Multiparadigm Accounting Research (JMAR)
Vol.3 Issue 2 (2025) Page: 91 – 103
ISSN: 3047-3144

JMAR
JOURNAL MULTIPARADIGM ACCOUNTING RESEARCH
http://jurnal.upnyk.ac.id/index.php/jmar

The Effect of Green Accounting, Firm Size, and Carbon Emission Disclosure on the- Financial Performance of Energy Sector Companies Listed on the Indonesia Stock Exchange (BEI) in 2019- 2023

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Article History
Received: 05 June 2025
Accepted: 23 Agust 2025
Publish : 16 Sept 2025

Keywords: Green Accounting, Firm Size, Carbon Emission Disclosure, Financial Performance, Sector Energy

Abstract
This study examines the influence of green accounting, firm size, and carbon emission disclosure on financial performance of companies in the energy sector listed on the IDX from 2019 to 2023. Green accounting is an accounting approach that incorporates the measurement of environmental costs and performance as part of evaluating a company's performance. In this study, green accounting is measured by comparing corporate social responsibility (CSR) costs to the company's annual net profit. Firm size is a scale that classifies the magnitude of a business entity based on total assets, sales volume, or stock market value. In this study, firm size is measured based on the total asset value. Carbon emission disclosure is a form of corporate social responsibility (CSR) presented in the annual report and sustainability report. The measurement method refers to five thematic categories with a total of 18 disclosure items. The dependent variable in this study is financial performance, measured based on Return on Assets (ROA). The population of this study is energy sector companies because it is one of the sectors that is relatively closely related to the environment. The data was obtained from annual and sustainability reports and analyzed using multiple linear regression. The data processing results show that green accounting has no effect on financial performance, firm size has a positive effect on financial performance, and carbon emission disclosure has a negative effect on financial performance. This study provides insights for stakeholders in promoting the sustainability of the energy sector.

Introduction

Contemporary business dynamics require companies to not only focus on achieving financial performance but also consider environmental sustainability aspects. This phenomenon is increasingly relevant in the context of the energy sector in Indonesia, which is one of the backbones of economic growth as well as a major contributor to environmental impacts. Based on data from the Ministry of Energy and Mineral Resources (EMR) in 2023, the energy sector accounts for around 45% of total national carbon emissions, with coal-based steam power plants (PLTU) as the main contributor. Ironically, during the period from 2019 to 2023, there has been a 35% increase in coal-fired power plant capacity to meet electricity needs that continue to grow in line with national economic development.

This paradoxical situation creates a tension between the demands of economic growth and environmental liability, which in turn creates an urgency to examine how green accounting practices, corporate size, and carbon emission transparency can affect the financial performance of energy sector companies. Recent developments in the global and domestic regulatory framework further underscore the importance of this research. At the international level, the Paris agreement and various Sustainable Development Goals (SDG's) initiatives have created global pressure for companies to transform towards low-carbon business practices. Meanwhile, at the national level, the Indonesian government has issued Presidential Regulation No. 98 of 2021 on the implementation of carbon economic value, which requires companies to start considering environmental costs in their operations.

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It is in this context that green accounting emerges as a strategic instrument, which allows companies to comprehensively quantify environmental costs and benefits in financial statements. However, the implementation of green accounting in Indonesia still faces various challenges, ranging from the lack of standard accounting standards to the limited number of competent human resources. The aspect of firm size is a critical variable in this study considering the capital-intensive and large-scale energy industry. Data on the Indonesia Stock Exchange (IDX) shows that 85% of listed energy sector companies are included in the category of large companies with a market capitalization of more than Rp10 trillion.

