability reports, according to various previous studies (Lau et al., 2016; Katmon et al., 2019; Le et al., 2022; Khan et al., 2019; and Pucheta-Martínez et al., 2019).

H2: Diversity of educational backgrounds has a positive effect on sustainability reports in non-financial companies on the Indonesia Stock Exchange in 2020-2023.

Enterprise risk management in relation to gender diversity and Sustainability Report

Research by Braam and Peeters (2018) and Fakir and Jusoh (2020) indicate that sustainability reporting is enhanced when enterprise risk management is implemented. We need clear instructions on the structure and makeup of the risk committee if we want to effectively implement enterprise risk management and accomplish company and shareholder goals. It also affects how enterprise risk management mediates the connection between gender diversity in the boardroom and the sustainability performance of corporations (Fakir & Jusoh, 2020; E-Vahdati et al., 2018). According to Bhuiyan et al. (2021) and Malik et al. (2020), firms' performance can be improved when risk committee members are diverse in terms of gender and financial knowledge. This diversity also enhances the enterprise risk management function. Therefore, enterprise risk management has the potential to increase the impact of gender on long-term company success. Business strategy and performance are mediated by enterprise risk management, according to studies conducted in Malaysia (Rehman & Anwar, 2019; Yang et al., 2018). Also, according to other studies conducted in South Africa, enterprise risk management mediates the relationship between gender diversity on boards of directors and sustainability performance (Parker & Ameen, 2018; Ambulkar et al., 2015). Enterprise risk management does not assist enhanced sustainability performance, according to a study by Hidayah et al. (2023). This study found that gender diversity on boards of directors had a stronger impact on sustainability performance, and that risk management is a key factor in this.

Business risk management enhances the impact of gender diversity on sustainability reports, according to multiple studies (Fakir & Jusoh, 2020; Fakir & Jusoh, 2020; Malik et al., 2020; Bhuiyan et al., 2021; and Hidayah et al., 2023).

H3: Gender diversity has a positive effect on strengthening the role of company management with sustainability reports in non-financial companies on the Indonesia Stock Exchange in 2020-2023.

Enterprise Risk Management in relation to board background and Sustainability Report

As a component of the board structure, the board of directors is an advocate for risk management inside the organisation and has ultimate say over how risk management is put into action (Dabari & Saidin, 2021; Annamalah et al., 2022). Factors impacting enterprise risk management (ERM) implementation in enterprises have been the subject of multiple research (Ahmed & Manab, 2020; (Dabari & Saidin, 2021); Tasmin & Muazu, 2022; and Annamalah et al., 2022). There are a lot of factors that affect ERM implementation, and these studies employ a lot of different metrics to look at how widespread ERM is. The moderating effect of ERM on the connection between board structure and sustainability reporting is, however, disregarded by all of them.

Also, enterprise risk management (ERM) is a hot topic in the modern era of corporate management. Supporters of integrating all business risks into a single ERM claim that this will make long-term sustainability reporting and board diversity in education more influential (Nair et al., 2022; Soliman et al., 2022; Yang et al., 2023). Research by Nair et al. (2022), Soliman et al. (2022), and Yang et al. (2023) and others suggests that a diverse board of directors has a stronger impact on sustainability reporting when enterprise risk management is implemented.

H4: Background diversity has a positive effect on strengthening the role of company management with sustainability reports in non-financial companies on the Indonesia Stock Exchange in 2020-2023.

In accordance with the framework of thought that has been explained, this research model is shown in Figure 1

