

The Effect of Carbon Emission Disclosure and Environmental Performance on Company Value in Indonesia (Empirical Study on Mining Companies Listed on the Indonesia Stock Exchange 2021-2023)

M. Dawam Habibullah^{1*}, Mukhzarudfa², Rita Friyani³
Universitas Jambi

Corresponding Author: M. Dawam Habibullah dhabibullah89@gmail.com

ARTICLE INFO

Keywords: Carbon Emission Disclosure, Company Value, Environmental Performance

Received : 10, January

Revised : 23, January

Accepted: 24, February

©2025 Habibullah, Mukhzarudfa, Friyani : This is an open-access article distributed under the terms of the [Creative Commons Atribusi 4.0 Internasional](https://creativecommons.org/licenses/by/4.0/).



ABSTRACT

The research investigates how disclosure of carbon emissions and ecological performance metrics influence corporate valuation. Through deliberate selection criteria, researchers examined 63 mining sector organizations registered with Indonesia's primary securities market. Financial statements and sustainability documentation served as primary data sources, accessed via the national exchange platform. Statistical evaluation employed multiple regression techniques to test the proposed relationships. The investigation revealed that both variables - transparency regarding carbon output and environmental stewardship - demonstrated meaningful positive correlations with organizational worth. These effects were observed independently and in combination across mining enterprises listed on Indonesia's stock market between 2021 and 2023.

INTRODUCTION

Climate change is one of the biggest challenges in politics and economics Briand et al (2015). One of the significant impacts of climate change is global warming, which occurs in the long term on the overall temperature of the earth (National Geographic, 2022). Although this warming trend has been going on for a long time, the increase has become more striking in the last hundred years, mainly due to the burning of fossil fuels.

The IPCC (Intergovernmental Panel on Climate Change) stated that the comparison of global temperatures shows a significant increase. When analyzing the Earth's surface temperature data as a whole, there is a difference of 1.09 ° C between the pre-industrial revolution period and the 2011-2020 period. In a period of approximately 150 years, the global average temperature has risen by more than one degree Celsius.

The international panel of climate experts explained that human activity is the main factor behind the increase in global temperatures. Various activities carried out by humans result in the release of greenhouse gas emissions into the atmosphere, which ultimately causes an increase in the surface temperature of the planet so that it can cause significant changes in weather and climate patterns.

In Indonesia, the need to reduce carbon emissions is increasingly urgent, considering that the dominance of primary energy reaches almost 90%. Based on a study conducted by the Ministry of National Development Planning/Bappenas, starting in 2022 there will be a shift where the energy sector will take over the position of the forestry sector as the highest contributor of emissions. In the same year, the combined energy and transportation sectors contributed more than half of the total national emissions, precisely 50.6%, with an estimate reaching 1 Giga Ton CO₂eq. Projections show that the level of emissions from the energy sector will continue to increase towards 2030 by around 59% of total emissions, reaching 1.4 Giga Ton CO₂eq Low Carbon Development Indonesia (2024).

THEORETICAL REVIEW

Stakeholder theory

Stakeholder theory was introduced by the Stanford Research Institute (RSI) in 1963 and in 1984 stakeholder theory was first proposed by R. Edward Freeman then Biset (1998) briefly defined stakeholders as people who have interests or concerns about a particular problem. From this definition, stakeholders are people who are bound by certain interests. According to stakeholder theory, a business organization cannot only focus on internal profits, but needs to provide positive value to all parties related to the company's activities.

Signaling Theory

This signaling theory was first proposed by Michael Spence (1973) in his research on Job Market Signals. The concept of signaling in this theory involves two main groups: groups from within the company, especially the management team that acts to convey information, and groups from outside the company

such as investors who receive the information. According to Spence's view, the management tries to provide data that has a sufficient level of relevance so that it can be used by investors. In addition, investors will adjust their decisions based on their understanding of the signals received. In the context of Carbon Emission Disclosure, this disclosure can be seen as an informative signal about how the company manages risks and opportunities related to environmental issues and Climate Change.