This characteristic raises an interesting research question: can a large enterprise scale with abundant resources really be a hindrance due to high operational complexity? Several previous studies, such as those conducted by Firdausa et al. (2022). The results of their research show that profitability has no effect on carbon emission disclosure. Companies with good profitability choose not to disclose their carbon emission because it might interfere with their financial achievement. Leverage and Media Exposure influence carbon emission disclosure. Companies with high leverages have a higher urgency to disclose their carbon emission to make an impression that they care and are aware of environmental issues. And media will motivate companies to disclose their activities related to carbon emission to get a positive response from stakeholders. Suryanto and Harymawan (2022) are found to have a positive relationship between Firm_Size and the quality of environmental disclosure, while Agustia's (2021) research showed that large companies tend to be more resistant to changes in accounting systems. Carbon emission disclosure as the third variable in this study has an increasingly strong relevance in the era of energy transition. In the last five years of 2019-2023, there has been a significant increase in carbon emission disclosure practices among Indonesian energy sector companies, triggered by the demands of global investors and awareness of reputation risks.

Data from the Indonesia Sustainability Reporting Award (ISRA) in 2023, shows that 65% of energy sector companies have disclosed carbon emissions in their sustainability reports, up from 35% in 2019. Nevertheless, the quality and consistency of these disclosures still vary widely. A content analysis of 40 energy company sustainability reports by the Indonesian CSR forum in 2023 revealed that only 30% use international standards such as GHG protocols, while 70% still use ad-hoc methods. This variation raises the question: whether the increase in the quantity of emissions disclosure is really correlated with an increase in financial performance, or is it simply green washing. Based on the above background, the researcher tried to find empirical evidence that the influence of green accounting, firm size, and carbon emission disclosure has an impact on financial performance (ROA).

Thus, this research is expected not only to answer academic needs but also to provide practical efforts for the real challenges faced by the Indonesian energy sector industry in the transition to a green economy and become an empirical foundation for the development of sustainable business models that are able to encourage economic growth while preserving the environment. In the next part, the study uses a quantitative approach by obtaining quantitative data from the IDX with the population, namely all energy sector companies in 2019-2023, because the annual report, sustainability report, and financial report data are reports from the last five years when this study was written. The data analysis carried out in this study was designed using multiple linear regression analysis and discussion of the test results carried out.

Green accounting has a positive effect on financial performance because it converts environmental costs into long-term strategic investments. This practice improves operational efficiency with 10-30% energy savings, reduces the risk of regulatory fines and social conflicts, and builds a corporate reputation that attracts green consumers and sustainable investors, lowering the cost of capital by 1.5% and increasing sales. Government incentive support (30% tax allowance) and access to cheap green funding (5.8% greend bound interest) further strengthen profitability,

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creating a series of environmental cost events that are said to affect financial performance if the company allocates funds recorded as environmental costs to prevent environmental damage due to natural resource extraction activities so that the company is recognized as a green company. For profit growth, the company produces natural resources that are processed into ready-to-sell products and utilizes the reputation of a "green company" as a market leader to obtain more profits than other competitors. In line with research by Risal et al., (2020), it is stated that the level of implementation of environmental accounting is directly proportional to the company's financial performance. These findings confirm the crucial message of accounting as a driver of financial value creation. Thus, judging from the relationship between these variables, there is a hypothesis or provisional conjecture:

H_1: Green accounting has a positive effect on the company's financial performance

The size of a company can has a positive effect on financial performance because larger companies generally have more adequate resources to manage their operations efficiently and meet market and regulatory demands. Large companies tend to have easier access to funding from both internal and external sources, so that they can support business expansion and investment that increases profitability. In line with previous research by Yudha (2021) and Krisdamayanti (2020) strengthens this view by showing the positive influence off firm size on financial performance. Thus, judging from the relationship between these variables, there is a hypothesis or provisional conjecture:

H_2: The size of the company has a positive effect on the company's financial performance