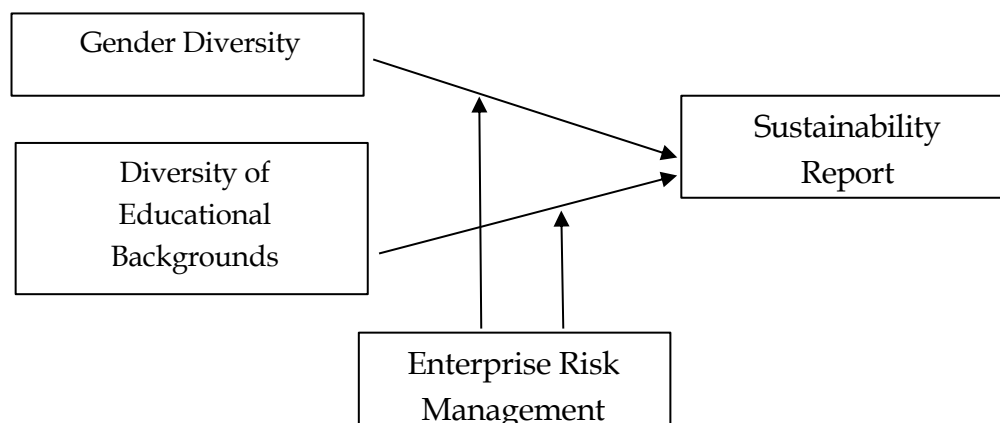


Figure 1. Conceptual Framework

METHODOLOGY

The purpose of this study is to analyse the impact of gender and educational background diversity on sustainability reporting in non-financial sector companies listed on the Indonesia Stock Exchange from 2020 to 2023. The research employs a quantitative approach and uses secondary data to examine this effect, with enterprise risk management acting as a moderating variable. Using a basic random sampling procedure, 89 companies' annual reports and sustainability reports were analysed for data. For the purpose of hypothesis testing and evaluating enterprise risk management's moderating effect, data analysis was carried out using Moderated Regression Analysis (MRA). The t-test and the coefficient of determination (R^2) are two statistical tests that are utilised to assess the importance and intensity of the correlation between variables. Insights for enhancing transparency and governance practices in Indonesian non-financial sector companies are offered by this study's findings, which clarify the direct and indirect effects of gender diversity and educational background on sustainability reporting quality via enterprise risk management.

RESEARCH RESULT

Moderating Regression Analysis (MRA) is used to test the moderating variable, namely enterprise risk management, in the relationship between gender diversity and educational background diversity with sustainability reports.

Table 1 Results of T-Test (Partial)

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	.207	.015	13.849	<.001
	KG	.135	.031	4.383	<.001
	KLBP	.102	.035	2.950	.004
a. Dependent Variable: SR					

Source: Output SPSS (2025)

Based on table 1, there is a multiple linear regression analysis equation as follows.

$$SR_{it} = a + 0,135KG_{it} + 0,102KLBP_{it} + \epsilon$$

Based on the first hypothesis test, namely whether gender diversity influences sustainability reporting, as seen in Table 1, the regression coefficient value is 0.135 with a significance level of 0.001. It can be concluded that the hypothesis is accepted, meaning there is a positive and significant influence between gender and sustainability reporting.

Based on the results of the second hypothesis test, namely whether the diversity of educational backgrounds affects sustainability reports, as seen in Table 1, the regression coefficient value is 0.102 with a significance of 0.004. It can be concluded that the hypothesis is accepted, meaning there is a positive and

significant influence between the diversity of educational backgrounds and sustainability reports.

The MRA, or interaction test, is a specialized application for linear regression that can be used to test regression with moderating variables. This test is useful when the regression equation includes an interaction element, which is the multiplication of two or more independent variables. Table 2 displays the outcomes of the MRA test, which stands for Moderating Regression Analysis.

Tabel 2. Results of the Moderating Regression Analysis (MRA) Test

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	.215	.013	17.057	<.001
	KG	-.256	.074	-3.442	<.001
	KLBP	-.275	.088	-3.109	.002
	KG.MRP	.522	.094	5.549	<.001
	KLBP.MRP	.444	.112	3.974	<.001
a. Dependent Variable: Y					

Source: Output SPSS (2025)

Based on table 2, the linear regression model with the moderating variables obtained is as follows:

$$SR_{it} = a - 0,256KG_{it} - 0,275KLBP_{it} + 0,522KG_{it} \times MRP_{it} - 0,444KLBP_{it} \times MRP_{it} + \epsilon$$

According to table 2, the impact of enterprise risk management (ERM) on the correlation between gender diversity and educational background diversity on sustainability disclosure has been significantly emphasised by the moderated regression analysis. Enterprise risk management (ERM) has a substantial effect on the relationship dynamics, as shown by the beta coefficients that emerge from the interaction of the variables. In particular, EGM*ERM has a coefficient of 0.522 and a p-value of 0.001, indicating that there is a significant interaction between gender diversity and ERM. In this setting, a positive beta value suggests that business risk management may reverse the negative impact of gender diversity on sustainability reporting and make it a positive one. What this implies is that ERM can help make sustainability reporting and gender diversity go hand in hand.

At the same time, a beta coefficient of 0.444 and a significance value of 0.001 were observed in the relationship between educational diversity and organisational risk management. Under these circumstances, a positive beta value suggests that enterprise risk management can reverse the detrimental impact of educational diversity on sustainability reporting and have the opposite

effect of background diversity. Thus, enterprise risk management has the potential to fortify the bond between diverse backgrounds and sustainability reports. Enterprise risk management can mitigate the impact of educational diversity on sustainability reporting, according to this study's findings. This suggests that, with the use of risk management tools, the educational variety of the board or management has a direct impact on sustainability reporting decisions. These reports use a variety of metrics to examine the extent of ERM adoption and uncover numerous variables that impact ERM implementation. The moderating effect of ERM on the connection between board structure and firm value is, however, disregarded by all of them.

