



The Effect Of Green Accounting, Environmental Performance, Company Size, and Sustainability Report On Firm Value In Coal Industry Energy Sector

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Abstract

Climate change and its negative impact on the environment is becoming an increasingly urgent global issue. Coal-fired power plants are the largest contributor to GHG emissions from the energy sector. Coal industry companies, as one of the industrial sectors that produce greenhouse gas emissions, have an important role in environmental conservation efforts. This study aims to determine the effect of green accounting, environmental performance, company size, and sustainability report on capital structure in coal industry energy sector companies listed on the Indonesia Stock Exchange for the period 2019 - 2023. The type of research used is descriptive research. The data used in this study are secondary data in the form of company annual reports and sustainability reports obtained from the official IDX website (www.idx.co.id) and the official websites of related companies. The data collection method uses the documentation method. The results concluded that green accounting, environmental performance, and sustainability reports have no effect on firm value. Meanwhile, company size affects firm value in coal industry energy sector companies listed on the Indonesia Stock Exchange for the period 2019-2023.

Keywords : green accounting, environmental performance, firm value, coal companies, sustainability report, firm size

INTRODUCTION

Climate change and its negative impact on the environment is becoming an increasingly urgent global issue. Based on Climate Watch data (2020), Indonesia's greenhouse gas (GHG) emissions reached 1.48 billion tons/gigaton of carbon dioxide equivalent (Gt CO₂e). About 44% of emissions come from the energy sector, 34% from the forestry sector, 10% from the agriculture sector, and 11.7% from the industrial and waste sectors. The energy sector is the largest contributor to greenhouse gas emissions.

According to data from the Ministry of Energy and Mineral Resources (ESDM), coal accounts for 66.5% of the national energy mix in 2023. Coal-fired power plants (PLTU) are the largest contributor to GHG emissions from the energy sector. Coal combustion in PLTU produces CO₂ gas emissions, methane, and other pollutants that contribute to climate change. Climate change, due to high GHG emissions, has and will continue to bring adverse impacts to Indonesia. Rising temperatures, changes in extreme weather patterns, and rising sea levels are some examples. floods, landslides, droughts, and forest fires are some of the natural disasters that are increasingly common and have a significant impact on people's lives and the economy.

This encourages public and investor awareness of the importance of sustainability in business activities. Coal industry companies, as one of the industrial sectors that produce greenhouse gas emissions, have an important role in environmental conservation efforts.

Green accounting is an accounting method that integrates environmental costs and benefits in corporate activities. The application of *green accounting* can help companies measure and manage their environmental impacts, and improve the efficiency of resource use.

Environmental performance is a measurable result of the environmental management system, which is related to the control of its environmental aspects. Companies that focus on environmental performance will improve the company's image in the future so that it will affect the improvement of financial performance.

Sustainability report is a voluntary report published by the company. The preparation of this *Sustainability report* refers to the Global Reporting Initiative (GRI) guidelines. This report is an important tool for companies to demonstrate their commitment to sustainability and build trust with *stakeholders*.

Handayani and Wulandari (2014) state that company size is a scale where the size and size of the company can be classified in various ways, such as log total assets, log total sales and market capitalization. Company size, as measured by total assets or revenue, is often associated with firm value.

Firm value is the company's performance reflected by the stock price formed by demand and supply in the capital market which reflects the public's assessment of the company's performance (Badruddien, 2017). Firm value is a measure of the success of company management in past operations and future prospects to convince shareholders which is indicated by ratios such as *market book value* and *price earning ratio* (PER) (Kusumu, 2019).

With this background, the authors are interested in knowing and analyzing whether the application of green accounting, environmental performance, disclosure of *sustainability reports*, and company size has an influence on firm value.

RESEARCH METHODS

Samples and Sampling Techniques

The sample in this study were companies listed on the Indonesia Stock Exchange for the period 2019 - 2023. The sampling method used *purposive sampling*, so that 15 samples were obtained. The analysis technique used in this study consists of descriptive statistical analysis, normality test, multicollinearity test, heteroscedasticity test, autocorrelation test, multiple linear regression analysis, T test, F test, and coefficient of determination test. The data collection method in this study is the documentation method from the financial statements and *sustainability reports* obtained from each company's website. The measurements for the variables in this study are described as follows:

