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Analysis of Green Accounting, Company Performance, Carbon Emission Disclosure and Gender Diversity of the Board of Directors as Moderating Variables on the Firm Value of Consumer Goods Companies Listed on the Indonesia Stock Exchange in 2020-2023)

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Abstract
This study aims to analyze the influence of green accounting, company performance, and carbon emission disclosure on firm value, with gender diversity on the board of directors as a moderating variable in consumer goods companies listed on the Indonesia Stock Exchange from 2020 to 2023. Employing a quantitative causal-comparative research design, secondary data were collected from annual reports, sustainability reports, and environmental performance rating documents (PROPER). Statistical analyses including descriptive statistics, classical assumption tests, multiple linear regression, and moderated regression analysis were conducted using SPSS 25. The results reveal that green accounting, company performance, and carbon emission disclosure have significant positive effects on firm value. Moreover, gender diversity on the board significantly moderates these relationships, though with varying effects: it weakens the positive impact of green accounting on firm value but strengthens the effects of company performance and carbon emission disclosure. These findings suggest that while environmental accounting practices and corporate performance are critical in enhancing firm value, the role of gender diversity introduces complex dynamics in corporate governance influencing sustainability outcomes.

Keywords: Green Accounting, Company Performance, Carbon Emission Disclosure, Gender Diversity, Firm Value.

Introduction

The rapid development of the industrial sector in Indonesia, particularly in the consumer goods industry listed on the Indonesia Stock Exchange (IDX), has made a significant contribution to national economic growth. However, this growth also presents serious challenges related to environmental impacts, especially concerning carbon emissions generated from production activities and the use of fossil energy.

According to the Brown to Green report by Climate Transparency, Indonesia's greenhouse gas (GHG) emissions nearly tripled between 1990 and 2015, with the energy, transportation, and industrial sectors being the main contributors. Emissions from the use of fossil fuels such as coal and petroleum account for the majority of the national total CO_2 emissions. Projections indicate that without significant interventions, these emissions will continue to rise until 2030, which is not aligned with the targets of the Paris Agreement.

In this context, companies in the consumer goods sector face pressure to adopt more sustainable business practices. One approach that can be taken is through the implementation of green accounting, which includes the disclosure of carbon emissions (carbon emission disclosure or CED). CED enables companies to transparently report the environmental impact of their operational activities, which can enhance accountability and stakeholder trust.

Furthermore, gender diversity on the board of directors is also an important factor in promoting sustainable business practices. Research shows that gender diversity can bring broader perspectives into decision-making, which in turn can improve corporate performance and firm value.

Green accounting is a new paradigm in accounting that not only focuses on financial aspects but also integrates social and environmental factors in corporate reporting. This practice allows companies to

identify, measure, and report the environmental impacts of their business activities, thereby increasing transparency and accountability to stakeholders.

One key indicator in green accounting is carbon emission disclosure (CED), which reflects a company's commitment to managing environmental impact, particularly in reducing greenhouse gas emissions. However, in Indonesia, CED disclosure remains voluntary and the reporting rate is relatively low, especially in the energy sector, which is the largest emitter.

Research by Gunawan and Berliyanda (2024) shows that carbon emission disclosure has not yet had a significant effect on firm value in Indonesia. This is due to the low level of voluntary disclosure and the absence of regulations requiring companies to disclose carbon emissions transparently. Moreover, many companies have not fully met disclosure standards such as those established by the Carbon Disclosure Project (CDP).

Besides environmental aspects, corporate profitability remains the primary focus in maintaining business continuity amid intense competition and economic uncertainty. Profitability, measured by Return on Assets (ROA), reflects a company's ability to manage assets to generate profits. The phenomenon of declining and unstable ROA among companies listed on the Jakarta Islamic Index (JII) during the 2020–2022 period indicates the need to optimize factors influencing profitability.

Research by Sa'adah and Martini (2024) found that green accounting and firm size do not significantly affect profitability, while total asset turnover (TATO) has a significant positive effect. This finding suggests that asset utilization efficiency is the main factor in improving short-term profitability, whereas green accounting may contribute more in the long term through enhanced reputation and investor trust.

Another study by Munzir et al. (2022) shows that profitability positively affects firm value, mediated by corporate social responsibility (CSR). This indicates that companies able to manage profitability well and actively implement social responsibility can enhance their value in the eyes of investors and other stakeholders.

However, some studies also show that profitability does not always significantly influence firm value. For example, research by Pratama and Wiksuana (2016) found that profitability does not significantly affect firm value in consumer goods industry companies listed on the IDX. This suggests that other factors, such as leverage and firm size, also play important roles in determining firm value.

Corporate characteristics such as size, leverage, and firm age also play important roles in moderating the relationship between green accounting practices, carbon emission disclosure, and firm value. Larger companies tend to have more adequate resources to optimally implement sustainability practices. Meanwhile, a healthy capital structure (controlled leverage) and more mature firm age can enhance a company's credibility and legitimacy in the eyes of investors and the public.

The characteristics of the board of directors as a moderating variable are also very important, where composition, independence, diversity, and environmental expertise within the board can influence the effectiveness of decision-making related to sustainability practices and environmental reporting. Studies show that competent and diverse boards can encourage better transparency and accountability, thus positively impacting firm value.

Research by Hilmi et al. (2020) shows that leverage negatively affects carbon emission disclosure, while firm size has a positive effect. This means companies with high leverage tend to reduce carbon emission disclosure because of a focus on fulfilling creditor obligations, whereas larger companies are more likely to disclose carbon emissions due to having sufficient resources to do so.