Disclosure of carbon emissions can have a positive effect on financial performance because transparency in emissions reporting shows a company's commitment to good environmental management, thereby increasing trust and appreciation from stakeholders, including investors and consumers. By publicly disclosing carbon emissions, companies can reduce reputational risks and legal sanctions, while attracting investors who are increasingly concerned about environmental aspects in investment decision-making (ESG). The consistency of the positive effect of carbon emissions disclosure on profitability has been seen in several studies. Research by Nisrina, (2021) revealed its positive impact on return on sales (ROS). In line with that, research by Ganda, (2018) proves that the disclosure of carbon emissions is positively associated with (ROS) which means that the better the carbon performance of a company, the greater the increase in profits. Similar findings were reported by Marietza and Hatta, (2021), where carbon emission disclosure has a positive effect on financial performance as measured through ROA, ROE, ROS. Thus, judging from the relationship between these variables, there is a hypothesis or provisional conjecture:

H_3: Carbon emission disclosure has a positive effect on the company's financial performance.

Methodology

This research is quantitative by using secondary data obtained based on annual reports, sustainability reports, and financial statements of energy sector companies listed on the IDX for the 2019-2023 period. This study quantitatively examines the relationship between green accounting variables, firm size, and carbon emission disclosure on financial performance. The data used was obtained from the website of each energy sector company in Indonesia. In this study, the population was determined by the researcher to be energy sector companies listed on the IDX for the 2019-2023 period. This study applies to a non-probability method with a purposive sampling technique.

The independent variables in this study are green accounting, firm size, and carbon emission disclosure. The dependent variable in this study is financial performance. Meanwhile, the dependent variable (Y) in this study is the

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financial performance of energy sector companies listed on the IDX. This research utilizes secondary data, namely documents in the form of annual reports, sustainability reports, and financial statements for the 2019-2023 period published on the official websites of energy sector companies in Indonesia. These documents are primary data sources to test the influence of green accounting, firm size, and carbon emission disclosure on financial performance in the sector. In this study, the researcher used several techniques in analyzing data using IBM SPSS 25. Some of the data analysis techniques are: Descriptive Analysis, Multiple Linear Regression Analysis, Normality Test, Outlier Test, Classical Assumption Test (including Multicollinearity Test, Heteroscedasticist Test, Autocorrelation (Prayitno, 2022), Hypothesis Test, Hypothesis Testing is carried out through simultaneous significance tests (F test), individual parameter significance (partial t test), and determination tests (R^2).

Result And Discussion

Results

Table 1. Descriptive Statistical

	N	Minimum	Maximum	Mean	Std. Deviation
Green_Accounting	150	-14,95	151,78	5,1327	15,20272
Firm_Size	150	25,66	32,38	29,4948	1,57460
Carbon_Emission Disclosure	150	,06	,78	,3748	,21658
Financial_Performance	150	-67,98	340,60	33,7573	65,55848
Valid N (listwise)	150				

Source: SPSS 25 output, processed secondary data 2025

The above data is descriptive statistical data from the research variables before the elimination of outliers. Based on table 1, the results of the descriptive statistical test show that the known N value for each valid variable is 150. Details of the descriptive statistical results which include the mean, maximum, minimum, and standard deviation values for each variable are as follows:

Green accounting has a minimum value of -14.95 achieved by Alfa Energi Investama Tbk (FIRE) in 2021, a maximum value of 151.78 achieved by Indo Tambangraya Megah Tbk (ITMG) in 2019, an average value (mean) of 5.1327 and a standard deviation value of 15.20272. This figure shows that the mean value is smaller than the standard deviation (5.1327 < 15.20272) which means that the data of the green accounting variable is relatively variable.

The Firm_Size has a minimum value of 25.66 achieved by Mitra Energi Persada Tbk (KOPI) in 2021, a maximum value of 32.38 achieved by Medco Energi Internasional Tbk (MEDC) in 2023, an average value (mean) of 29.4948 and a standard deviation value of 1.57460. This figure shows that the mean value is smaller than the standard deviation (29.4948 < 1.57460) which can be interpreted that the variable data of the Firm_Size is relatively variable.