Carbon Emission Disclosure

Carbon Emission Disclosure is a publication made by a company to disclose or report its environmental activities. Disclosure of carbon footprints are carbon-related components listed in the organization's sustainability report or annual report. This recording is useful for organizations to calculate the carbon output from their measurement activities. This provides an opportunity for management to formulate strategic steps to reduce the quantity of carbon emissions in the future and report them to the company, as explained in the research of Rahmawati et al. (2022).

Environmental Performance

Evaluation of the impact of company operations on the environment can be assessed through an analysis of the resulting environmental performance (Linda et al., 2023).

Company Value

A company's performance can be seen from the valuation of its shares which is formed through the supply and demand mechanism on the stock exchange, which illustrates how the public assesses the company's capabilities (Harmono, 2017: 233). Hery (2017: 5) states that after carrying out various operational activities, a company can achieve a certain status that indicates the level of public confidence in the existence of its business. Based on the literature review above, the research hypothesis proposed in this study is as follows:

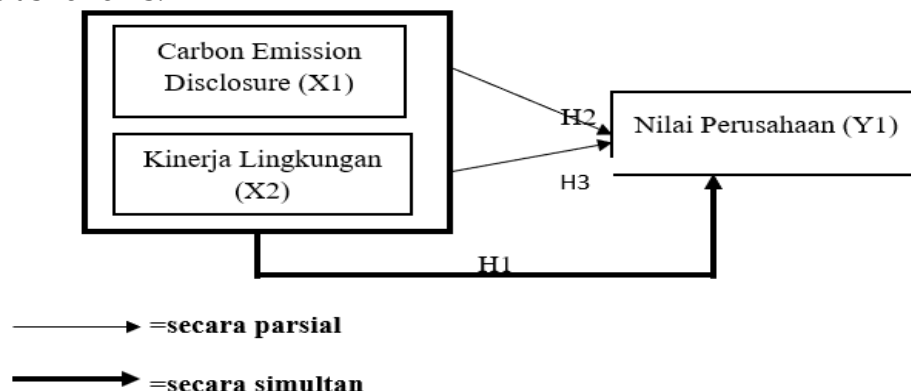


Figure 1. Conceptual Framework

Hypothesis

- H1 : Carbon Emission Disclosure and environmental performance have a simultaneous effect on Company value
- H2 : Carbon Emission Disclosure has an effect on Company value
- H3 : Environmental Performance has an effect on Company value

METHODOLOGY

This research is a type of quantitative research. The research method that utilizes numbers as a source of data is quantitative research, where processing and analysis are carried out through computer-based statistical calculations. This research uses the technique The data source used is data that is not obtained directly, but through intermediaries. This secondary data is taken from the annual reports and financial statements of companies listed on the Indonesia Stock Exchange (IDX) from 2021 to 2023. Research data was obtained through the collection of documentation of annual financial reports published on the official IDX website. The sample selection criteria include companies listed on the IDX during the period 2021 to 2023 and meet the established requirements. This study uses the SPSS application

Tabel 3. 1

Pengambilan Sampel

No	Kriteria Sampel	Pertambahan
1	Perusahaan sektor tambang yang terdaftar pada bursa efek Indonesia periode 2021-2023 (www.idx.co.id)	66
2	Perusahaan dengan laporan keuangan tahunan yang lengkap atau laporan keberlanjutan selama tahun 2021-2023	(46)
3	Perusahaan yang konsisten menerima peringkat PROPER selama periode 2021-2023	(21)
4	Perusahaan yang mengungkapkan emisi karbon selama periode 2021-2023	(21)
	Jumlah Sampel periode 2021-2023	63

Data processed by researchers

Based on the identification process carried out, 21 business entities were found that met the criteria as research samples. Observations were carried out over a period of 3 years, resulting in a data set of 63 samples. In the context of this study, there are two types of variables studied: independent variables and dependent variables. The dependent variable that is the focus of the study is company valuation (Y). The independent variables in this study are Carbon Emission Disclosure (X1), Environmental Performance (X2).