Furthermore, the characteristics of the board of directors as a moderating variable are crucial. The composition, independence, diversity, and environmental expertise of the board can affect the effectiveness of decisions regarding sustainability practices and environmental reporting. A study by Chams and García-Blandón (2019) found a positive relationship between board diversity and sustainability reporting. Additionally, Goergen et al. (2015) argued that a high level of age diversity on the board can improve board effectiveness and corporate performance.

This study is expected to provide a comprehensive overview of how the integration of green accounting practices and carbon emission disclosure, considering corporate and board characteristics, influences firm value—especially in the consumer goods sector listed on the Indonesia Stock Exchange (IDX). The results are expected to serve as a reference for corporate management in formulating effective sustainability strategies, as well as for regulators in drafting policies that encourage environmental transparency and accountability in the Indonesian capital market.

Although several studies have examined the influence of green accounting and carbon emission disclosure on firm value, the results remain varied and inconclusive. Some studies show that green accounting positively affects firm value, while carbon emission disclosure has no significant impact. Moreover, the role of gender diversity on the board of directors as a moderating variable in the relationship between sustainability practices and firm value remains under-researched, especially in the Indonesian context. Therefore, this study aims to fill that gap by analyzing the moderating role of gender diversity on the board in the relationship between green accounting, carbon emission disclosure, and firm value.

The main motivation of this research is to respond to global and national challenges related to environmental sustainability and corporate social responsibility. The rising carbon emissions impacting climate change have driven the need for active business involvement in reducing their ecological footprint. In the Indonesian context, green accounting practices and carbon emission disclosure remain uneven, particularly in the consumer goods sector, which has direct links to consumers and natural resources. Additionally, female participation in strategic decision-making through gender diversity on the board is also an emerging issue in both business and academic circles. Through this study, the researcher is motivated to explore the extent to which these factors contribute to enhancing firm value.

Based on the background explained above, the author is interested in conducting research titled "Analysis of Green Accounting, Corporate Performance, Carbon Emission Disclosure, and Gender Diversity of the Board of Directors as Moderating Variables on the Firm Value of Consumer Goods Companies Listed on the Indonesia Stock Exchange for the 2020-2023 Period".

Literatur Review

Green Accounting

Green accounting is an accounting approach that not only focuses on financial aspects but also integrates social and environmental dimensions into corporate reporting. According to Dewi and Wardani (2022), green accounting encompasses three main pillars: environmental accounting, social accounting, and financial accounting. This approach enables companies to identify, measure, and report the environmental impacts of their business activities, thereby enhancing transparency and accountability to stakeholders.

In the context of Indonesia's consumer goods sector, the implementation of green accounting is increasingly relevant given the rising consumer awareness of environmental and sustainability issues. Companies that actively adopt green accounting can gain greater trust from consumers and investors, which in turn may enhance firm value. This aligns with legitimacy theory, which posits that companies must obtain legitimacy from society to ensure the continuity of their operations.

Corporate Performance

Corporate performance reflects a company's ability to manage resources to achieve its business objectives. Common indicators used to measure corporate performance include Return on Assets (ROA), Return on Equity (ROE), and Net Profit Margin (NPM). Good performance indicates operational efficiency and effectiveness, which can subsequently increase firm value.

Research by Hutagalung et al. (2023) demonstrates that profitability positively and significantly affects the firm value of manufacturing companies listed on the Indonesia Stock Exchange. This suggests that companies with strong financial performance tend to have higher firm value.

Carbon Emission Disclosure

Carbon emission disclosure (CED) refers to the disclosure of information regarding carbon emissions generated by a company's operational activities. CED is part of sustainability reporting aimed at enhancing corporate transparency and accountability concerning environmental impacts. By disclosing carbon emissions, companies can demonstrate their commitment to responsible environmental management, potentially improving reputation and stakeholder trust.

Research by Wijaya (2023) found that CED influences firm value, although the industry type does not moderate this effect. This indicates that carbon emission disclosure can affect investors' perceptions of firm value regardless of the company's industry sector.

Gender Diversity of the Board of Directors

Gender diversity on the board of directors refers to the proportion of board members from different genders. Such diversity is believed to bring broader perspectives into decision-making, foster innovation, and reflect the company's commitment to inclusivity. Resource dependence theory suggests that a diverse board can provide richer resources to the firm, ultimately improving performance and firm value.

Research by Natalia et al. (2023) shows that gender diversity on the board has a significant positive effect on Return on Assets (ROA). This implies that gender diversity can enhance the company's financial performance.

Firm Value

Firm value represents the condition of a company as observed by investors through its stock price. A high stock price indicates that the firm has a good value, thus boosting investor confidence to invest (Harmono, 2018).

Common indicators to measure firm value include Price to Book Value (PBV), Price to Earnings Ratio (PER), and Tobin's Q. A high firm value signifies the market's positive expectations regarding the company's future performance and growth. One method to measure firm value is Tobin's Q ratio, calculated by comparing the total market value of a company's equity plus total liabilities with its total assets. In this study, firm value is measured using Tobin's Q because this ratio is considered the most representative indicator (Prasetyorini, 2013).