Furthermore, ERM is considered one of the most significant issues facing corporate management in contemporary times. Proponents argue that combining all corporate risks under a single ERM framework can enhance the educational diversity of board directors and enhance long-term firm value (Nair et al., 2022; Soliman et al., 2022; Yang et al., 2023).

This regression analysis results suggest that enterprise risk management is the sole mediator of the association between gender diversity and background variables in sustainability reports.

DISCUSSION

Among non-financial sector companies listed on the Indonesia Stock Exchange for the period 2020–2023, the study found that sustainability reports were positively and significantly impacted by gender diversity on the board of directors. According to this research, having women on a company's board of directors makes them more likely to be open and honest about the company's social and environmental practices as well as its corporate governance practices. According to stakeholder theory, women can help a firm become more socially and environmentally responsible because they bring fresh ideas, are more likely to be involved in decision-making, and are more sensitive to the needs of others (Manita et al., 2018; Wasiuzzaman & Wan Mohammad, 2020). Zampone et al. (2022), Ghardallou & Abaalkhail (2024), Trireksani et al. (2024), Singhanian et al. (2024), and Amidjaya (2023) are among the research that have shown that gender diversity enhances the quality of sustainability reports.

Additionally, sustainability reporting was discovered to be positively and significantly affected by the educational backgrounds of the board members. A company's capacity to develop policies that are innovative, flexible, and sustainability-oriented is enhanced when the educational backgrounds of its board members are diversified. The rationality of strategic decision-making is enhanced by the range of knowledge and mindsets that educational diversity generates (Hambrick, 2007). The conclusions drawn from these findings are in line with those of Lau et al. (2016), Katmon et al. (2019), and Le et al. (2022), all of which found that directors' perspectives are expanded and corporate governance is improved through education in industrialised nations. Consequently, a company's competitiveness and reputation among stakeholders and investors can be greatly enhanced by having employees from varied educational backgrounds.

The impact of gender diversity on sustainability reporting is amplified by enterprise risk management, according to this study. The favourable correlation between gender diversity and sustainability reporting is further reinforced when firms use effective risk management to detect, evaluate, and control possible ESG (environmental, social, and governance) issues. Supporting the idea that risk management enhances sustainability performance and fortifies the strategic role of gender-diverse boards in corporate supervision, this finding is in line with studies conducted by Fakir and Jusoh (2020), Malik et al. (2020), and Bhuiyan et al. (2021).

The correlation between educational diversity and sustainability reporting is further strengthened by business risk management. The strategic and ethical components of sustainability reporting, especially within the framework of corporate social responsibility, are better grasped by directors with degrees in business, economics, or accounting. Board education affects social responsibility disclosure, according to studies by Rahindayati et al. (2015) and Nugraheni & Deasy (2016). These findings lend credence to those studies. Therefore, risk management is essential for ensuring that corporate sustainability reports are honest and open, and for increasing the impact of diversity on boards.

CONCLUSIONS AND RECOMMENDATIONS

The research findings and discussion suggest that, for the period 2020–2023, sustainability reporting in non-financial sector companies listed on the Indonesia Stock Exchange is positively impacted by gender and educational background diversity. The correlation between gender diversity, educational background diversity, and sustainability reporting is further strengthened by enterprise risk management. Based on these results, it seems that a more gender-and education-balanced board of directors can make sustainability reports more transparent and enhance corporate governance. In order to promote sustainability practices and enhance future company value, it is crucial to have a diverse board of directors.

It is important to keep in mind that this study does have some limitations. The first thing to keep in mind is that the analysis doesn't take the COVID-19 pandemic into account directly, although it does include the years 2020–2023. The second limitation is that the companies included in this study are not involved in the financial sector; as a result, the findings may not apply to other industries as well. Additional study can expand the background and deepen the analysis by addressing these constraints.

Considering these caveats, the researchers suggest that in order to fully comprehend the factors impacting sustainability reporting, future studies should lengthen the duration of observation and incorporate additional independent or moderating variables like age, cultural diversity, or job experience. This study's findings highlight the value of educational diversity on corporate boards of directors in enhancing governance procedures and sustainability reporting, as well as the significance of women's increased participation in strategic decision-making. Companies may improve their public perception, win over more investors, and make a bigger impact on sustainable development if they follow these procedures.

ACKNOWLEDGMENT

In particular, the author would like to thank his supervisors and the Master of Accounting Department at Syiah Kuala University's Faculty of Economics and Business for all of the academic help and advice they gave him while he was doing this research. The information and business reports utilised in this research were provided to him by the Indonesia Stock Exchange (IDX), which he would also like to express his gratitude to. The paper's quality and analytical rigour were enhanced by the feedback and recommendations from his superiors and coworkers, and he is grateful for their assistance. In closing, he expresses his gratitude to his loved ones, whose unwavering encouragement and support have been important in his ability to finish this research.

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