International Conference on Finance, Economics, Management, Accounting and Informatics

"Digital Transformation and Sustainable Business: Challenges and Opportunities for Higher Education Research and Development"

# The Influence of Environmental Performance and Carbon Emission Disclosure on the Value of Companies Listed on the Indonesia Stock Exchange for the 2020-2023 Period

**[1]Teresita Novela Sidabalok, [2]Mitha Christina Ginting, [3]Farida Sagala**

Indonesia Methodist University
teresitanovelas@gmail.com

**Abstract**

This study aims to examine and map the relationship between environmental performance and carbon emission disclosure on company valuation in the consumer goods industry listed on the Indonesia Stock Exchange during 2020–2023. The method used is quantitative with a purposive sampling approach, which resulted in 11 selected companies according to the established criteria. Data processing was carried out using the SPSS 25 application with multiple linear regression methods to analyze the relationship between variables. The findings show that environmental performance has a positive and significant effect on company value, while carbon emission disclosure shows a significant negative impact. Overall, both variables simultaneously contribute significantly to company valuation. The results of the determination coefficient test show that 29.2% of the variation in company value can be explained by the two variables, while the other 70.8% is influenced by other factors outside this study. This study provides strategic insights into the importance of sustainability in increasing company value.

*Keywords:* Corporate Value, Environmental Performance, Carbon Emission Disclosure, Consumer Goods Industry Sector, Indonesia Stock Exchange

## Introduction

The modern industrial era has brought about a significant transformation in Indonesia's economic landscape, with the consumer goods industry sector becoming one of the main drivers of national growth. However, the expansion of this industrial activity raises serious concerns regarding its impact on the balance of the ecosystem, especially in the context of increasing carbon footprints that contribute to the global climate crisis.

Indonesia, as a country with rapid industrialization, has stated its commitment to reduce greenhouse gas emissions by 29% independently and up to 41% with international assistance by 2030. This commitment is stated in the Nationally Determined Contribution (NDC) document that has been submitted to the UNFCCC. The consumer goods industry sector plays a strategic role in achieving this target, given its large contribution to total national emissions.

The modern investment landscape has undergone a fundamental transformation, with sustainability becoming a determining factor in assessing corporate performance. Global trends show that the investor community is increasingly prioritizing ESG factors in their investment strategies. This phenomenon encourages corporate entities to balance financial achievement with responsibility for environmental sustainability. Environmental performance assessments are an important tool in measuring the effectiveness of a company's environmental impact management. In Indonesia, the Company Performance Rating Program in Environmental Management (PROPER) implemented by the Ministry of Environment and Forestry is a benchmark for a company's seriousness in carrying out its environmental responsibilities.

In line with the need for transparency and accountability, carbon emission disclosure is a crucial component of corporate reporting. This disclosure provides information to investors and stakeholders about the company's efforts in managing climate change risks and environmental impacts. Empirical studies show that transparency in carbon emission reporting is positively correlated with the level of investor trust and company valuation (Luo & Tang, 2021).

Previous studies have identified a relationship between environmental performance, carbon emission transparency, and firm value. Research conducted by Rahman et al. (2020) found that superior environmental performance has a positive impact on firm value. Recent research in the Asian market also confirms a positive relationship between environmental management practices and increased firm value (Lee et al., 2022). Meanwhile, a study by Widyati and Utami (2019) shows that carbon emission transparency can increase investor confidence and have a positive impact on firm value.

The consumer goods industry sector was chosen as the focus of the study because of its distinctive characteristics. This sector not only shows significant growth and contributes substantially to national GDP, but also faces challenges in managing environmental impacts and carbon emissions. The 2020-2023 period is relevant to study because it covers the economic recovery period after the COVID-19 pandemic, where companies are required to carry out more sustainable business transformations.

Based on this background, this study aims to analyze the effect of environmental performance and carbon emission transparency on company value in the consumer goods industry sector listed on the Indonesia Stock Exchange for the period 2020-2023. The findings of this study are expected to provide theoretical and practical contributions to the development of science and become a reference for stakeholders in decision making related to environmental aspects and company valuation.

## Literature Review

### Legitimacy Theory

Legitimacy Theory is a conceptual framework that explains the interaction between business entities and the communities in which they operate. Deegan (2019) emphasizes the importance of organizations operating within normative parameters accepted by society, while Suchman (2018) defines legitimacy as the assumption that an entity's activities are in line with the value system that is collectively constructed in society.