Table 1. Variables and Measurements

Variables	Symbol	Measurement
<i>Green Accounting</i>	GA	Dummy method
		<ul style="list-style-type: none"> Score 0: for companies that have no environmental cost, waste recycling cost, environmental R&D cost components in their annual financial statements. Score 1: for companies that have one component of environmental costs, waste recycling costs, environmental R&D costs in the company's annual financial statements.
Environmental Performance	KL	<ul style="list-style-type: none"> Score 1: black rating. Score 2: red rating. Score 3: blue rating. Score 4: green rating. Score 5: gold rating.
<i>Sustainability Report</i>	SR	$SR = \frac{\sum ij \text{ Ditem}}{\sum ij \text{ ADitem}}$ Description: ∑ij Ditem: Total SR Item Score Disclosed ∑ij ADitem: Total SR Items that Should Be Disclosed
Company Size	SIZE	Company Size = Ln Total Assets
Company Value	NP	$PBV = \frac{\text{Harga per Lembar Saham}}{\text{Nilai Buku per Lembar Saham}}$

Research Design

This study aims to examine the relationship between the independent variable and the dependent variable. The independent variables are *green accounting*, environmental

performance, *sustainability report*, and company size while the dependent variable is firm value. Then the variables involved in this study can be formulated through the following research framework:

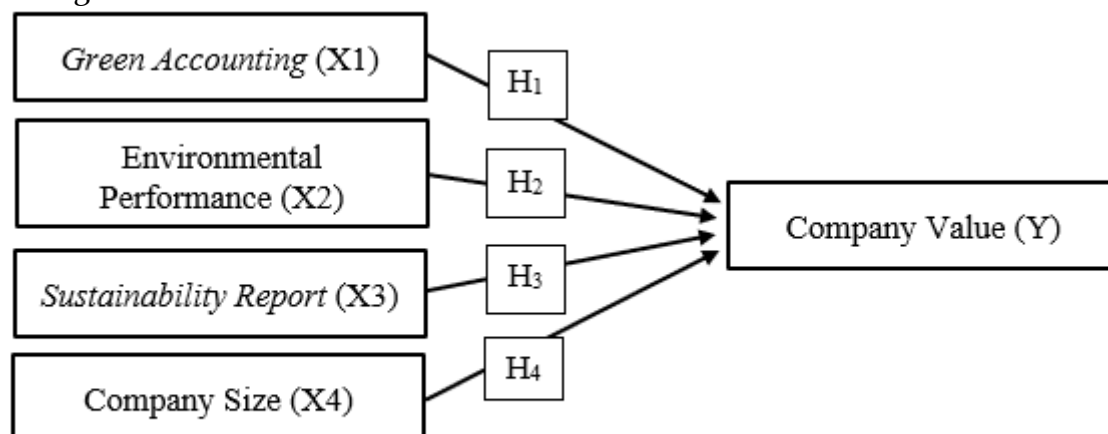


Figure 1. Framework of Thought

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

Descriptive analysis aims to provide an overview of the characteristics of each variable in the study, such as the number of samples, minimum value, maximum value, average value (*mean*), and standard deviation of each variable.

The results of descriptive statistical tests with a sample of 15 during the 5-year observation period, the *Green Accounting* (GA) variable has a minimum value of 0; maximum value of 1; average value of 0.93; and standard deviation of 0.258 which means that there is a deviation in the value of *Green Accounting* from its average value of 0.258.

The Environmental Performance variable (PROPER) has a minimum value of 3; a maximum value of 5; an average value of 4.60; and a standard deviation of 0.632, which means that there is a deviation in the value of Environmental Performance from its average value of 0.632. The Company Size variable (SIZE) has a minimum value of 30.42; a maximum value of 32.76; an average value of 31.46; and a standard deviation of 0.779, which means that there is a deviation in the value of Company Size from its average value of 0.779. The *Sustainability Report* (SR) variable has a minimum value of 0.43; a maximum value of 0.99; an average value of 0.74; and a standard deviation of 0.154, which means that there is a deviation in the value of the *Sustainability Report* from its average value of 0.632. The Company Value (PBV) variable has a minimum value of 0.67; a maximum value of 1.91; an average value of 1.23; and a standard deviation of 0.324 which means that there is a deviation in the Company Value from its average value of 0.324.

Normality Test

The normality test aims to determine whether in the regression model, the two variables have a normal data distribution or not. The normality test in this study used Kolmogorov-Smirnov.

The results of the *One-Sample Kolmogorov-Smirnov Test* normality test and it can be concluded that overall the independent and dependent variable data are normally

distributed with a significance value of 0.200. So it can be said that the regression model fulfills the assumption of normality. Thus, the regression model is suitable for use in this study.