Carbon emission disclosure has a minimum value of 0.06 achieved by Trans Power Marine Tbk (TPMA) in 2019, a maximum value of 0.78 achieved by ABM Investama Tbk (ABMM) in 2023, a mean value of 0.3815 and a standard deviation of 0.21909. This figure shows that the mean value is greater than the standard deviation (0.3815 > 0.21909) which can be interpreted that the carbon emission disclosure variable data is relatively homogeneous. Financial performance has a minimum value of -67.98 achieved by Wintermar Offshore Marine Tbk (WINS) in 2019, a maximum value of 340.60 achieved by Golden Eagle Energy Tbk (SMMT) in 2022, an average value (mean) of

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33.7573 and a standard deviation of 65.55848. This figure shows that the mean value is smaller than the standard deviation (33.7573 < 65.55848) which can be interpreted that the financial performance variable data is relatively variable.

The results of the Kolmogorov-Smirnov normality test show that from the sum of data (N) 150, it can be found that the significance (Monte Carlo Sig. (2-tailed)) is 0.000 which means that the data is not normally distributed because the significance value is less than 0.05 (0.00 < 0.05). Because the data is not normally distributed, outlier elimination is carried out on data of extreme value which can cause data not to be distributed normally. Screening of outlier data on the data is carried out using Casewise analysis. The data is categorized as outlier data if it has a casewise diagnostics value of > 2.5 (Ghozali, 2018). After the elimination of data outliers, 14 data outliers have been eliminated and 136 data samples remain.

Table 2. Normality Test Results After Outlier with Kolmogorov-Smirnov Test

			Unstandardized Residual
N			136
Normal Parameters[a,b]	Mean		,0000000
	Std. Deviation		32,60188560
Most Extreme Differences	Absolute		,113
	Positive		,113
	Negative		-,065
Test Statistic			,113
Asymp. Sig. (2-tailed)			,000[c]
Monte Carlo Sig. (2-tailed)	Sig.		,061[d]
	99% Confidence Interval	Lower Bound	,055
		Upper Bound	,068

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. Based on 10000 sample tables with starting seed 624387341.
Source: SPSS output 25, secondary data processed 2025

Based on the data in table 2, the results of the normality test of the One-sample Kolmogorov-Smirnov approach Monte Carlo P Values after the outlier was carried out, where the significant result (Monte Carlo Sig. (2-tailed)) showed a value of 0.061, which is greater than 0.05 (0.061 > 0.05), so that it can be concluded that the residual value is normally distributed.

Table 3. Descriptive Statistical Results After Outliers

	N	Minimum	Maximum	Mean	Std. Deviation
Green_Accounting	136	-14,95	151,78	5,65	15,88
Firm_Size	136	25,66	32,38	29,62	1,59
Carbon_Emission Disclosure	136	,06	,78	,38	,22
Financial_Performance	136	-67,98	139,38	18,20	36,92
Valid N (listwise)	136				

Source: SPSS output 25, secondary data processed 2025

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The above data is a descriptive statistical data of the research variables after the elimination of outliers. Based on table 3, the results of the descriptive statistical test show that the known value (N) for each valid variable is 136. Details about the descriptive statistical results which include the minimum, maximum, mean values, and standard deviations for each variable are as follows:

Green accounting has a minimum value of -14,95 achieved by Alfa Energi Investama Tbk (FIRE) in 2021, a maximum value of 151,78 Indo Tambangraya Megah Tbk (ITMG) in 2019, an average value (mean) of 5,65 and a standard deviation value of 15,88. This figure shows that the mean value is smaller than the standard deviation (5,65 < 15,88) which means that the data of the green accounting variable is relatively variable. The Firm_Size has a minimum value of 25,66 achieved by Mitra Energi Persada Tbk (KOPI) in 2021, a maximum value of 32,38 achieved by Medco Energi Internasional Tbk (MEDC) in 2023, an average value (mean) of 29,62 and a standard deviation value of 1,60. This figure shows a mean value greater than the standard deviation (29,62 > 1,60) which can be interpreted that the variable data of the Firm_Size is relatively homogeneous.

