

THE EFFECT OF CARBON EMISSION DISCLOSURE AND CORPORATE GOVERNANCE ON FIRM VALUE

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Abstrak

Penelitian ini bertujuan untuk menguji pengaruh *carbon emission disclosure* dan *corporate governance* terhadap nilai perusahaan pada perusahaan sektor *basic materials* yang terdaftar di Bursa Efek Indonesia periode 2021-2024. Penelitian menggunakan metode kuantitatif dengan data sekunder berupa *annual report* dan *sustainability report*. Sampel ditentukan melalui *purposive sampling* dan menghasilkan 87 perusahaan dengan 348 data observasi. Data dianalisis menggunakan statistik deskriptif, uji asumsi klasik, regresi linier berganda, dan uji hipotesis. Hasil penelitian menunjukkan bahwa *carbon emission disclosure* berpengaruh signifikan negatif terhadap nilai perusahaan, sedangkan *corporate governance* tidak berpengaruh signifikan terhadap nilai perusahaan. Temuan ini menunjukkan bahwa pengungkapan emisi karbon belum sepenuhnya dipersepsikan sebagai sinyal positif oleh investor, sementara keberadaan komisaris independen belum memberikan respons yang kuat dalam pembentukan nilai perusahaan. Penelitian selanjutnya disarankan memperluas sektor dan periode penelitian, menggunakan proksi *corporate governance* yang lebih beragam, serta menambahkan variabel lain yang memengaruhi nilai perusahaan.

Kata Kunci: *Carbon Emission Disclosure, Corporate Governance, Firm Value.*

Abstract

This research is aimed at investigating the influence of carbon emission disclosure and corporate governance on firm value among basic materials sector companies listed on the Indonesia Stock Exchange over the 2021-2024 period. A quantitative approach was employed, utilizing secondary data drawn from annual reports and sustainability reports. Sample selection was carried out through purposive sampling, yielding 87 companies with a total of 348 observations. The collected data were subsequently analyzed using descriptive statistics, classical assumption testing, multiple linear regression analysis, and hypothesis testing. The results indicate that carbon emission disclosure has a significant negative effect on firm value, while corporate governance has no significant effect on firm value. These findings suggest that carbon emission disclosure has not yet been fully perceived by investors as a positive signal, while the presence of independent commissioners has not provided a

strong response in the formation of firm value. Future research is recommended to expand the research sectors and periods, employ more diverse proxies for corporate governance, and include other variables that may affect firm value.

Keywords: Carbon Emission Disclosure, Corporate Governance, Firm Value.

A. INTRODUCTION

Climate change and increasing carbon emissions have become important issues affecting business activities, government policies, and investment decisions. Corporate activities can generate carbon emissions that create environmental and economic risks, requiring companies to enhance transparency and accountability in managing their emissions. Environmental information has also received increasing attention from investors, as it reflects a company's ability to manage risks and maintain business sustainability (Hardiyansah et al., 2021; Kurnia et al., 2021).

Firm value reflects market perceptions of a company's performance and future prospects. Investors' assessments are based not only on financial information but also on non-financial information, including sustainability and the quality of corporate management (Fadilla & Arifin, 2022; Lasmana & Veny, 2025). One form of such transparency is carbon emission disclosure, which includes information regarding emissions, emission sources, climate change policies, and emission reduction efforts (Jaenudin et al., 2024).

Based on signaling theory, carbon emission disclosure can serve as a positive signal of a company's transparency and ability to manage environmental risks. Such information may increase investor confidence and improve the market's assessment of the company (Kurnia et al., 2021; Sulistiani & Latrini, 2025). Kurnia et al. (2021) and (Lasmana & Veny, 2025) found a positive effect of carbon emission disclosure on firm value. However, Putri & Noviari, (2025) found a negative effect, while Wijayanti et al. (2026) found no significant effect among companies in the basic materials sector. These differing findings indicate the existence of a research gap.

In addition to environmental disclosure, firm value may also be influenced by corporate governance. Good corporate governance plays an important role in directing and monitoring corporate activities while reducing conflicts of interest and

information asymmetry between management and investors (Fadilla & Arifin, 2022; Santosa et al., 2022). Independent commissioners, as one of the mechanisms of corporate governance, are expected to enhance the effectiveness of corporate oversight and transparency. However, previous studies have reported inconsistent findings. Fadilla & Arifin (2022) found that corporate governance affects firm value, whereas Santosa et al. (2022) and Lasmana & Veny (2025) reported insignificant results.