Multicollinearity Test

The multicollinearity test aims to test whether in a multiple regression model there is a strong correlation between independent variables (independent variables) or not. The *tolerance* value of each variable is more than 0.10 and the VIF value of each variable is less than 10. Based on the test results, it can be concluded that all independent variables in the regression equation model in this study do not have a strong correlation relationship or no multicollinearity and can be used as research material.

Heteroscedasticity Test

The heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from residuals between observations or not. If the variance of the residuals from one observation to another is constant, it is called homoscedasticity and if it is different it is called heteroscedasticity.

Judging from the significance value of the three independent variables, it shows that the three independent variables have a significance value > 0.05, which means that there is no heteroscedasticity.

Autocorrelation Test

The autocorrelation test aims to determine whether there is a correlation between confounding errors in period t and confounding errors in period t-1 (previous). The autocorrelation test is a test of assumptions in regression where the dependent variable is not correlated with itself. Autocorrelation in this study was tested using the Durbin-Watson test.

The D-W value is 1.741. This value is between $-2 < dw < 2$ which means there is no autocorrelation. So, with the provisions of the autocorrelation test $-2 < dw < 2$, it can be concluded $-2 < 1,741 < 2$ that there is no autocorrelation in the regression model so that the dependent variable does not correlate with itself.

From the four tests above, the data in this study fulfills all the classical assumption tests so that the regression model is suitable for this study.

Multiple Linear Regression Analysis

Multiple linear regression analysis is a statistical method to test the effect of several independent variables on a dependent variable (Ghozali, 2021). The results of multiple linear regression analysis data processing can be seen below:

$$\text{PBV} = 10.958 + 0.195 \text{ GA} + 0.252 \text{ KL} - 0.357 \text{ SIZE} + 0.211 \text{ SR}$$

Description:

PBV= *Price to Book Value/Company Value*

GA= *Green Accounting*

KL= *Environmental Performance*

SIZE= *Company Size*

SR= *Sustainability Report*

From the multiple linear regression equation above, it can be explained as follows:

1. The constant value has a positive value of 10,958. The positive sign indicates a unidirectional influence between the independent variable and the dependent variable. This means that if all independent variables including GA (X_1), KL (X_2), SIZE (X_3), and SR (X_4) are 0 or considered constant (fixed), then the value of PBV is 10,958.
2. The regression coefficient value for the GA variable (X_1) has a positive value of 0.195. This means that if the *Green Accounting* variable increases by 1%, the Company Value will increase by 0.195% with the assumption that the other independent variables are considered constant.
3. The regression coefficient value for the KL variable (X_2) has a positive value of 0.252. This means that if the Environmental Performance variable increases by 1%, the Company Value will increase by 0.252% with the assumption that the other independent variables are considered constant.
4. The regression coefficient value for the SIZE variable (X_3) has a negative value of -0.357. This means that if the Company Size variable increases by 1%, the Company Value will decrease by 0.357% assuming other independent variables are considered constant.
5. The regression coefficient value for the SR variable (X_4) has a positive value of 0.211. This means that if the *Sustainability Report* variable increases by 1%, the Company Value will increase by 0.211% with the assumption that the other independent variables are considered constant.

T test

The t test is used to determine whether the independent variables partially have a real effect or not on the dependent variable. The T test is carried out by comparing the calculated T value of each independent variable with the T table value and comparing the 5% significant level (0.05) with the T significant level in the *coefficient* table. The following are the partial test results:

The Effect of *Green Accounting* on Firm Value

The test results on the *Green Accounting* variable show a significant t value of $0.517 > 0.05$ and the calculated t value of the *Green Accounting* variable is $0.672 < 2.22814$. The results showed that *Green Accounting* has no effect on Firm Value. So that testing the hypothesis **H₁ is rejected**.

The implementation of *green accounting* shows that the company cares about the environment through environmental costs disclosed in the environmental management section of its financial statements. The disclosure shows that the company's business ethics and responsible resource management allow the company to maintain its legitimacy in society. Companies that pay attention to all aspects of their activities will have an impact on the value of the company. The implementation of *green accounting* can provide good signals to investors. The application of *green accounting* increases the confidence of *stakeholders*, especially investors, this application can predict business continuity and environmental balance in the future.

The results of this study indicate that companies that have charged and disclosed their environmental costs, may not be able to convince investors and consumers in assessing the company as a whole. As a result, there is no significant

influence on the level of sales and profits of the company. Activities related to environmental preservation are included in the company's social responsibility report and CSR costs. Therefore, the disclosure of environmental costs in the income statement has no influence on firm value.