Carbon emission disclosure has a minimum value of 0,06 achieved by Trans Power Marine Tbk (TPMA) in 2019, a maximum value of 0,78 achieved by ABM Investama Tbk (ABMM) in 2023, a mean value of 0,32 and a standard deviation of 0,19 These figures show a mean value greater than the standard deviation (0,36 > 0,22) which can be interpreted that the carbon emission disclosure variable data is relatively homogeneous. Financial performance has a minimum value of -67,98 achieved by Wintermar Offshore Marine Tbk (WINS) in 2019, a maximum value of 139,38 achieved by Sumber Energi Andalan Tbk (ITMA) in 2022, an average value (mean) of 18,20 and a standard deviation of 36,92. This figure shows that the mean value is smaller than the standard deviation (18,20 < 36,92) which can be interpreted as a relatively homogeneous financial performance variable data.

Table 4. Multicollinearity Test Results

		Unstandard Coefficients		Standardize Coefficients	t	Sig.	Collinearity Statistics	
Type		B	Std. Error	Beta			Tolerance	VIVID
1	(Constant)	-166,89	71,51		-2,334	,021		
	Green_Accounting	-,261	,18	-,112	-1,453	,149	,992	1,008
	Firm_Size	7,65	2,58	,330	2,964	,004	,475	2,104
	Carbon_Emission_Disclosure	-104,85	18,84	-,622	-5,566	,000	,473	2,115

a. Dependent Variable: Financial_Performance
Source: SPSS output 25, secondary data processed 2025

Based on the results of the multicollinearity test, it can be concluded that the variables of green accounting, Firm_Size, and carbon emission disclosure have a tolerance value greater than 0.1 (> 0.1) and have a VIF value of less than 10 (< 10), so that multicollinearity does not occur in this regression model. Thus, the regression model formed in this study is a good regression model and is worth using.

Table 5. Heteroscedasticity Test Results

		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
Type		B	Std. Error	Beta		
1	(Constant)	31,949	46,439		,688	,493

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	Green_Accounting	-,195	,117	-,138	-1,674	,097
	Firm_Size	,160	1,676	,011	,096	,924
	Carbon_Emission_Disclosure	-31,702	12,232	-,309	-2,592	,011

a. Dependent Variable: ABSRES

Source: SPSS 25 output, secondary data processed 2025

The test results of the heteroscedasticity test in table 5 are seen from the level of significance. The green accounting variable has a sig. value of 0.097 (> 0.05), the Firm_Size variable has a sig. value of 0.924 (> 0.05), the carbon emission disclosure variable has a sig. value of 0.011 (< 0.05). From the results of the test, it can be concluded that the model has a symptom of heteroscedasticity because the carbon emission disclosure variable has a significance value of 0.011 (< 0.05) so it is necessary to carry out a transform.

Table 6. Heteroscedastistista Test Results After Transform

		Standardized Coefficients		Standardized Coefficients	t	Sig.
Type		B	Std. Error	Beta		
1	(Constant)	21,384	52,612		,406	,685
	Green_Accounting	-,134	,132	-,087	-1,016	,312
	Firm_Size	,520	1,899	,034	,274	,784
	Carbon_Emission_Disclosure	-26,353	13,859	-,235	-1,902	,059

a. Dependent Variable: ABSRES1

Source: SPSS 25 output, secondary data processed 2025

Based on the results of the heteroscedasticity test after transforming in table 6, it is seen from the level of significance. The green accounting variable has a sig. value of 0.312 (> 0.05), the Firm_Size variable has a sig. value of 0.784 (> 0.05), the carbon emission disclosure variable has a sig. value of 0.059 (> 0.05). From the results of the test, it can be concluded that the model is free from heteroscedasticity symptoms because all variables have a significance value above 0.05 (> 0.05).