Based on the inconsistency of previous findings regarding the effects of carbon emission disclosure and corporate governance on firm value, further research is necessary to provide additional empirical evidence. This study is expected to enrich the existing literature based on signaling theory and provide useful information for management, investors, and regulators regarding the importance of environmental transparency and corporate governance. Therefore, is conducted to assess the impact of carbon emission disclosure and corporate governance on firm value.

Signaling Theory

Signaling theory was developed by Spence (1974), explaining that parties with more information can convey information to other parties through signals to reduce information asymmetry. Signals are used to demonstrate qualities or characteristics that cannot be directly observed by external parties (Spence, 1974). In the corporate context, management generally has more complete knowledge of the firm's condition and prospects than investors. Corporate reports can therefore be used to convey selected information as signals to the market.

Environmental information disclosure and the implementation of corporate governance can serve as signals of the quality of corporate management. Carbon emission disclosure can demonstrate a company's transparency in managing environmental risks, while corporate governance can signal the quality of corporate oversight and management. Such information can assist investors in assessing a company's prospects and risks, thereby potentially influencing firm value (Sulistiani & Latrini, 2025).

Firm Value

Firm value represents the market's evaluation of a company's overall condition, performance, and future prospects. Firm value is important to investors because it reflects market expectations regarding a company's ability to create value in the future. Firm value is frequently measured in empirical research through Tobin's Q, which reflects the comparison between a firm's market value and the value of its assets. Kurnia et al. (2021) used Tobin's Q as a measure of firm value in examining the relationship between carbon emission disclosure and firm value.

Based on signaling theory, firm value can reflect the market's response to the information communicated by a company. Positive information that is trusted by investors may increase the market's valuation of a company, whereas information perceived as indicating risk may reduce that valuation.

Carbon Emission Disclosure

Carbon emission disclosure refers to the disclosure of corporate information regarding carbon emissions generated from operational activities, as well as the company's policies and efforts to manage and reduce those emissions. Carbon emission disclosure may include information concerning emission sources, the amount of emissions, climate change policies, and emission reduction strategies (Kurnia et al., 2021).

Based on signaling theory, carbon emission disclosure can serve as a signal to investors regarding a company's transparency and ability to manage environmental risks. More extensive disclosure can provide additional information for investors in assessing the sustainability and future prospects of a company. Maharani et al. (2024) used carbon emission disclosure as a form of environmental information associated with investors' assessments of a company.

Corporate Governance

Corporate governance refers to a system that regulates and oversees corporate management to ensure that business activities are conducted in a transparent, accountable, responsible, independent, and fair manner. Corporate

governance mechanisms may include independent commissioners, institutional ownership, boards of directors, and audit committees (Santosa et al., 2022).

Based on signaling theory, corporate governance can serve as a signal of the quality of corporate oversight and management. Good governance indicates the existence of effective monitoring mechanisms that can enhance corporate transparency and accountability. Therefore, the quality of corporate governance may influence investor perceptions and be reflected in firm value.

The Effect of *Carbon Emission Disclosure* on Firm Value

Based on signaling theory, carbon emission disclosure can be used by companies as a signal of their commitment and ability to manage environmental risks. Such information can reduce information asymmetry and assist investors in assessing the company's condition and future prospects. Spence (1974) explained that signals enable parties with better information to communicate information about qualities that cannot be directly observed. Empirically, Kurnia et al. (2021) found that carbon emission disclosure affects firm value, while Maharani et al. (2024) also found that carbon emission disclosure has an effect on firm value. Therefore, this study proposes a hypothesis:

H₁: Carbon emission disclosure has a positive effect on firm value.

The Effect of *Corporate Governance* on Firm Value

Based on signaling theory, the implementation of corporate governance can serve as a signal of the quality of corporate management and oversight. Good corporate governance can enhance transparency, accountability, and investor confidence in the company. Santosa et al. (2022) demonstrated that corporate governance mechanisms are among the factors associated with the formation of firm value. Therefore, this study proposes a hypothesis:

H₂: Corporate governance has a positive effect on firm value.