Based on signal theory, information submitted by the company and received by investors, will be interpreted and analyzed first whether the information is considered a positive signal (good news) or a negative signal (bad news). In this study, investors consider the application of *green accounting* as a negative signal which indicates that investors' desire to invest is decreasing which will affect the decline in company value. This happens because there is no standardized and universally accepted *green accounting* measurement standard that causes inconsistencies in reporting and comparisons between companies.

The results of this study are in line with research conducted by Sapulette and Limba (2021) which states that *green accounting* has no effect on firm value. Meanwhile, this study is not in line with research conducted by Lestari and Khomsiyah (2023); Fini and Astuti (2024) which state that *green accounting* affects firm value because the company has successfully implemented environmental activities disclosed in the annual report and received a positive response from the public so as to create a good image for the company. The company shows the seriousness of the company in paying attention to sustainability factors through the application of *green accounting* so as to attract stakeholders to invest and increase company value.

The Effect of Environmental Performance on Firm Value

The test results on the Environmental Performance variable show a significant t value of $0.103 > 0.05$ and the t value of the Environmental Performance variable count of $1.793 < 2.22814$. The results showed that Environmental Performance has no effect on Firm Value. So that hypothesis testing H_2 is rejected.

Environmental performance reflects the company's concern for the environment as measured by the PROPER rating achieved by the company. The results of this study indicate that the environmental management carried out by the company by joining PROPER cannot affect the company's value. This is because the PROPER assessment aspect does not have a direct impact on the interests of the community so that it does not get a positive image from the community.

Based on signal theory, companies that disclose internal company information, such as disclosure of company activities as part of their concern for the environment, can provide positive signals to external parties, especially to investors and can increase company value. Assessment of the company's environmental performance has long-term benefits and the results are not immediately visible in the financial statements. Meanwhile, investors and financial analysts generally focus more on indicators that provide benefits in the short term and are easy to understand the results in the financial statements. Therefore, even though the PROPER rating achieved by the company is quite good, namely the gold, blue and green categories, it has not been able to convince and give positive signals to investors to be able to invest so that it does not affect the increase in company value.

The results of this study are in line with research conducted by Sawitri and Setiawan (2017) which states that environmental performance has no effect on firm value. Meanwhile, this study is not in line with research conducted by Sapulette and

Limba (2021); Pratama, Purnamawati, and Sayekti which state that environmental performance affects firm value. Companies with good environmental performance will provide a positive image for the community and investors and potential investors. The company is considered to have concern for the environmental conditions around the company, and minimizes the negative impacts that will arise due to the company's business processes that are not environmentally friendly. Therefore, it can be understood that environmental performance has a tendency towards firm value, it will be able to provide an increase in the company. The higher the company achieves environmental performance value, it can maximize *stakeholder* investment interest.

Effect of Company Size on Company Value

The test results on the Company Size variable show a significant t value of $0.013 < 0.05$ and the t value of the Company Size variable is $-3.026 < 2.22814$. The results showed that Company Size has an effect on Firm Value. So that testing the hypothesis H_3 is accepted.

Company size is a depiction of the size of a company which is shown in total assets, total sales, average sales, and total assets. Companies with large total assets are considered a negative signal by investors because the high assets are not balanced with maximum asset management. In addition, companies with large total assets often have complex ownership structures, which can trigger conflicts of interest between management and shareholders. Under these conditions, management will focus more on company growth rather than maximizing shareholder value. This indicates that companies with high total assets are unattractive to investors because they will tend to set larger retained earnings than dividends to shareholders, thereby reducing the value of the company to investors.

The results of this study are in line with research conducted by Hakim and Aris (2023); Meifari (2023) which states that company size affects firm value. Meanwhile, this study is not in line with research conducted by Siagian, Asrini, and Wijoyo (2022) which states that company size has no effect on firm value because investors buy shares of a company not only in terms of how large the company's assets are but also in terms of financial statements, good name and dividend policy.

The Effect of Sustainability Report on Company Value

The test results on the *Sustainability Report* variable show a significant t value of $0.670 > 0.05$ and the t value of the *Sustainability Report* variable is $0.439 < 2.22814$. The results show that the *Sustainability Report* has no effect on Firm Value. So that testing the hypothesis H_4 is rejected.