Stakeholder Theory

Stakeholder theory, proposed by R. Edward Freeman in 1984, emphasizes the importance of companies considering the interests of all parties involved in or affected by corporate activities, not just shareholders. Stakeholders include various groups such as employees, customers, suppliers, local communities, and government. In this context, carbon emission disclosure and the implementation of an ISO 14001-based Environmental Management System represent corporate responses to stakeholders' demands and expectations regarding environmental issues. By disclosing carbon emissions, companies provide relevant information to stakeholders concerned about climate change and environmental impacts. Implementing ISO 14001 demonstrates a company's commitment to minimizing environmental impact through an efficient and internationally standardized management system. Therefore, corporate sustainability heavily depends on the support provided by stakeholders.

The CEO's role in stakeholder theory is also critical, especially when the CEO holds substantial power. An influential CEO can steer the company to be more responsive to stakeholder needs and expectations. Research by Almulhim (2023) indicates that CEO characteristics, such as share ownership and tenure, can moderate the relationship between corporate sustainability and financial performance. CEOs with significant power tend to encourage greater openness in carbon emission disclosure and stronger commitment to ISO 14001 implementation, thereby meeting stakeholder expectations and improving the company's environmental performance.

Legitimacy Theory

Legitimacy theory stresses that companies must align their values and activities with societal norms to gain and maintain public support. Dowling and Pfeffer (1975) stated that legitimacy is achieved when corporate values correspond with societal values. Conversely, discrepancies between the two may pose a threat to corporate legitimacy, known as the "legitimacy gap."

Suchman (1995) defines legitimacy as the general perception that an entity's actions are appropriate within a socially constructed system of norms and values. He classifies legitimacy into three types: pragmatic, moral, and cognitive.

Gray et al. (1996) add that legitimacy constitutes a corporate management system oriented toward responsiveness to society, government, individuals, and social groups.

Signaling Theory

Signaling theory, introduced by Michael Spence in 1973, posits that parties with more information (corporate management) can send signals to less-informed parties (investors) through the disclosure of certain information. In the corporate context, information disclosure in annual reports, including social and environmental responsibility, functions as a signal to investors about the company's quality and

performance. Transparent and comprehensive disclosure can reduce information asymmetry between management and investors, thereby increasing investor confidence and ultimately firm value.

Environmental responsibility disclosure, as reflected in sustainability reports or the PROPER rating issued by the Ministry of Environment and Forestry (KLHK), can serve as an indicator of a company's commitment to sustainable business practices. A high PROPER rating shows that the company has implemented sustainable development and exhibits environmental concern, which can be a positive signal to investors.

Moreover, disclosure of social and environmental responsibility in annual reports can influence investors' perceptions of firm value. Studies show that companies actively disclosing social and environmental responsibility information tend to have higher firm value, as investors perceive these companies as responsible and sustainable entities.

Research Methodology

This study employs a quantitative approach with a causal-comparative research design. The approach aims to examine the effect of independent variables—namely green accounting, corporate performance, and carbon emission disclosure—on the dependent variable, firm value. Additionally, this study analyzes the moderating role of gender diversity on the board of directors, which may strengthen or weaken the relationship between the independent and dependent variables.

According to Sugiyono (2019), the quantitative approach is suitable for testing hypotheses and systematically analyzing relationships between variables in an objective manner. The causal-comparative design is used to identify cause-and-effect relationships among the variables studied, even without direct manipulation of these variables.

The data used in this research are secondary data obtained from annual reports, sustainability reports, and documents from the Company Performance Rating Program for Environmental Management (PROPER) of consumer goods sector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period. The use of secondary data from official sources such as annual reports, sustainability reports, and PROPER documents ensures high reliability and validity, as well as enabling the researcher to access relevant historical information related to the research topic.

Through this approach, the study is expected to contribute to understanding how green accounting practices, corporate performance, and carbon emission disclosure influence firm value, and how gender diversity on the board of directors may moderate these relationships.

Green Accounting, Company Performance, Carbon Emission Disclosure and Gender Diversity of the Board of Directors

