

## THE INFLUENCE OF ENVIRONMENTAL PERFORMANCE AND INTELLECTUAL CAPITAL ON COMPANY VALUE WITH GREEN INNOVATION AS A MODERATING VARIABLE

Aulianisa Nuzulul Muyasaroh<sup>1)</sup>, Elva Nuraina<sup>2)</sup>, Moh. Ubaidillah<sup>3)</sup>

<sup>1</sup>Faculty of Economics and Business, Universitas PGRI Madiun  
email: [aularoh4@gmail.com](mailto:aularoh4@gmail.com)

<sup>2</sup>Faculty of Economics and Business, Universitas PGRI Madiun  
email: [elvanuraina@unipma.ac.id](mailto:elvanuraina@unipma.ac.id)

<sup>3</sup>Faculty of Economics and Business, Universitas PGRI Madiun  
email: [mohubaidillah@unipma.ac.id](mailto:mohubaidillah@unipma.ac.id)

### *Abstrak*

Penelitian ini bertujuan untuk menganalisis pengaruh kinerja lingkungan dan intellectual capital terhadap nilai perusahaan dengan green innovation sebagai variabel moderasi. Populasi penelitian terdiri dari 96 perusahaan sektor bahan dasar yang terdaftar di BEI. Sampel yang digunakan sebanyak 84 perusahaan dipilih melalui purposive sampling. Pendekatan penelitian yang digunakan adalah kuantitatif dengan analisis regresi linier berganda dan Moderated Regression Analysis (MRA) menggunakan SPSS 24. Hasil penelitian menunjukkan bahwa kinerja lingkungan tidak berpengaruh signifikan terhadap nilai perusahaan, intellectual capital berpengaruh positif terhadap nilai perusahaan, sedangkan green innovation tidak dapat memoderasi pengaruh kinerja lingkungan maupun intellectual capital terhadap nilai perusahaan.

**Kata Kunci:** Kinerja Lingkungan, Intellectual Capital, Nilai Perusahaan, Green Innovation

### *Abstract*

*This study aims to examine the influence of environmental performance and intellectual capital on company value with green innovation as a moderating variable. The population consists of 96 basic materials companies listed on the IDX. A sample of 84 companies was selected using purposive sampling. The research uses a quantitative approach with multiple linear regression analysis and Moderated Regression Analysis (MRA) via SPSS 24. The results indicate that environmental performance does not significantly affect company value, intellectual capital positively influences company value, and green innovation cannot moderate the effect of environmental performance or intellectual capital on company value.*

**Keywords:** Environmental Performance, Intellectual Capital, Company Value, Green Innovation

## **A. INTRODUCTION**

In the current dynamic business environment, companies are expected not only to focus on short-term profits but also to establish a foundation for sustainable long-term growth. Company value has emerged as a key indicator reflecting market perceptions of firm performance and future prospects, encompassing not only financial metrics but also intangible assets and sustainability initiatives, including environmental performance and intellectual capital (Diaz & Sulfitri, 2024).

The Basic Materials sector, covering industries such as mining, metals, and chemicals, is highly sensitive to global economic fluctuations and environmental regulations. Firms in this sector must balance physical resource management, operational efficiency, innovation, and human capital development to remain competitive (Yasya & Muchlis, 2024).

Environmental performance indicates a company's ability and commitment to manage ecological impacts, such as waste management, energy efficiency, and regulatory compliance. Companies excelling in these aspects typically enjoy stronger reputations, greater stakeholder trust, and operational advantages. Intellectual capital, encompassing human, relational, and structural resources, strengthens innovation, operational efficiency, and competitive advantage, thereby supporting long-term company value (Aulia et al., 2020).

Recent market developments underscore these points. By November 29, 2024, the Basic Materials sector had a 0.32% year-to-date decline after a 7.9% increase in early October, driven by global economic pressures and falling commodity prices. Major companies, including PT Chandra Asri Pacific Tbk (TPIA), PT Barito Pacific Tbk (BRPT), PT Semen Indonesia Tbk (SMGR), and PT Merdeka Copper Gold Tbk (MDKA), experienced notable losses, with TPIA alone declining 20.5% in a single month (Mulyana & Dewi, 2024).