RESULTS

Tabel 1
 Hasil Statistik Deskriptif

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Carbon Emission Disclosure	63	0,11	0,7778	0,42	0,24
Kinerja Lingkungan	63	3,00	5,00	3,65	0,82
Nilai Perusahaan	63	0,23	2,23	0,98	0,57
Valid N (listwise)	63				

Sumber : Output data SPSS 26

The descriptive statistical data processing method allows researchers to describe the characteristics of the dataset through several important indicators, including the lowest number, the highest number, the average, and the standard deviation that shows the variation of the data from the mean value. Based on the descriptive analysis conducted on 63 sample companies, several important findings were found. Carbon emission disclosure has an average value of 0.42 with a standard deviation of 0.24. Given the average value is higher than the standard deviation, this indicates a low standard error rate for this variable. Meanwhile, the environmental performance aspect recorded an average of 3.65 and a standard deviation of 0.82, where the positive difference between these two values indicates minimal standard error in measuring this variable. Finally, in the company valuation aspect, an average of 0.98 with a standard deviation of 0.57 was recorded. Once again, with an average that exceeds the standard deviation, it can be concluded that the standard error rate for measuring this variable is relatively low.

Classical Assumption Testing

Table 2
 Hasil uji Kolmogorov-Smirnov

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		63
Normal Parameters ^{a,b}	Mean	,0000000
	Std. Deviation	,38903068
Most Extreme Differences	Absolute	,114
	Positive	,114
	Negative	-,113
Test Statistic		,114
Asymp. Sig. (2-tailed)		,042 ^c
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

Sumber : Output data SPSS 26

Based on the table above, the significance value (Asymp. Sig. 2-tailed) obtained is 0.042, which is greater than the generally used alpha value (0.05). Thus, it can be concluded that the data tends to be normally distributed.

Multicollinearity Test

Table 3
Hasil Uji Multikolinieritas

Coefficients ^a			
Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Carbon Emission Disclosure	,991	1,009
	Kinerja Lingkungan	,991	1,009

Based on Table 4.3 above, the t value for the carbon emission disclosure variable is 0.991 and for the environmental performance variable is also 0.991. The test results show no symptoms of multicollinearity in the model, this is evidenced by the tolerance number exceeding 0.10 and the VIF score below 10 for all variables tested. Based on these findings, it can be stated that the variables in the regression model are free from multicollinearity problems.

Heterokedastisitas Test

Table 4
Hasil Uji Gletser

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error			
1	(Constant)	,022	,192		,116	,908
	Carbon Emission Disclosure	-,143	,167	-,108	-,858	,394
	Kinerja Lingkungan	,090	,050	,225	1,791	,078

a. Dependent Variable: ABS_Res

Autokorelasi Test

Table 5
 Hasil Uji Durbin Watson

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,523 ^a	,274	,250	,395461	1,936
a. Predictors: (Constant), Kinerja Lingkungan, Carbon Emission Disclosure					
b. Dependent Variable: Nilai Perusahaan					

Hypothesis Testing

Coefficient of Determination (R2) Test

Table 6
 Hasil Koefesien Determinasi

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,523 ^a	,274	,250	,395461
a. Predictors: (Constant), Kinerja Lingkungan, Carbon Emission Disclosure				
b. Dependent Variable: Nilai Perusahaan				

Source: SPSS 26 data output

Measurement of the model's ability to explain variations in dependent variables is carried out through the calculation of the coefficient of determination (R2). Referring to the test results shown in Table 4.6, the R-square value obtained is 0.250, equivalent to 25%. This finding indicates that changes in company value can be explained by 25% by the independent variables studied, namely environmental performance and carbon emission disclosure. The other 75% of changes in company value are influenced by various factors outside the scope of this study.