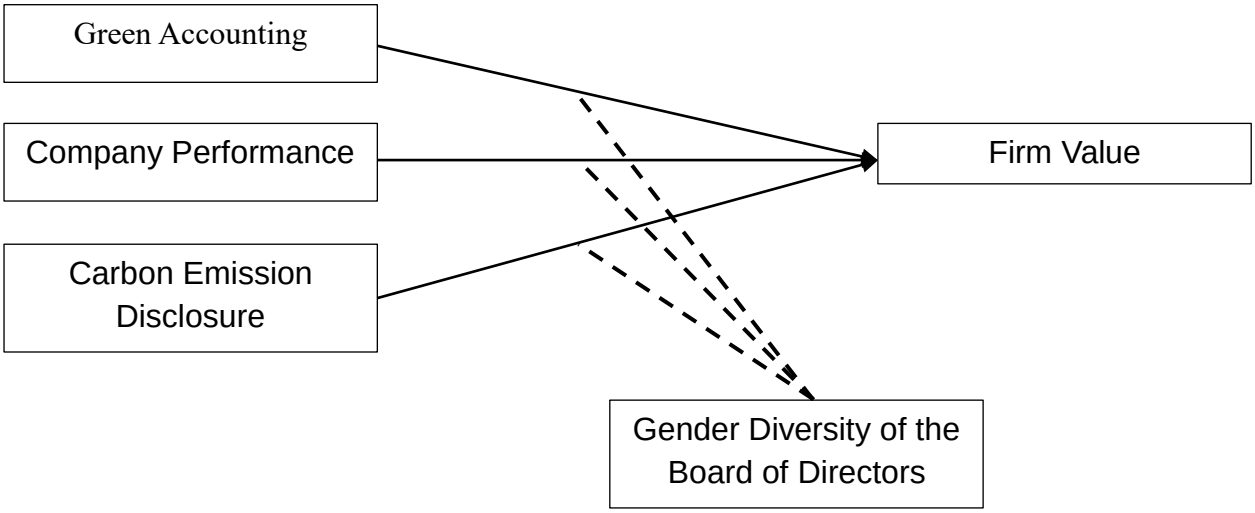


Figure 1. Conceptual Framework

Results And Discussion

Description of the Research Object

The population in this study consists of Consumer Goods Industry companies listed on the Indonesia Stock Exchange (IDX) during the period 2020-2023. The total number of Consumer Goods Industry companies listed on IDX from 2020 to 2023 was 252 samples.

Descriptive Statistical Test

Descriptive statistical analysis provides an overview or description of data based on minimum, maximum, mean, and standard deviation values for each research variable. The results of descriptive analysis tested using SPSS Version 25 for the variables in this study are as follows:

Table 1. Results of Descriptive Statistical Test

Descriptive Statistics					
	N	**Min**	**Max**	**Mean**	**Std. Dev**
Green Accounting (X1)	252	0.0035	1.0037	0.4606	0.1917
Company Performance (X2)	252	-0.1539	0.2522	0.0394	0.0517
Carbon Emission Disclosure (X3)	252	0.2111	0.8722	0.7652	0.1098
Gender Diversity of the Board of Directors (Z)	252	0.3219	0.9971	0.7707	0.1541
Firm Value (Y)	252	-0.2052	0.2376	-0.0349	0.0613
Valid N (listwise)	252				

Source: Secondary data processed using SPSS 25 (2025)

Interpretation of Table 1:

The descriptive statistical analysis for the Firm Value variable shows a minimum value of -0.2052 and a maximum value of 0.2376. Meanwhile, the mean Firm Value is -0.0349 with a standard deviation of 0.0613.

For the Green Accounting variable, the descriptive statistics indicate a minimum value of 0.0035 and a maximum value of 1.0037. The mean Green Accounting value is 0.4606 with a standard deviation of 0.1917.

The Company Performance variable (X2) in this study is calculated using Return on Assets (ROA), defined as net income after tax divided by total assets. The descriptive statistics for Company Performance show a minimum value of -0.1539 and a maximum value of 0.2522. The mean Company Performance is 0.0394 with a standard deviation of 0.0517.

For the Carbon Emission Disclosure variable, the minimum value is 0.2111, the maximum is 0.8722, and the mean is 0.7652 with a standard deviation of 0.1098.

The Gender Diversity of the Board of Directors (X3) variable is calculated by dividing the managerial shareholding by total shares outstanding and multiplying by 100%. The descriptive statistics show a minimum value of 0.3219, a maximum of 0.9971, and a mean of 0.7707 with a standard deviation of 0.1541.

Classical Assumption Test Results

Before conducting hypothesis testing, the researcher performed tests for classical assumption violations, including normality test, multicollinearity test, and heteroscedasticity test.

Normality Test Results

The normality test aims to determine whether the data used are normally distributed or not. The t-test and F-test assume that residuals follow a normal distribution. If this assumption is violated, the statistical tests become invalid for small sample sizes (Ghozali, 2016).

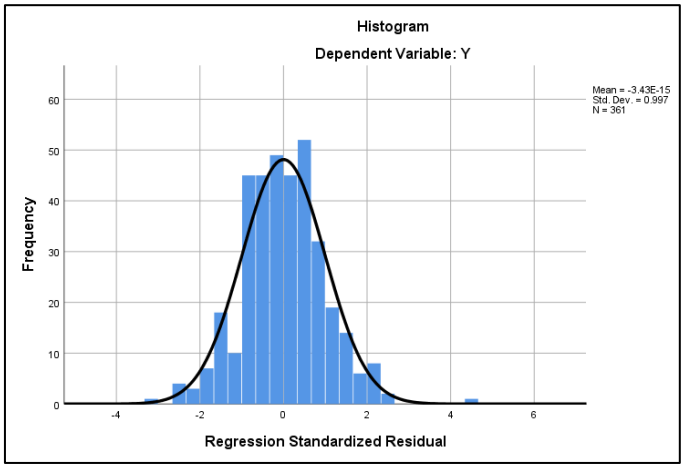
Table 2. Results of Normality Test One Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		252
Normal Parameters[a,b]	Mean	0,0000000
	Std. Deviation	0,00615423

Most Extreme Differences	Absolute	0,022
	Positive	0,022
	Negative	-0,021
Test Statistic		0,023
Asymp. Sig. (2-tailed)		.198[,d]

Source: Secondary data processed using SPSS 25 (2025)

Based on the results obtained from SPSS in Table 2, it can be seen that the Asymp. Sig. (2-tailed) value is 0.198, which indicates a significance level above 0.05 (0.198 > 0.05). This means that the data used in this study are normally distributed.



Source: Secondary data processed using SPSS 25 (2025)
Figure 2. Histogram Graph of Normality Test Results

The histogram graph shows a data distribution following a bell-shaped curve without skewness. From this normality test result, it can be concluded that the data are normally distributed.