Further volatility occurred on December 13, 2024, when the Indonesia Composite Index (IHSG) fell 0.94%, with the Basic Materials sector declining 1.64%. On April 8, 2025, the IHSG dropped 502.143 points (7.71%) to 6,008.477, with the Basic Materials sector losing 11.01% in the first session, illustrating the sector's vulnerability to external conditions (Perwitasari, 2025).

These fluctuations highlight the need for strong internal strategies to stabilize company value and maintain investor confidence.

Prior studies present mixed results regarding the effects of environmental performance and intellectual capital on company value. While some research indicates positive effects of environmental performance (Dwi Wardani & Sa, 2020), (Ramadhana & Januarti, 2022) others find no significant influence (Kamiliya & Aliamin, 2022). Similarly, intellectual capital has been found to have a positive effect in some studies (Aulia et al., 2020) but no effect in others (Anggraini et al., 2020).

This inconsistency, combined with market volatility, highlights the importance of further investigation to understand how environmental performance and intellectual capital contribute to company value and whether green innovation moderates these relationships. Insights are particularly relevant for the Basic Materials sector, where external pressures and fluctuating markets demand robust sustainability strategies and effective intangible asset management..

## **THEORETICAL REVIEW AND HYPOTHESIS DEVELOPMENT**

### **Signaling Theory**

Signaling theory emphasizes that credible signals can reduce information asymmetry between firms and investors. Environmental performance, intellectual capital, and green innovation act as signals indicating a company's commitment to sustainability and potential for growth, thereby enhancing company value (Adyaksana et al., 2023).

### **Stakeholder Theory**

Stakeholder theory posits that companies are accountable not only to shareholders but also to all affected stakeholders. By managing environmental performance, intellectual capital, and green innovation, firms meet stakeholder expectations while simultaneously strengthening corporate reputation and company value (Ramadhana & Januarti (2022).

## **Environmental Performance**

Environmental performance assesses how effectively a company manages its ecological impact, including waste handling, energy efficiency, and adherence to regulations. Programs like PROPER encourage firms to engage in environmental preservation, supporting both compliance and sustainable practices (Uy & Hendrawati, 2020).

## **Intellectual Capital**

Intellectual capital encompasses human, structural, and relational resources. These assets facilitate innovation, enhance efficiency, and sustain external relationships, making them crucial for competitive advantage in a knowledge-based economy (Aulia et al., 2020).

## **Company Value**

Company value represents the market's evaluation of a company's growth potential and risk. It is measured here by the Price-to-Earnings Ratio (PER), indicating how much investors are willing to pay for each unit of earnings. Higher PER reflects greater investor confidence in profitability and long-term growth (Achriaty & Putri, 2023).

## **Green Innovation**

Green innovation involves developing environmentally friendly products, processes, or technologies to minimize environmental harm, improve efficiency, and support sustainability. It also enables firms to remain competitive while meeting social and environmental responsibilities (Tari et al., 2020).

## **Hypothesis Development**

Based on the theoretical review, the following hypotheses are proposed :

Strong environmental performance can boost investor confidence and enhance corporate reputation. Companies that proactively manage environmental impacts demonstrate responsible governance and social accountability. Such efforts attract investors, foster stakeholder trust, and positively shape the firm's market perception. Moreover, efficient environmental practices can reduce operational expenses through better energy use and waste management. Hence,

environmental performance is considered a key factor in supporting sustainable company value (Uy & Hendrawati, 2020).

H1 : Environmental performance has a significant effect on company value.

Intellectual capital, which encompasses knowledge, skills, innovation, and business networks, plays a pivotal role in increasing company value. Proper management of intellectual capital strengthens competitiveness, operational efficiency, and stakeholder confidence while signaling growth opportunities to investors. Firms with strong R&D, sophisticated IT systems, and reliable partnerships can enhance financial outcomes and market reputation. Thus, intellectual capital acts as a strategic resource that fosters long-term growth and sustainable company value (Achriaty & Putri, 2023).

H2 : Intellectual capital has a significant effect on company value.

Green innovation contributes to reinforcing the impact of environmental performance on company value. Effective environmental measures, such as appropriate waste handling and emissions reduction, enhance corporate reputation and investor trust. Merely meeting regulatory requirements does not guarantee a competitive edge; green innovation converts compliance into proactive, environmentally friendly strategies that add value to the firm (Akmala & Kartika, 2020). Therefore, green innovation strengthens the link between environmental performance and company value.