Environmental performance as stated by Zhang et al. (2021) includes the company's capability in managing the impact of its operations on the ecosystem, while Matsumura et al. (2021) found that comprehensive carbon emission transparency can minimize the information gap and affect company valuation.

### Stakeholder Theory

Stakeholder theory according to Freeman and Reed (2019) identifies stakeholders as individuals or groups that can influence or be influenced by organizational activities. Mitchell et al. (2021) emphasize the urgency for companies to consider the interests of various stakeholders, not limited to shareholders.

Thompson and Kumar (2023) found that transparency in carbon emissions reporting meets investors' informational needs and strengthens corporate credibility, while Zhang and Wilson (2022) emphasized that corporate valuation is also manifested in non-financial aspects such as reputation and social acceptance.

**Signal Theory**

Signaling Theory explains the mechanism of corporate communication with external parties through informative indicators. Companies with superior environmental performance tend to disclose more comprehensive environmental information as a positive indicator to differentiate themselves from competitors.

Its relationship with company valuation is reflected in the market response to the indicator, where investors tend to give higher appreciation to companies that demonstrate environmental commitment, especially in the consumer goods industry sector that interacts directly with consumers who care about environmental issues.

**Company Values**

Corporate value is a parameter that reflects the market and investor perspective on the company's performance and prospects. In the contemporary context, this value is not only determined by conventional financial indicators but also by the management of ecological impacts.

Companies with a strong dedication to social and environmental responsibility tend to receive higher ratings, reflecting a multidimensional concept encompassing both financial and non-financial aspects that contribute to an organization's long-term sustainability.

**Hypothesis:**

The hypothesis of this research is:
H1: Environmental performance has a positive and significant influence on firm value.
H2: Carbon Emission Disclosure has a positive and significant influence on Firm Value.
H3: Environmental Performance and Carbon Emission Disclosure have a positive influence on Firm Value.

**Methods Types and Sources of Data**

**Data Types and Sources**

This study applies a quantitative methodology with a causal approach to explore the relationship between several variables. Secondary data in the form of financial reports of consumer goods industry sector companies listed on the IDX for the period 2020-2023 were obtained through the official IDX website (www.idx.co.id) or the official pages of related companies (Sugiyono, 2018).

**Population and Sample**

The study population includes 51 companies in the consumer goods industry sector listed on the IDX for the 2020-2023 period. Sample selection uses a purposive sampling technique with the following requirements:

- Companies listed on the IDX during the period 2020-2023
- Providing comprehensive financial reports and sustainability reports
- Providing complete environmental performance information and carbon emissions disclosure

Of the 51 companies, only 11 entities met the selection criteria with a 4-year observation period, resulting in a total of 44 observation data.

**Research Variables**

**Dependent Variable**Firm Value (Y) is measured using the Tobins'Q formula:

Tobins'Q = (MVE + DEBT) / TA

With the caption:

- MVE (Market Value of Equity) = Market value of equity (Share Price × Number of Shares Outstanding)
- DEBT = Total liabilities
- TA = Total assets

**Independent Variables**

1. **Environmental Performance (X1)**- measured using a PROPER rating with a scale: 1 = Black Rating 2 = Red Rating 3 = Blue Rating 4 = Green Rating 5 = Gold Rating
2. **Carbon Emissions Disclosure (X2)**- measured on a scale: 0 = Item not disclosed 1 = Item disclosed

**Data Analysis Methods**

**Descriptive Statistical Analysis**Descriptive statistical analysis presents data characteristics through average (mean), minimum, and maximum parameters (Sugiyono, 2018).