Multicollinearity Test Results

The multicollinearity test aims to examine whether there is a correlation between independent variables in the regression model. A good regression model should have no correlation among independent variables (Ghozali, 2016). Multicollinearity test results are determined by the Variance Inflation Factor (VIF) and tolerance values for each independent variable. If the VIF values are less than 10 and tolerance values are greater than 0.1, the regression model is considered free from multicollinearity (Ghozali, 2016).

Table 3. Multicollinearity Test Results

	Collinearity Statistics	
	Tolerance	VIF
Green Accounting (X1)	1,201	,876
Company Performance (X2)	1,002	,892
Carbon Emission Disclosure (X3)	1,119	,798

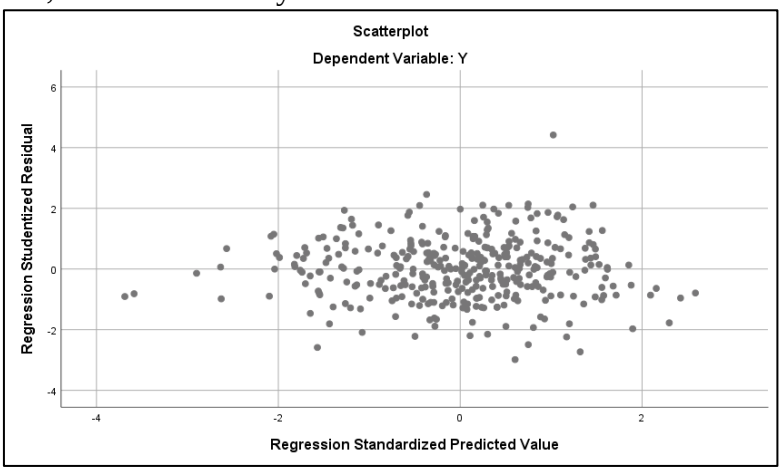
Source: Secondary data processed using SPSS 25 (2025)

Based on the results in Table 3, it can be observed that all tolerance values are greater than 1 and all VIF values are less than 1. Therefore, it can be concluded that there is no correlation among the independent variables, indicating that multicollinearity does not occur in this study.

Heteroscedasticity Test Results

The heteroscedasticity test aims to examine whether there is a difference in the variance of residuals from one observation to another in the regression model. A good regression model exhibits homoscedasticity, meaning no heteroscedasticity occurs (Ghozali, 2016).

To determine the presence or absence of heteroscedasticity in this study, the p-plot graph between the predicted values (ZPRED) and residuals (SPRESID) is examined. If a regular pattern or clustering of points is found at certain locations, heteroscedasticity is indicated.



Source: Secondary data processed using SPSS 25 (2025)
Figure 3. Heteroscedasticity Test Results

Based on the results shown in Figure 3, it can be subjectively observed that the pattern does not exhibit any regularity. Instead, the pattern formed from the processed data appears unclear, and the points are scattered both above and below around zero. Therefore, it can be concluded that heteroscedasticity does not occur.

Multiple Linear Regression Analysis

The multiple linear regression equation is used to determine whether the independent variables have an effect on the dependent variable, either partially or simultaneously. The independent variables in this study are Green Accounting (X1), Company Performance (X2), and Gender Diversity of the Board of Directors (X3), while the dependent variable is Firm Value (Y).

Table 5. Multiple Linear Regression Analysis Results

Model		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
	(Constant)	-0,057	0,006	
	Green Accounting (X1)	0,032	0,008	0,942
	Company Performance (X2)	0,091	0,037	0,460
	Gender Diversity of the Board of Directors (X3)	0,048	0,006	0,778
	Gender Diversity of the Board of Directors (Z)	0,011	0,005	0,296
	X1Z	-0,009	0,011	-0,276
	X2Z	0,007	0,046	0,039
	X2Z	0,157	0,051	0,021

Source: Secondary data processed using SPSS 25 (2025)

Based on the output generated by SPSS in Table 5, it is known that the constant value in the Unstandardized Coefficients B column is -0.057, the coefficient for Green Accounting (X1) is 0.035, the coefficient for Company Performance (X2) is 0.062, the coefficient for Carbon Emission Disclosure (X3), and the coefficient for Gender Diversity of the Board of Directors (X3) is -0.005. Thus, the multiple linear regression equation can be formulated as follows:

$$Y = -0,057 + 0,032X1 + 0,091X2 + -0,048X3 – 0.009X1Z + 0.007X2Z + 0.157X3Z + e$$

Hypothesis Testing

T-Test Results

This analysis is used to determine the extent to which each independent variable individually explains the variation in the dependent variable, or in other words, to examine the partial effect of each independent variable using the t-test. If the significance value obtained during the test is less than 0.05, or the calculated t-value (t-count) is greater than the critical t-value (t-table), then the alternative hypothesis (Ha) is accepted, which means the independent variable has a significant effect on the dependent variable. Conversely, if the significance value is greater than 0.05, or the calculated t-value is less than the critical t-value, Ha is rejected, indicating that the independent variable does not have a significant effect on the dependent variable.

Table 6. T-Test Results

Model		t	Sig.
	(Constant)	-53.959	0.000
	Green Accounting (X1)	18.939	0.000
	Company Performance (X2)	13.044	0.000
	Carbon Emission Disclosure (X3)	11.106	0.002
a. Dependent Variable: Firm Value (Y)			

Source: Secondary data processed using SPSS 25 (2025)

Based on the T-test results presented in Table 6, it can be concluded that all research hypotheses are accepted because the three independent variables show a significant effect on firm value. First, the Green Accounting variable (X1) has a t-count of 18.939 with a significance level of 0.000 (< 0.05), indicating that green accounting has a positive and significant effect on firm value. This suggests that the better the implementation of environmental accounting principles in a company, the more it enhances the positive perception of investors and stakeholders, thereby impacting an increase in firm value.