Partial Regression Coefficient Test (t-test)

Table 7
 Hasil Uji Parsial

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	,001	,298		,003	,997
	Carbon Emission Disclosure	-,594	,259	-,253	-	,025
	Kinerja Lingkungan	,338	,077	,482	4,364	,000

a. Dependent Variable: Nilai Perusahaan

Source: SPSS Data Output, 26

a. Carbon emission disclosure variable on company value

The results of statistical tests show that carbon emission disclosure has a p-value of 0.025 which is below the threshold of $\alpha = 0.05$. This finding confirms that carbon emission disclosure has a significant impact on company valuation when tested separately in the statistical model used. Thus, it can be stated that the level of disclosure of information related to carbon emission disclosure is proven to be one of the determining factors that influences company value based on the regression model test carried out.

b. Environmental performance variable on company value

Based on the analysis in the table, the environmental performance variable shows a significance value of 0.00, which is smaller than the significance level generally used, which is 0.05. This indicates that there is a significant partial influence of environmental performance on company value in this regression model.

Simultaneous Regression Coefficient Test (F test)

Table 8
Hasil Uji F

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3,538	2	1,769	11,310	,000 ^b
	Residual	9,383	60	,156		
	Total	12,921	62			
a. Dependent Variable: Nilai Perusahaan						
b. Predictors: (Constant), Kinerja Lingkungan, Carbon Emission Disclosure						

Source: SPSS 26 data output

Statistical analysis using the F test shows a calculation result of 10.010, while the F table value with degrees of freedom $df_1 = 2$ and $df_2 = 60$ at $\alpha = 0.05$ is 3.150. Comparison of the two values shows that the calculated F exceeds the F table. The recorded significance level of 0.00 is also below the threshold of 0.05. This test indicates a significant influence of the two independent variables - environmental performance and carbon emission disclosure - on company value when tested together in the regression model used.

Multiple Linear Regression Analysis

Table 9
 Hasil Uji Regresi Linear Berganda

Coefficients^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0,001	,298		,003	,997
	Carbon Emission Disclosure	-0,594	,259	-,253	-2,293	,025
	Kinerja Lingkungan	0,338	,077	,482	4,364	,000
a. Dependent Variable: Nilai Perusahaan						

Source: SPSS Data Output, 26

1. Based on the results of the analysis, the constant 0.001 indicates that when all independent variables (environmental performance and carbon emission disclosure) are at zero, the company's valuation will show a figure of 0.001.
2. The coefficient indicating environmental expenditure is at -0.594, which means that every 1% increase in environmental expenditure will have an impact on decreasing the company's valuation by 0.594. 3 Meanwhile, the environmental performance parameter shows a positive coefficient of 0.338, indicating a unidirectional relationship where a 1% increase in environmental performance will drive an increase in the company's value by 0.338.

DISCUSSION

The Simultaneous Influence of Carbon Emission Disclosure and Environmental Performance on Company Value

The results of the study showing that both environmental performance and carbon emission distribution significantly affect company value are encouraging findings and are in line with global trends that increasingly prioritize welfare. These findings confirm that investors are increasingly smart and selective in choosing companies to invest in. Current investment considerations go beyond just economic aspects, by including social and ecological elements. Business entities that prove their seriousness in sustainable practices will be more attractive to investors and have brighter expansion potential in the future.

The findings of this study are in line with research conducted by Rusmana & Purnaman (2020) where they found a significant positive impact of carbon information disclosure and environmental performance on corporate valuation, both when tested together and separately. These results are also supported by Rahmanita's investigation (2020) which revealed that carbon environmental disclosure and environmental achievements have a significant positive influence

on business value, so that both aspects can be used as markers for companies in efforts to increase their valuation.