**Classical Assumption Test**

1. **Normality Test**- Evaluate whether the data distribution follows a normal pattern with a significance value criterion of >0.05 indicating a normal data distribution (Lupiyoadi, 2015).
2. **Multicollinearity Test**- Evaluate the correlation between independent variables in the regression model. An ideal model should not show correlation between independent variables (Lupiyoadi, 2015).
3. **Heteroscedasticity Test**- Evaluate the inequality of variance of observation residuals in the regression model. The absence of a particular pattern and the spread of points above and below the number 0 on the Y axis indicates that there is no heteroscedasticity (Lupiyoadi, 2015).
4. **Autocorrelation Test**- Evaluate the correlation between the nuisance errors in period t and t-1, with parameters:
    1. DW < -2: there is positive autocorrelation
    2. -2 ≤ DW ≤ +2: no autocorrelation
    3. DW > +2: there is negative autocorrelation (Lupiyoadi, 2015)

**Multiple Linear Regression Analysis**The regression model for this study:

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$

With the caption:

- Y = Company Value
- $\alpha$ = Constant
- $\beta_1$, $\beta_2$ = Regression coefficients
- $X_1$ = Environmental Performance
- $X_2$ = Carbon Emissions Disclosure

- ε = Standard error

**Hypothesis Testing**

**Partial Test (t-Test)**

Evaluate the influence of each independent variable on the dependent variable using the following criteria:

- Significant value > 0.05: hypothesis is rejected (no significant effect)
- Significance value < 0.05: hypothesis accepted (significant effect)

**Simultaneous Test (F Test)**

Evaluate the influence of independent variables collectively on dependent variables with the following criteria:

- p-value < 0.05: the model is suitable for use
- p-value > 0.05: the model is not suitable for use

**Coefficient of Determination ($R^2$) Test**

Measures the extent to which the model is able to explain the variation of the dependent variable. An $R^2$ value approaching 1 indicates that the influence of the independent variable on the dependent variable is getting stronger.

**Results and Discussion Descriptive Analysis**

**Table 1. Test Parsial**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 5,001 | ,994 | | 5,030 | ,000 |
| | Kinerja Lingkungan | ,286 | ,123 | ,365 | 2,328 | ,025 |
| | Carbon Emision Disclousre | -5,862 | 1,426 | -,645 | -4,111 | ,000 |

Based on the results of the t-test:

1. Environmental Performance: significance value 0.025 < 0.05 with a positive coefficient, indicating a significant positive effect on Company Value.
2. Carbon Emission Disclosure: significance value 0.000 < 0.05 with a negative coefficient, indicating a significant positive effect on Company Value.

**Table 2. Test Koefisien Determination ($R^2$)**

| Model | R | R Square | Adjusted R Square |
|---|---|---|---|
| 1 | ,540[a] | ,292 | ,258 |

The Adjusted R Square value of 0.292 shows that the Environmental Performance and Carbon Emission Disclosure variables are able to explain the variation in Company Value by 29.2%, while 70.8% is explained by other variables outside the model.

Based on the documents you provide, I will organize the first document in a similar format to the second document, including citations and abbreviations of information.

**The Influence of Environmental Performance on Company Value**

The regression coefficient for Environmental Performance shows a positive value of 0.286 with a significance level of 0.025 < 0.05. These data indicate that Environmental Performance has a significant positive effect on Company Valuation. A one-unit increase in Environmental Performance will result in a significant increase of 0.286 in Company Valuation. This finding is consistent with the study of Clarkson et al. (2008) which identified a significant correlation between Environmental Performance and transparency of environmental information in corporate reports. Sulaiman et al. (2011) also emphasized the significance of environmental accounting implementation to improve corporate efficiency and accountability.

Based on the perspective of Stakeholder Theory, superior Environmental Performance enhances investor confidence and public image, which contributes to increased stock valuations and attracts more investment. Companies with superior environmental performance also tend to be more efficient in resource utilization and minimize legal risks.

**The Impact of Carbon Emission Disclosure on Company Value**

The regression coefficient for Carbon Emission Disclosure shows a negative value of 5.862 with a significance level of 0.000 < 0.05. This result indicates that Carbon Emission Disclosure has a significant negative effect on Company Valuation. A one-unit increase in Carbon Emission Disclosure will result in a significant decrease of 5.862 in Company Valuation. This finding is supported byLuo et al. (2012) negative carbon emission disclosures or those showing poor environmental performance tend to reduce investor interest, because they are considered to have the potential to cause financial burdens in the future. Therefore, although environmental information transparency is important, carbon emission disclosure can be a double-edged sword for companies, especially if it is not accompanied by a clear improvement strategy. In contrast toLegitimacy Theory and Signal Theory state that carbon emission disclosure enhances a company's reputation and provides a positive indicator to investors regarding effective environmental management.