The Company Performance variable (X2) also shows a significant effect on firm value, with a t-count of 13.044 and a significance level of 0.000. This finding reinforces that company performance is a crucial factor in determining firm value, where good performance reflects operational efficiency, profitability, and business sustainability, ultimately increasing the company's market valuation.

The Carbon Emission Disclosure variable (X3) shows a t-count of 11.106 with a significance level of 0.002, which is also below the 0.05 threshold. This result indicates that carbon emission disclosure has a significant effect on firm value. The more transparent a company is in disclosing carbon emission information, the higher the public and investor confidence in the company's commitment to environmental responsibility, which positively impacts firm value.

Interaction Significance Test (Moderated Regression Analysis - MRA)

This moderation test is conducted using an interaction test approach (MRA), where the moderating variable is multiplied by the independent variables to form interaction variables. The regression results obtained are as follows:

Table 7. MRA Test Results

Model		t	Sig.
	(Constant)	-15.988	0.000
	Green Accounting (X1)	6.583	0.000
	Company Performance (X2)	4.238	0.012

	Gender Diversity of the Board of Directors (Z)	2.269	0.003
	X1Z	-2.461	0.023
	X2Z	2.689	0.014
	X3Z	2.333	0.041
a. Dependent Variable: Firm Value (Y)			

Source: Secondary data processed using SPSS 25 (2025)

Based on the results of the Moderated Regression Analysis (MRA) presented in Table 7, it can be concluded that the moderating variable, gender diversity on the board of directors, has a significant influence in moderating the relationship between the independent variables and firm value.

First, regarding the relationship between Green Accounting (X1) and firm value (Y), the interaction term X1Z shows a t-value of -2.461 with a significance level of 0.023. Since this significance value is less than 0.05, it can be concluded that gender diversity significantly moderates this relationship. However, the negative coefficient indicates that gender diversity on the board weakens the positive influence of Green Accounting on firm value. This means that in companies with high gender diversity, the impact of green accounting implementation is not as strong as in companies with less gender-diverse boards.

For the relationship between Company Performance (X2) and firm value, the interaction term X2Z yields a t-value of 2.689 with a significance of 0.014. This result shows that gender diversity strengthens the influence of company performance on firm value. In other words, the higher the gender diversity on the board of directors, the stronger the positive effect of company performance in increasing firm value. This reflects that more diverse perspectives in strategic decision-making can optimize company performance outcomes into added value for the firm itself.

Regarding the relationship between Carbon Emission Disclosure (X3) and firm value, the interaction term X3Z shows a t-value of 2.333 with a significance level of 0.041, which is statistically significant. Therefore, gender diversity also plays a role in strengthening the effect of carbon emission disclosure on firm value. The greater the gender diversity on the board, the larger the influence of environmental transparency (in this case, carbon emission disclosure) on increasing firm value. This suggests that a more inclusive and gender-diverse board is more sensitive to sustainability and environmental issues, thereby promoting the company's reputation and image positively in the eyes of stakeholders.

Coefficient of Determination (R^2) Test Results

The coefficient of determination (R^2) is used to assess the extent to which the model explains the variance of the dependent variable. The value of R^2 ranges between zero and one. A low R^2 value indicates that the ability of the independent variables to explain the dependent variable is very limited.

Table 8. Coefficient of Determination (R^2) Test Results

Model Summary[b]			
Model	R	R Square	Adj. R Square
	0.875	0.682	0.557

Source: Secondary data processed using SPSS 25 (2025)

Based on Table 8, it can be seen that the R Square value is 0.682. This means that the variables Green Accounting, Company Performance, and Managerial Ownership explain only about 68.2% of the Firm Value variable.

Discussion

The Effect of Green Accounting on Firm Value

The T-test results in Table 6 show that the Green Accounting variable (X1) has a positive and significant effect on firm value (Y), with a t-count of 18.939 and a significance level of 0.000 (< 0.05). This finding supports Hypothesis 1 and indicates that the higher the implementation of green accounting, the higher the firm value. This suggests that companies adopting accounting systems that consider environmental aspects tend to be viewed more positively by the market and stakeholders (Sutantoputra, 2020).

Green accounting, as an integration of environmental issues into the financial accounting system, can enhance the credibility of corporate financial reports and strengthen transparency over operational activities impacting the environment (Hermawan et al., 2021). The implementation of green accounting encourages companies to be more responsible in using natural resources and reducing the negative impacts of business activities on the environment, ultimately contributing to improving the company's image in the eyes of investors (Wibowo & Putri, 2022).

In the era of globalization and growing social awareness of sustainability issues, green accounting practices are no longer seen as an additional burden but as a strategic investment in building the company's long-term value (Qiu, Shaukat, & Tharyan, 2016). Companies that actively demonstrate their environmental commitment through sustainability reporting and green accounting gain stronger social legitimacy, which leads to increased investor confidence and potential growth in market value (Freeman & Reed, 1983; Deegan, 2014).

The higher the company's commitment to environmental preservation through green accounting implementation, the higher the firm value, reflected through investor confidence, increased stakeholder loyalty, and capital market appreciation (Setiawan & Darma, 2021). This study's results align with previous research stating that green accounting plays a significant role in enhancing firm value, especially in industries with high environmental risks (Ningsih & Hartono, 2020).