Table 7. Autocorrelation Test Results

Type	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,309a	,095	,075	46,55	1,91

a. Predictors: (Constant), Green_Accounting, Firm_Size, Carbon_Emission_Disclosure

b. Dependent Variable: Financial_Performance

Source: SPSS 25 output, secondary data processed 2025

Based on table 7, the results of the autocorrelation test using Durbin Watson are shown. The autocorrelation test was performed by looking at the Durbin Watson value (dw) greater than the Durbin Upper (dU) and smaller than 4-dU (dU < dw < 4- dU), so there was no autocorrelation in the regression model. The Durbin Lower (dL) and Durbin Upper (dU) values for independent variable 3 and the number of observation data 136 are as follows:

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n	k=1		k=2		k=3		k=4		k=5	
	dL	dU	dL	dU	dL	dU	dL	dU	dL	dU
136	1.7051	1.7347	1.6902	1.7498	1.6751	1.7652	1.6599	1.7808	1.6445	1.7967

Figure 1. Durbin Lower and Durbin Upper Values

Based on figure 1 it is known that the dL value is 1.6751 and the dU value is 1.7652. Thus, it can be concluded that 1.7652 (dU) < 1.907 (dw) < 2.2348 (4-dU), showing that there is no autocorrelation in the regression model.

Table 8. Multiple Linear Aggression Test Results

Unstandardized Coefficients				Standardized Coefficients	t	Sig.
Type		B	Std. Error	Beta		
1	(Constant)	-166,886	71,508		-2,334	,021
	Green_Accounting	-,261	,179	-,112	-1,453	,149
	Firm_Size	7,649	2,580	,330	2,964	,004
	Carbon_Emission_Disclosure	-104,847	18,836	-,622	-5,566	,000

a. Dependent Variable: Financial_Performance

Source: SPSS 25 output, secondary data processed 2025

Based on table 8, the results of multiple linear regression analysis used in this study are as follows:
Financial Performance = -166,886 - 0.261 X_1 + 7,649 X_2 - 104,847 X_3

The value of the regression constant is -166.886. This shows that if all independent variables (green accounting, firm size, and carbon emission disclosure) are 0, then the predicted financial performance value is -166.886. The green accounting variable (X_1) has a regression coefficient value of -0.261, indicating a negative relationship with financial performance. This means that every 1 unit increase in green accounting will reduce financial performance by 0.261 with the provision that other independent variables have a fixed value. This negative coefficient proves that the increase in environmental costs (green accounting) results in a decrease in financial performance. The firm size variable (X_2) has a positive regression coefficient value of 7.649, indicating that every 1 unit increase in the firm size variable will increase financial performance by 7.649 provided that other independent variables have a fixed value.

The positive relationship confirms that companies with a larger scale tend to have higher financial performance.The carbon emission disclosure (X_3) variable has a regression coefficient value of -104.847, indicating a negative relationship with financial performance. This means that every 1 unit increase in carbon emission disclosure will reduce financial performance by 104,847 provided that other independent variables have a fixed value. This negative coefficient confirms that the more emissions information disclosed, the lower its financial performance. If the coefficient is positive (+) indicates the direction of the equidirectional relationship while the negative sign (-) indicates the direction of the inverse relationship between the independent variable (X) and the dependent variable (Y).

Table 9. F Test Results

Type		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	40581,621	3	13527,207	12,444	,000[b]
	Residual	143489,198	132	1087,039		
	Total	184070,818	135			

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a. Dependent Variable: Financial Performance
b. Predictors: (Constant), Carbon_Emission_Disclosure, Green_Accounting, Firm_Size
Source: SPSS 25 output, secondary data processed 2025

From the ANOVA test or F test in table 9, it was obtained that the value of F was calculated as 12.444 with a probability of 0.000. Since this probability is less than 0.05 (0.000 < 0.05), regression models can be used to predict financial performance and provide an indication that any or all the variables (green accounting, firm size, and carbon emission disclosure) may affect financial performance.