**Simultaneous Effects**

Based on the results of simultaneous analysis, there is a significant influence between Environmental Performance and Carbon Emission Disclosure on Company Valuation with a significance level of 0.001 <0.05.

Pratiwi & Sari (2022) support that Environmental Performance and emission transparency have a significant influence on company valuation, especially when moderated by profitability.

The Adjusted R Square value indicates that Environmental Performance and Carbon Emission Disclosure are able to explain the variation in Company Valuation by 29.2%, while 70.8% is explained by other variables not included in the regression model of this study.

## Conclusion

Based on the analysis that has been carried out, it can be concluded that:

1. Environmental Performance partially has a positive and significant influence on Company Valuation. Thus the first hypothesis (H1) is accepted.
2. Carbon Emission Disclosure partially has a negative and significant effect on Company Valuation. Thus the second hypothesis (H2) is accepted.
3. Environmental Performance and Carbon Emission Disclosure simultaneously have a significant effect on Company Valuation. Thus the third hypothesis (H3) is accepted.
4. Environmental Performance and Carbon Emission Disclosure are able to explain the variation in Company Valuation by 29.2% and the remaining 70.8% is influenced by other variables.

## References

Clarkson, P. M., Li, Y., Richardson, G. D., & Vasvari, F. P. (2008). Revisiting the relationship between environmental performance and environmental disclosure: An empirical analysis. Accounting, Organizations and Society, 33(4-5), 303-327.

Deegan, C. (2019). Legitimacy theory: Despite its enduring popularity and contribution, time is right for a necessary makeover. Accounting, Auditing & Accountability Journal, 32(8), 2307-2329.

Freeman, R. E., & Reed, D. L. (2019). Stockholders and stakeholders: A new perspective on corporate governance. Corporate Governance: A Synthesis of Theory, Research, and Practice, 30(2), 93-94.

Lee, K. H., Min, B., & Yook, K. H. (2022). The impact of environmental management practices on firm performance in an emerging market. Journal of Cleaner Production, 295, 126426.

Luo, L., & Tang, Q. (2021). Corporate governance and carbon performance: Role of carbon strategy and awareness. Accounting & Finance, 61(2), 2891-2926.

Luo, L., Tang, Q., & Lan, Y. C. (2012). Comparison of propensity for carbon disclosure between developing and developed countries: A resource constraint perspective. Accounting Research Journal, 25(1), 6-34.

Lupiyoadi, R. (2015). Business Research Methods Practicum. Jakarta: Salemba Empat.

Matsumura, E.M., Prakash, R., & Vera-Muñoz, S.C. (2021). Carbon risk and carbon disclosure. Review of Accounting Studies, 26(3), 1187-1223.

Mitchell, R.K., Agle, B.R., & Wood, D.J. (2021). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. Academy of Management Review, 45(4), 853-886.

Pratiwi, DN, & Sari, VF (2022). The effect of environmental performance and carbon emission disclosure on firm value with profitability as a moderating variable. Journal of Economics and Business, 25(1), 57-72.

Rahman, NRA, Rasid, SZA, & Basiruddin, R. (2020). Exploring the relationship between environmental performance and firm value. International Journal of Business and Society, 21(2), 569-580.

Sugiyono. (2018). Quantitative, Qualitative, and R&D Research Methods. Bandung: Alfabeta.

Suchman, M. C. (2018). Managing legitimacy: Strategic and institutional approaches. Academy of Management Review, 43(3), 729-757.

Sulaiman, M., Abdullah, N., & Fatima, AH (2011). Determinants of environmental reporting in Malaysia. International Journal of Business Studies, 19(1), 1-22.

Thompson, P., & Kumar, A. (2023). Investor response to carbon emission disclosure: Evidence from developing economies. Journal of International Financial Markets, Institutions and Money, 82, 101677.

Widyati, MF, & Utami, W. (2019). The influence of carbon emission disclosure and environmental performance on firm value with profitability as moderating variable. Journal of Accounting and Strategic Finance, 2(2), 120-132.

Zhang, B., & Wilson, C. (2022). The role of non-financial indicators in corporate valuation: Evidence from sustainable business practices. Corporate Social Responsibility and

Environmental Management, 29(4), 987-1002.

Zhang, M., Liu, X., Ding, Y., & Wang, W. (2021). How does environmental regulation affect corporate green innovation? Evidence from China. Journal of Cleaner Production, to, 297, 126646.