The Effect of Company Performance on Firm Value

The T-test results in Table 6 indicate that the Company Performance variable (X2) has a positive and significant effect on firm value, with a t-count of 13.044 and a significance level of 0.000 (< 0.05), supporting Hypothesis 2 (Ghozali, 2018). This finding shows that company performance is a critical factor influencing investor perception of a business entity's value (Brigham & Houston, 2019). Good company performance, particularly in profitability and operational efficiency, reflects the firm's ability to optimally manage resources to generate profits (Husnan & Pudjiastuti, 2015).

High profitability indicates that the company can generate earnings from its operations, providing a positive signal to investors about future business continuity (Harahap, 2020). Additionally, efficiency in managing assets and liabilities reflects strong financial management, which ultimately increases market confidence in the company’s growth prospects (Fahmi, 2014). Investors tend to value companies demonstrating stable and sustainable performance growth as it indicates the potential for higher future investment returns (Damodaran, 2012).

Good performance also strengthens the company’s financial structure, which is important for maintaining business stability and reducing operational failure risks (Ross et al., 2022). Firm value is influenced not only by assets but also by profit prospects and the efficiency demonstrated by the company in the long term (Jogiyanto, 2017). Therefore, improving company performance is directly correlated with increased investor confidence and rising stock prices, reflecting enhanced market value (Weston & Brigham, 2016).

This study is consistent with previous findings that companies with good financial ratios, particularly Return on Assets (ROA) and Return on Equity (ROE), have higher market values because they are considered more capable of generating profits and providing returns to shareholders (Martono & Harjito, 2010). Furthermore, transparent performance disclosure helps companies strengthen their reputation and legitimacy in the public eye, which is an additional factor in firm value formation (Sutrisno, 2016).

The Effect of Carbon Emission Disclosure on Firm Value

Based on the T-test results shown in Table 6, the Carbon Emission Disclosure variable (X3) has a positive and significant effect on firm value, with a t-count of 11.106 and a significance level of 0.002, less than the 0.05 threshold, thus supporting Hypothesis 3 (Ghozali, 2018). This finding confirms that carbon emission disclosure is an important factor considered by investors in assessing a company’s sustainability and social responsibility (Clarkson et al., 2008). Companies that actively and transparently communicate their carbon emissions are considered highly committed to sustainable business practices (KPMG, 2020).

Transparency in environmental disclosure, including carbon emission data, constitutes corporate social responsibility (CSR) that can improve positive public and stakeholder perceptions (Deegan & Unerman, 2011). This reflects corporate awareness of climate change risks and readiness to adapt to regulations and growing societal expectations for sustainability (Gray et al., 2014). In sustainability contexts, carbon

disclosure is also an important indicator in Environmental, Social, and Governance (ESG) performance increasingly valued by global institutional investors (Eccles & Klimenko, 2019).
According to legitimacy theory, companies are driven to disclose environmental information to gain legitimacy from society and maintain operational continuity (Suchman, 1995). By disclosing carbon emissions, companies can build an image as environmentally conscious entities, ultimately strengthening reputation and increasing market value (Cormier & Magnan, 2015). In the long term, companies that consistently report environmental data well earn greater investor trust, reflected in higher stock prices (Dhaliwal et al., 2011).
Empirical studies also show that companies voluntarily disclosing carbon information gain better access to capital, lower capital costs, and attractiveness to value-based investors (Chapple et al., 2013). Additionally, carbon emission disclosure enables companies to identify and manage environmental risks more effectively, strengthening governance and long-term strategy (Luo & Tang, 2016). Therefore, this study reinforces the argument that carbon emission disclosure is not only an ethical obligation but also a corporate strategy directly impacting firm value.

Gender Diversity Moderates the Effect of Green Accounting on Firm Value

Based on the Moderated Regression Analysis (MRA) results presented in Table 7, the interaction variable between Green Accounting (X1) and Gender Diversity (Z), i.e., X1Z, shows a t-count of -2.461 with a significance level of 0.023, less than 0.05 (Ghozali, 2018). This indicates that gender diversity statistically significantly moderates the relationship between green accounting and firm value. However, the negative coefficient of this interaction suggests that gender diversity on the board weakens the positive effect of green accounting on firm value (Baron & Kenny, 1986).
This phenomenon can be explained through the perspective of upper echelon theory, which posits that board characteristics, including gender diversity, influence corporate strategic views and decision-making (Hambrick & Mason, 1984). Gender diversity brings variations in values, norms, and priorities, which may cause differing views on environmental and sustainability issues (Terjesen et al., 2009). In this case, board members from different gender backgrounds may be more cautious or skeptical about environmental investments, such as green accounting, if the economic benefits are not yet clearly visible (Post et al., 2011).
Moreover, in gender-diverse boards, decision-making can become more complex due to higher potential differences in opinion, resulting in more cautious decisions or delays in implementing environmental strategies (Joecks et al., 2013). This aligns with findings from Bear et al. (2010), who state that while gender diversity offers broad perspectives, in some contexts it may slow decision-making processes if not supported by inclusive leadership. Thus, the effect of green accounting on increasing firm value may be less optimal in highly gender-diverse boards.
On the other hand, stakeholder theory suggests that gender diversity can increase attention to social and environmental issues since women tend to be more sensitive to non-financial aspects of the company (Nielsen & Huse, 2010). However, in this context, such sensitivity may not directly contribute to firm value increases, especially if green accounting's influence is not fully internalized into business strategy (Adams & Ferreira, 2009). Hence, gender diversity on the board may shift the company's strategic focus toward broader social issues, potentially reducing the strength of green accounting's impact on firm value.
Therefore, these results contribute an important insight that gender diversity on the board needs to be combined with strong understanding and commitment to environmental initiatives to maximize impact on firm value (Bear et al., 2010). Without such synergy, diversity may create fragmentation in sustainability strategies, diminishing green accounting's effectiveness as a means to enhance firm value (Liu et al., 2014).