The Effect of Carbon Emission Disclosure on Company Value

The results of the study show that carbon emission exposure has a significant effect on company value. This finding indicates that information related to carbon emissions disclosed by companies has become a significant factor considered by investors in assessing company value. One possible cause is the high level of investor awareness and attention to environmental issues, especially in the context of the Indonesian capital market, where investors' main focus tends to be on financial aspects such as net profit, dividends, and profitability ratios. This makes non-financial information such as carbon emissions less relevant in making investment decisions. The study findings show alignment with research conducted by Nur & Etty (2023), where hypothesis testing analysis shows that the level of disclosure of information related to carbon emissions has a significant positive impact on increasing company valuation.

The Effect of Environmental Performance on Company Value

Data analysis shows a substantial effect of environmental performance on company value. This performance measurement is carried out through the PROPER scheme, which evaluates compliance with environmental standards and the implementation of sustainable practices. This positive relationship indicates that companies with good environmental performance tend to reduce the risk of legal sanctions and additional costs due to environmental violations, thereby increasing operational efficiency. In addition, success in environmental performance creates a positive image in the eyes of the public, consumers, and other stakeholders, which ultimately increases the company's attractiveness to investors.

The results of this research strengthen the findings of previous studies that revealed a positive impact of environmental performance on company valuation, as evidenced by Widyadhana's research in 2022. In line with this, a study conducted by Mardiana and Wuryani in 2019 also confirmed that good management of environmental aspects has an impact on increasing company value.

CONCLUSIONS AND RECOMMENDATIONS

The results of this study indicate that Carbon Emission Disclosure and environmental performance simultaneously affect Company Value, Carbon Emission Disclosure has a significant effect on Company Value, and Environmental performance has a significant effect on company value.

FURTHER STUDY

Further researchers can expand the scope of this research, but by using foreign stock indexes or international capital markets.

REFERENCES

- Alfayerds, W. D., & Setiawan, M. A. (2021). The Effect of Carbon Emission Disclosure and Annual Report Readability on Company Value. *Journal of Accounting Exploration*, 3(2), 349-363.
- Ali, M. M. (2022). Quantitative Research Methodology and Its Application in Research. *Jpib: Ibnu Rusyd Research Journal*, 1(2), 1-5.
- Almuaromah (2022). The Effect of Environmental Performance, Institutional Ownership, Managerial Ownership, Profitability and Leverage on Carbon Emission Disclosure. *Journal of Economics and Business*, 10(1).
- Amelia. (2022) The Effect of Company Growth, Leverage, Profitability, and Company Size on Company Value. *Digital Business: Journal of Management Science and e-Commerce Publication*, 1(3), 108-117.
- Anggraeni. (2024) The Influence of Carbon Emission Disclosure, Carbon Performance, Green Accounting, & Intellectual Capital on Firm Value. *Trisakti Economic Journal*, 4(2), 5-62.
- Ardini. (2019). Factors Affecting Carbon Emission Disclosure in Indonesia.
- Aspian Noor et al. (2022). Influence OF Carbon Emission Disclosure On Firm Value Of Industrial Firms In Indonesia. *International Journal of Contemporary Accounting* 4(2)
Doi::<http://dx.doi.org/10.25105/ijca.v4i2.15247>
- Ayu Laksani, S., Andesto, R., & Jaya Kirana, D. (2020). Carbon Emission Disclosure Reviewed From Firm Value, Leverage And Media Exposure. *Indonesian Accounting And Finance Studies*, 3(2).
- Cooper, D. R., & Schindler, P. S. (2011). *Business Research Methods* (11th Ed.). McGraw-Hill Education. In *Business Research Methods*.
- David Setiawan. (2015). Factors Affecting Carbon Emission Disclosure in Manufacturing Companies Listed on the IDX (2011-2013 Period).
- Donaldson, T., & Preston, L. E. (1995). The Stakeholder Theory Of The Corporation: Concepts, Evidence, And Implications. *Academy Of Management Review*, 20(1).
<https://doi.org/10.5465/Amr.1995.9503271992>
- Ghazali, I. (2018). Multivariate Analysis Application With Ibm Spss 25 Program. In *Badan Penerbit Universitas Diponegoro* (Vol. 20, Issue 5).
- Ghozali, I., & Chariri, A. (2007a). *Accounting Theory - 3rd Edition*. In *Diponegoro University Publishing Agency*.
- Ghozali, I., & Chariri, A. (2007b). *Accounting Theory - 3rd Edition*. In *Diponegoro University Publishing Agency*.
- Harahap, C. D., Juliana, I., & Lindayani, F. F. (2019). The Impact Of Environmental Performance And Profitability On Firm Value. *Indonesian Management And Accounting Research*, 17(1).
<https://doi.org/10.25105/Imar.V17i1.4665>
- Hardianti (2023). The Effect Of Carbon Emission Disclosure And Company Size On Company Value With Environmental Performance As A Moderating Variable. *Wahana Pendidikan Scientific Journal*, 9(9).
- Hardiyansah, M., Agustini, A. T., & Purnamawati, I. (2021). The Effect Of Carbon Emission Disclosure On Firm Value: Environmental Performance