Table 10. Individual Parameter Test Results (t-test)

Unstandardized Coefficients				Standardized Coefficients	t	Sig.
Type		B	Std. Error	Beta		
1	(Constant)	-166,886	71,508		-2,334	,021
	Green_Accounting	-,261	,179	-,112	-1,453	,149
	Firm_Size	7,649	2,580	,330	2,964	,004
	Carbon_Emission_Disclosure	-104,847	18,836	-,622	-5,566	,000

a. Dependent Variable: Financial_Performance
Source: SPSS 25 output, secondary data processed 2025

Based on the results of the t-test in table 10, it can be explained as follows: The green accounting variable has a p-value of 0.149 at a significance level of 0.05. It can be concluded that because 0.149 > 0.05, the hypothesis (H_1) is rejected. The Firm_Size variable has a p-value of 0.004 at a significance level of 0.05. It can be concluded that since 0.004 < 0.05, then the hypothesis (H_2) is accepted. The carbon emission disclosure variable has a p-value of 0.000 at a significance level of 0.05. It can be concluded that because 0.000 < 0.05, then the hypothesis (H_3) is accepted.

Table 11. Determination Coefficient Test Results (R^2)

Type	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.470a	,220	,203	32,97028

a. Predictors: (Constant), Carbon_Emission_Disclosure, Green_Accounting, Firm_Size
Source: SPSS 25 output, secondary data processed 2025

Based on table 11, the results of the determination coefficient test showed an Adjusted R2 value of 0.203 or 20.3%. This shows that the variables of green accounting, Firm_Size, and carbon emission disclosure affect financial performance by 20.3%, while 79.7% are influenced by other variables outside this research model.

The Influence of Green Accounting on Financial Performance

Based on the results of the multiple linear regression test, the green accounting variable has a coefficient of -0.261 with a significance of 0.149, so that H1 rejected green accounting does not have a significant effect on the financial performance of energy companies in 2019–2023. In conventional accounting, environmental costs are considered an additional burden that reduces profits, such as waste treatment or investment in environmentally friendly technology. Green accounting practices in Indonesia tend to be symbolic legitimacy, not substantial sustainability commitments. Green accounting has not had a direct impact on ROA because it is non-financial disclosure and focuses more on sustainability reporting. Environmental accounting such as restoration or energy conservation cost disclosures have

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not been connected to financial metrics such as ROA. Although it supports stakeholder engagement and environmental compliance, the impact on profitability is still minimal.

These results are not aligned with stakeholder theory because the main impetus comes from regulation, not the market. Short-term investors do not provide direct economic incentives. On the contrary, these results partly support the theory of legitimacy, but implementation costs such as ISO 14001 reduce profits. From the perspective of signaling theory, disclosure has not been effective due to weak signal credibility, rampant greenwashing, and the dominance of financial indicators such as commodity prices and production volumes.

The Influence of Firm_Size on Financial Performance

Based on the multiple linear regression test, the Firm_Size variable has a coefficient of 7.649 with a significance of 0.004, so that H2 is accepted that the Firm_Size has a positive effect on the financial performance of energy companies in 2019–2023. Large-scale provides green financing advantages, such as access to green bonds, cheap credit, and long-term funding. Large companies are able to make expensive investments such as carbon capture systems (CCS) and utilize economies of scale to increase efficiency and competitive advantage. Large-scale lowers production costs per unit, strengthens bargaining power in raw material purchases, and enables diversification of energy portfolios and vertical integration. This stabilizes income and reduces the risk of market volatility. Large companies also get cheaper access to capital due to better credit ratings, increased profitability, liquidity, and solvency.

In addition, the size of large companies supports strategic investments in cutting-edge technologies such as R&D, enhanced oil recovery (EOR), and carbon capture, utilization, and storage (CCUS). This is in line with stakeholder theory because large companies can meet multistakeholder expectations, including ESG programs. It is also aligned with legitimacy theory, as legitimacy pressures drive the adoption of standards such as ISO 14001 and sustainability reporting. In Indonesia, large companies tend to implement integrated environmental management systems that support revenue sustainability and minimize legal risks.