Gender Diversity Moderates the Effect of Company Performance on Firm Value

The Moderated Regression Analysis (MRA) results in Table 7 show that the interaction variable between Company Performance (X2) and Gender Diversity (Z), i.e., X2Z, has a t-count of 2.689 with a significance value of 0.014, less than 0.05. Thus, it can be concluded that gender diversity statistically significantly moderates the relationship between company performance and firm value (Ghozali, 2018). The positive interaction coefficient indicates that gender diversity on the board strengthens the influence of company performance on firm value (Baron & Kenny, 1986).
This finding aligns with resource-based theory, which states that diversity of human resources, including gender differences, is a competitive advantage that can improve company performance and value (Barney,

1991). Gender-diverse boards can bring a variety of perspectives, experiences, and broader approaches in responding to business dynamics and risks, enhancing the quality of strategic decision-making (Terjesen et al., 2009).

In the context of good company performance, the presence of women on the board can strengthen the company's credibility and reputation in the eyes of investors and other stakeholders because it demonstrates commitment to diversity and inclusivity principles (Francoeur et al., 2008). This positively affects market perception and ultimately increases firm value (Carter et al., 2010). Studies by Campbell and Mínguez-Vera (2008) also show that companies with a higher proportion of women on the board tend to receive more positive market responses to financial performance achievements.

Moreover, women in leadership are often associated with more participative and collaborative leadership styles, as well as higher sensitivity to risk and compliance (Post & Byron, 2015). These characteristics contribute to more effective use of positive financial performance results in formulating sustainable long-term growth strategies, which in turn strengthen firm value (Adams & Ferreira, 2009).

Not only internally, but rising social expectations for gender equality also play an important role. In the modern era, which increasingly emphasizes Environmental, Social, and Governance (ESG) principles, inclusive leadership structures, including gender diversity, become key indicators in firm value assessment by institutional investors (Krüger, 2015). Therefore, the combination of solid financial performance and gender-diverse leadership can create strategic synergy in building market trust and sustainably strengthening firm value (Liu et al., 2014).

Overall, these results support the view that gender diversity is not merely symbolic but also provides real added value in maximizing the positive impact of company performance on firm value, especially amid increasing demands for diversity and responsible corporate governance (Bear et al., 2010).

Gender Diversity Moderates the Effect of Carbon Emission Disclosure on Firm Value

The interaction term X3Z in the MRA test shows a t-count of 2.333 and a significance of 0.041, which is also statistically significant (Hair et al., 2019). This finding indicates that gender diversity on the board of directors plays a significant moderating role in strengthening the relationship between carbon emission disclosure and firm value (Post et al., 2020). Previous studies state that gender-diverse boards tend to have broader and more sensitive perspectives on environmental and social issues, thus encouraging the adoption of more optimal sustainability practices (Bear, Rahman, & Post, 2010). Moreover, gender diversity in corporate leadership has been linked to increased attention to corporate social responsibility (CSR), contributing to stronger, more transparent, and credible environmental disclosure strategies (Joecks, Pull, & Vetter, 2013).

Gender-diverse boards not only adopt more inclusive governance approaches but also promote more effective environmental communication strategies, positively impacting market perception and firm value (Nielsen & Huse, 2010). This aligns with legitimacy theory, which posits that companies with diverse boards are more capable of meeting stakeholder expectations related to sustainability, ultimately enhancing reputation and market value (Suchman, 1995). Thus, gender diversity at leadership levels can be seen as a catalyst for integrating sustainability practices into core business strategies, strengthening competitiveness and firm value sustainably (Adams & Ferreira, 2009).

Conclusions And Recommendations

Conclusions

Based on the research results, it can be concluded that the implementation of green accounting, company performance, and carbon emission disclosure significantly positively affect firm value. Green accounting shows an important contribution in increasing investor confidence through transparent and responsible environmental accounting practices. However, gender diversity on the board of directors moderates this relationship negatively, indicating that gender perspective differences in decision-making may weaken the impact of green accounting on firm value. Conversely, gender diversity strengthens the positive effects of company performance and carbon emission disclosure on firm value, showing that a gender-inclusive board can optimize the results of performance and environmental disclosure more effectively to increase firm value. Therefore, gender diversity has a complex role that varies in the relationships between these variables and firm value.

Recommendations

Companies are advised to continuously improve the implementation of green accounting and transparency of carbon emission disclosure as part of sustainability strategies that can enhance firm value in the eyes of investors and stakeholders. Additionally, companies need to pay attention to the dynamics of gender diversity on the board of directors by creating effective coordination and communication mechanisms to ensure that potential differences in perspective do not reduce the positive impact of sustainability practices. Furthermore, companies should encourage sustainable operational performance improvement while leveraging gender diversity to strengthen strategic decision-making, thus enabling optimal and sustainable firm value growth. Future research can also explore other factors influencing the interaction between gender diversity and sustainability practices to gain a more comprehensive understanding.

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