Sustainability report is a report that contains information about the company's responsibility for economic, environmental and social aspects whose preparation is based on the Global Reporting Initiative (GRI) *Sustainability Report* guidelines. Disclosure of *sustainability report* means disclosing or communicating the company's economic, environmental, and social performance to *stakeholders* in order to realize sustainable development goals. Environmental disclosure is a strategy carried out by companies in the long term that cannot be felt in the short term. Meanwhile, investors generally buy shares to get profits (*capital gains*) without seeing or considering the sustainability of the company in the long term (*going concern*). Thus, environmental

disclosures made by the company do not affect the decision-making of *stakeholders* or investors to invest.

The results of this study are in line with research conducted by Sawitri and Setiawan (2017); Gustinya (2022) which states that *sustainability reports* have no effect on firm value. Meanwhile, the results of this study are not in line with research conducted by Lestari and Khomsiyah (2023) which states that *sustainability reports* have a significant effect on firm value.

F Test or Research Model Test

The F test is used to determine whether the independent variables simultaneously have a significant effect or not on the dependent variable or whether the independent variables used in the study can explain the dependent variable.

The test results shows that the calculated F value of $2.840 < 3.48$ and a significance value of $0.082 > 0.05$. So that testing the hypothesis H_5 is **rejected**. These results indicate that *green accounting*, environmental performance, company size and *sustainability report* have no simultaneous effect on firm value or it can be said that the independent variable cannot explain the dependent variable. This happens because three of the four independent variables, namely *green accounting*, environmental performance, and *sustainability reports* are related to the environment which has a long-term impact so that investors do not really consider these factors in assessing the company as a whole. Investors tend to focus on the company's financial performance as outlined in financial ratios. In addition, the absence of universal standards to measure variables related to the environment is also one of the reasons investors do not consider these factors in investing.

However, companies that have made environmental disclosures in their financial statements as a form of companies caring for the environment should be appreciated and followed by other companies. Although the impact cannot be felt directly, it is a good thing that must be done as soon as possible so that the environment remains sustainable. Investors are also expected to consider factors related to the environment in making future decisions so that companies immediately implement environmental disclosure practices in their business activities.

Test Coefficient of Determination (R^2)

The coefficient of determination (R^2) is used to measure the ability of independent variables (*Green Accounting*, Environmental Performance, Company Size and *Sustainability Report*) in explaining the dependent variable (Company Value). The value of R^2 is between 0 and 1. If the value of R^2 is close to 1, the ability of the independent variable to explain variations in changes to the dependent variable is getting stronger, which means that the independent variable is able to provide most of the information needed to predict the dependent variable.

The test results shows that the *Adjusted R Square* value is 0.345. This value shows the ability of the independent variables, namely *green accounting*, environmental performance, company size and *sustainability report* in explaining the firm value variable is 34.5%. So that 65.5% is influenced by other factors and independent variables which are not discussed in this study such as profitability, leverage, dividend policy, liquidity, etc. From the regression results, the *Standard Error of The Estimate* value is 0.26266 or 26.26%. The smaller *Standard Error of The Estimate*

(SEE) indicates that the regression model used is more precise in predicting the dependent variable.

CONCLUSION

Based on the results of research and discussion regarding the effect of *green accounting*, environmental performance, company size and *sustainability reports* on the value of coal industry energy sector companies listed on the Indonesia Stock Exchange for the period 2019 - 2023, it can be concluded as follows (1) *Green accounting* has no effect on firm value in coal industry energy sector companies listed on the Indonesia Stock Exchange for the period 2019 - 2023. (2) Environmental performance has no effect on firm value in coal industry energy sector companies listed on the Indonesia Stock Exchange for the period 2019 - 2023. (3) Company size affects firm value in coal industry energy sector companies listed on the Indonesia Stock Exchange for the period 2019 - 2023, and (4) *Sustainability report* has no effect on firm value in coal industry energy sector companies listed on the Indonesia Stock Exchange for the period 2019 - 2023.

In this study, investors consider the application of green accounting as a negative signal which indicates that investors' desire to invest is decreasing which will affect the decline in company value. The environmental management carried out by the company by joining PROPER cannot affect the company's value. This is because the PROPER assessment aspect does not have a direct impact on the interests of the community so that it does not get a positive image from the community. Companies with high total assets tend to be more attractive to investors because investors believe that large companies have strong conditions. Large size companies also have easier access to capital markets and external financing. This research shows that an increase in corporate assets will be followed by an increase in firm value. Environmental disclosure is a strategy carried out by companies in the long term that cannot be felt in the short term, environmental disclosures made by the company do not affect the decision-making of stakeholders or investors to invest.

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