The Effect of Carbon Emission Disclosure on Financial Performance

Based on the results of multiple linear regression tests, the carbon emission disclosure variable has a coefficient of -104.847 and a significance of 0.000, so H3 is accepted carbon emission disclosure has a negative effect on the financial performance of energy companies in 2019–2023. High transparency in emissions strengthens the image as an unenvironmentally friendly entity, triggering reputational penalties and the perception of environmental negligence. In the context of the ESG market, this encourages divestment by green funds, lowers demand for stocks and increases the cost of capital.

In addition to reputational effects, the highcost burden of monitoring, reporting, and verification (MRV) systems, technology investments such as carbon capture (CCUS), and energy transition also depressed profits. Transparency also opens up opportunities for the implementation of regulations such as carbon tax or cap and trade system, as well as the risk of stranded assets that can experience impairment. As a result, the company's profitability (ROA), cash flow, and market valuation declined, especially those that still rely on fossil assets. This result contrasts with stakeholder theory that considers disclosure to build trust. In Indonesia, the pressure comes more from regulators (60%) than investors (25%), so carbon emission disclosure is seen as just a compliance cost with no financial returns. However, these findings are partly in line with legitimacy theory, as transparency still strengthens a company's legal position even though it has not increased profitability.

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Conclusion and Recommendations

Based on the results of the research and the results of the analysis that has been carried out, conclusions can be drawn from the results of this study, Green accounting has no effect on financial performance. This shows that the allocation of environmental costs as a green accounting practice has not been able to transform short-term operational expenses into a competitive advantage that increases profitability. The dominance of symbolic legitimacy motivation without substantive integration in the core strategy causes this practice to be perceived only as a compliance cost. The size of the company has a positive effect on financial performance. This proves that large-scale facilitates privileged access to green financing, high CAPEX decarbonization technology investment, and operational efficiency through economies of scale. These advantages translate large assets into increased ROA through low-carbon portfolio optimization. Carbon emission disclosure has a negative effect on financial performance. This shows that disclosure of high emissions without a credible decarbonization roadmap turns into a reputational penalty, triggering selective divestment by ESG investors and increasing the cost of capital. In the paradox of transparency, the recognition of large emissions actually crystallizes the perception as a non-green entity (brown taxanomy), thus suppressing profitability**.**

Limitations

This study has limitations that need to be considered: The data collection techniques in this study are still limited to the most recent year and data collection. This may be less comprehensive because there are still companies that do not disclose information related to variable data and annual reports, sustainability reports, and financial statements for 2024 have not been published. Better data collection can be done by considering the acquisition of data that has been published thoroughly by the company. The result of the determination coefficient (adjusted R^2) test in this study was 0.203 (20.3%) in influencing the dependent variable which means that there is a greater possibility of influence produced by other variables outside of those used in this study.

Research Contribution

Based on the conclusions drawn from the results of this study, this study gives the theoretical and practical contribution such as that green accounting has no effect on financial performance. This shows that the allocation of environmental costs as a green accounting practice has not been able to transform short-term operational expenses into a competitive advantage that increases profitability. The dominance of symbolic legitimacy motivation without substantive integration in the core strategy causes this practice to be perceived only as a compliance cost. It can be applied based on the information that the size of the company has a positive effect on financial performance. This proves that large-scale facilitates privileged access to green financing, high CAPEX decarbonization technology investment, and operational efficiency through economies of scale. These advantages translate large assets into increased ROA through low-carbon portfolio optimization. While this study also gives the new findings that carbon emission disclosure has a negative effect on financial performance. This shows that disclosure of high emissions without a credible decarbonization roadmap turns into a reputational penalty, triggering selective divestment by ESG investors and increasing the cost of capital. In the paradox of transparency, the recognition of large emissions crystallizes the perception as a non-green entity (brown taxanomy), thus suppressing profitability.

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ISSN: 3047-3144

JMAR
JOURNAL MULTIPARADIGM ACCOUNTING RESEARCH
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