B. METHOD

This study employs a quantitative method conducted indirectly through desk research by collecting and analyzing secondary data available online. Data for this

study were collected from annual reports and sustainability reports published by basic materials sector firms listed on the Indonesia Stock Exchange between 2021 and 2024. The population comprised 96 companies, and purposive sampling produced a sample of 87 companies with 348 observations. Documentation and content analysis were used for data collection, while the analysis involved descriptive statistics, classical assumption testing, multiple linear regression, and hypothesis testing.

C. RESULTS AND DISCUSSIONS

1. Descriptive Statistical Analysis

Tabel 1 Descriptive Statistical Test Results

	N	Minimum	Maximum	Mean	Std. Deviation
Carbon Emission Disclosure	320	0,00	0,94	0,4448	0,26621
Corporate Governance	320	0,20	1,00	0,4200	0,14973
Firm Value	320	0,34	5,40	1,1879	0,74014
Valid N (listwise)	320				

Source: Processed data, 2026

Based on the results of the descriptive statistical analysis, the carbon emission disclosure variable had a minimum value of 0,00 and a maximum value of 0,94, with a mean value of 0,4448 and a standard deviation of 0,26621. The corporate governance variable had a minimum value of 0,30 and a maximum value of 1,00, with a mean value of 0,4200 and a standard deviation of 0,14973. Furthermore, the firm value variable had a minimum value of 0,34 and a maximum value of 5,40, with a mean value of 1,1879 and a standard deviation of 0,74014.

2. Classical Assumption Tests

a) Normality Test

Tabel 2 Normality Test Results

		Unstandardized Residual
N		264
Normal Parameters ^{a,b}	Mean	0,0000000
	Std. Deviation	0,30286352
Most Extreme Differences	Absolute	0,047
	Positive	0,047
	Negative	-0,029
Test Statistic		0,047
Asymp. Sig. (2-tailed)		0,200 ^{c,d}

Source: Processed data, 2026

Based on the normality test, the obtained Asymp. Sig. (2-tailed) value of 0.200 (> 0.05) confirms that the data used in this study follow a normal distribution, thereby fulfilling the normality assumption required for further analysis.

b) Multicollinearity Test

Tabel 3 Multicollinearity Test Results

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Carbon Emission Disclosure	0,955	1,047
	Corporate Governance	0,955	1,047
Dependent Variable: Firm Value			

Source: Processed data, 2026

The multicollinearity test results showed that all variables had Tolerance values $> 0,10$ and Variance Inflation Factor (VIF) values $< 10,00$, indicating that no multicollinearity was present among the independent variables in this study.

c) Heteroscedasticity Test

Tabel 4 Heteroscedasticity Test Results

Model		t	Sig.
1	(Constant)	7,254	0,000
	Green Accounting	1,178	0,240
	Carbon Emission Disclosure	-1,542	0,124
Dependent Variable: ABS_RES			

Source: Processed data, 2026

The heteroscedasticity test showed that all variables had significance values $> 0,05$, indicating that the regression model did not exhibit heteroscedasticity.

d) Autocorrelation Test

Tabel 5 Autocorrelation Test Results

Model	Durbin-Watson
1	1,998
a. Predictors: (Constant), Carbon Emission Disclosure, Corporate Governance	
b. Dependent Variable: Firm Value	

Source: Processed data, 2026

Based on the table above, the Durbin–Watson (DW) value was 1,998. The total number of observations (n) was 264. Based on the Durbin–Watson table for $k = 2$, the lower bound (dL) was 1,7931 and the upper bound (dU) was 1,8079. The criterion for determining the absence of autocorrelation is $dU < DW < 4-dU$. Based on the results, the value of $dU < DW < 4-dU$ was $1,8079 < 1,998 < 2,1921$. Thus, the results indicate that the study was no from autocorrelation.

3. Multiple Linear Regression Analysis

Tabel 6 Results of the Multiple Linear Regression Analysis Test

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0,547	0,040		13,805	0,000
Carbon Emission Disclosure	-0,238	0,071	-0,207	-3,351	0,001
Corporate Governance	0,026	0,167	0,010	0,157	0,876
Dependent Variable: Firm Value					

Source: Processed data, 2026

The multiple linear regression analysis produced a constant value of 0,547, indicating that when the carbon emission disclosure and corporate governance variables are assumed to be zero, firm value is 0,547. The regression coefficient for the carbon emission disclosure variable was -0,238, indicating a negative relationship with firm value. This means that an increase in carbon emission disclosure by 1% would decrease firm value by 0,238, assuming that other variables remain constant. Similarly, the corporate governance variable had a regression coefficient of 0,026, indicating that a 1% increase in corporate governance would increase firm value by 0,026, assuming that other variables remain constant.