- And Industrial Type. *Journal Of Asian Finance, Economics And Business*, 8(1). <https://doi.org/10.13106/Jafeb.2021.Vol8.No1.123>
- Kurnia, P., Darlis, E., & Putra, A. A. (2020). Carbon Emission Disclosure, Good Corporate Governance, Financial Performance, and Firm Value. *Journal Of Asian Finance, Economics And Business*, 7(12). <https://doi.org/10.13106/Jafeb.2020.Vol7.No12.223>
- Licya Fransica. (2020). The Influence of Media Exposure, Industry Type, Profitability, Regulator, Size, Leverage and Institutional Ownership on Carbon Emission Disclosure (Study on Non-Financial Companies Listed on the Indonesia Stock Exchange (IDX) in 2016-2018) Thesis.
- Low Carbon Development Indonesia. (2024). Energy.
- Maulidiavitasari, J., & Yanthi, M. D. (2021). The Influence of Environmental Performance on Carbon Emission Disclosure with an Independent Board of Commissioners as a Moderating Variable. *Accountability*, 15(1). <https://doi.org/10.29259/Ja.V15i1.11849>
- Ministry of Environment and Forestry. (2018). Measuring and Reducing Greenhouse Gases.
- Mutmainnah. (2024) Environmental Performance and Carbon Emission Disclosure on Company Value.
- National Geographic Society. (2020). Global Warming. National Geographic.
- Olayinka, A., & Oluwamayowa, I. (2014). Corporate Environmental Disclosures And Market Value Of Quoted Companies In Nigeria. *The Business & Management Review*, 5(3).
- Purnomo, R. A. (2016). Economic And Business Statistical Analysis With Spss. In Cv. Wade Group.
- Rahmanita, S. (2020). The Effect Of Carbon Emission Disclosure On Company Value With Environmental Performance As A Moderating Variable. *Accounting: Integrative Accounting Journal*, 6(01). <https://doi.org/10.29080/Jai.V6i01.273>
- Rahmanita, S. A. (2019). Accounting Carbon: The Effect Of Carbon Emission Disclosure On The Value Of Trading Companies.
- Rohmah (2022). The Effect Of Financial Performance, Environmental Performance, Environmental Management System, Managerial Ownership And Company Reputation On Carbon Emission Disclosure. *Trisakti Economic Journal*, 2(2).
- Shafira (2024). The Effect of Carbon Emission Disclosure on Company Value with Environmental Performance as a Moderating Variable (Study on Energy Sector Companies Listed on the Indonesia Stock Exchange in 2020-2022). *Journal*