4. Hypothesis Testing

a) Simultaneous Test (F-Test)

Tabel 7 F-Test Results

Model	Sum of Square	df	Mean Square	F	Sig.
Regression	0,808	2	0,404	5,741	0,004 ^b
Residual	18,290	260	0,070		
Total	19,097	262			
a. Dependent Variable: Firm Value					
b. Predictors: (Constant), Corporate Governance, Carbon Emission Disclosure					

Source: Processed data, 2026

Based on the table above, the F-value was 5,741, along with a p-value of 0,004. As the resulting figure was $< 0,05$, this suggests that the explanatory variables collectively exerted a significant impact on the dependent variable.

b) Partial Test (t-Test)

Tabel 8 t-Test Results

Model	t	Sig.
(Constant)	13,805	0,000
Carbon Emission Disclosure	-3,351	0,001
Corporate Governance	0,157	0,876
Dependent Variable: Firm Value		

Source: Processed data, 2026

Based on the results of the partial test (t-test), carbon emission disclosure had a regression coefficient of -0,238, a t-value of -3,351, with a p-value of $0,001 < 0,05$. These results indicate that carbon emission disclosure had a notable impact on firm value, but the effect was negative. Therefore, **H₁, which stated that carbon emission disclosure has a positive effect on firm value, was rejected.**

Meanwhile, corporate governance had a regression coefficient of 0,026, a t-value of 0,157, with a p-value of $0,876 > 0,05$. Although the coefficient showed a positive direction, its effect was not statistically significant. Therefore, **H₂, which stated that corporate governance has a positive effect on firm value, was rejected.**

c) Coefficient of Determination Test (R²)

Tabel 9 Coefficient of Determination Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,206 ^a	0,042	0,035	0,26523
a. Predictors: (Constant), Corporate Governance, Carbon Emission Disclosure				
b. Dependent Variable: Firm Value				

Source: Processed data, 2026

Based on the table above, the Adjusted R Square value was 0,035, or 3,5%. This indicates that carbon emission disclosure and corporate governance explained 3,5% of the variation in firm value, whereas the remaining 96.5% of the variation was attributable to variables outside the scope of this research.

Discussion

1. The Effect of Carbon Emission Disclosure on Firm Value

These results demonstrate that carbon emission disclosure has a significantly negative impact on firm value. This finding suggests that investors may perceive carbon emission disclosure as information related to environmental risks and potential costs faced by the company. Based on signaling theory, information disclosed by a company can influence investors' assessments of the company's future prospects (Spence, 1974). In this study, carbon emission disclosure was not perceived as a positive signal and therefore generated a negative response toward firm value. This result is consistent with the findings of Putri & Noviari (2025), who found a negative effect of carbon emission disclosure on firm value.

2. The Effect of Corporate Governance on Firm Value

The test results indicate that corporate governance has no significant effect on firm value. Based on signaling theory, corporate governance is expected to provide information regarding the quality of corporate management and oversight. However, such information may not have received a strong response from investors and, therefore, was not able to significantly influence firm value (Spence, 1974). This result is consistent with the findings of Santosa et al. (2022) and Lasmana & Veny (2025), who found that independent commissioners have no significant effect on firm value.

D. CONCLUSIONS

Referring to the results derived from the data analysis and interpretation described earlier, this study concludes that carbon emission disclosure has a

significant negative effect on firm value. These findings indicate that carbon emission disclosure has not been fully perceived by investors as a positive signal but may instead be viewed as information regarding environmental risks and potential costs faced by companies. Meanwhile, corporate governance, as proxied by the proportion of independent commissioners, has no significant effect on firm value. This finding suggests that the presence of independent commissioners has not been able to generate a strong investor response in shaping firm value.

This study is subject to several limitations. The analysis is restricted to basic materials sector companies during the 2021-2024 period, so the findings should not be generalized directly to other sectors or longer periods. In addition, corporate governance is measured solely using independent commissioners, and the variables included in this study have limited explanatory power in explaining firm value.

E. SUGGESTIONS

Future research is recommended to expand the scope of sectors and research periods to obtain more comprehensive results. Subsequent studies may also employ more diverse proxies for corporate governance and incorporate other variables that may potentially influence firm value. Thus, future research is expected to provide a broader understanding of the factors affecting firm value.

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