H3 : Green innovation strengthens the relationship between environmental performance and company value.

Intellectual capital, including human, structural, and relational components, is essential for promoting innovation and competitiveness. When combined with green innovation, it facilitates the creation of sustainable products and eco-conscious practices that improve the company's image and increase company value (Tonay & Murwaningsari, 2022). Consequently, green innovation amplifies the positive effect of intellectual capital on company value.

H4 : Green innovation strengthens the relationship between intellectual capital and company value.

## B. METHOD

### Population and Sample

This research applies a quantitative method by using secondary data obtained from the annual reports of companies in the Basic Materials sector listed on the Indonesia Stock Exchange (IDX) during 2021–2023. The population includes 96 companies, and a purposive sampling technique was used to select 84 companies, resulting in 252 observations. After conducting an outlier examination through casewise diagnostics, the final dataset consisted of 158 observations. Data analysis involved descriptive statistics to outline the characteristics of the sample, followed by regression analysis to address the research objectives.

## C. RESULTS AND DISCUSSIONS

### 1. Descriptive Statistics

This study simplifies the data to facilitate quick and clear interpretation. Descriptive statistics were used to examine the minimum, maximum, mean, and standard deviation values. The dependent variable in this research is company value (Y), while the independent variables include environmental performance (X1) and intellectual capital (X2), with green innovation (Z) serving as the moderating variable. The descriptive statistics results are summarized in table :

**Tabel 1. Descriptive Statistics Results**

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Environmental Performance	159	0	5	1.29	1.746
Intellectual Capital	159	-3.13	19.00	4.1419	3.46730
Company Value	159	-17.82	124.00	8.0050	13.96902
Environmental Performance *Green Inovation	159	0	5	.94	1.566
Intellectual Capital *Green Inovation	159	-2.91	14.50	1.8364	2.90826
Valid N (Listwise)	159				

Source: Processed Data, 2025

The results show that environmental performance ranges from 0 to 5 with a mean of 1.29, while intellectual capital ranges from -3.13 to 19.00 with a mean of 4.14. Company value varies from -17.82 to 124.00 with an average of 8.01. The interaction of environmental performance and green innovation ranges from 0 to 5 with a mean of 0.94, and intellectual capital × green innovation ranges from -2.91 to 14.50 with a mean of 1.84.

## 2. Results of Classical Assumption Tests

### a. Normality Test Results

**Table: Normality Test Results**

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		159
Normal Parameters <sup>a,b</sup>	Mean	.0000000
	Std. Deviation	10.19225796
Most Extreme Differences	Absolute	0.089
	Positive	0.089
	Negative	-0.072
Kolmogorov-Smirnov Z		1.115
Asymp. Sig. (2-tailed)		0.166
a. Test distribution is Normal.		
b. Calculated from data.		

Source: Processed Data, 2025

The Kolmogorov–Smirnov test was used to check the normality of residuals. Results indicate that the asymp. sig. (2-tailed) value is 0.166, which exceeds the 0.05 threshold. This suggests that the residuals are normally distributed.

## 3. Results of Multiple Linear Regression Test

**Table: Results of Multiple Linear Regression Test**

Model		Coefficients <sup>a</sup>		
		Unstandardized Coefficients		Standardized Coefficients
		B	Std. Error	Beta
1	(Constant)	3.935	1.364	
	Environmental Performance	.625	.472	.104
	Intellectual Capital	.611	.237	.202

a. Dependent Variable: Company Value

Source: Processed Data, 2025

The regression model was formulated as :

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

$$\text{Company Value} = 3.935 + 0.625X_1 + 0.611X_2 + \varepsilon$$

The constant 3.935 indicates the estimated company value when both environmental performance and intellectual capital are zero. The coefficient 0.625 for environmental performance shows that a one-unit increase raises company value by 0.625, while the coefficient 0.611 for intellectual capital indicates a one-unit increase raises company value by 0.611, assuming other factors remain constant.

#### 4. Results of the Simultaneous Test (F-test)

**Table. Results of the Simultaneous Test (F-test)**

ANOVA <sup>b</sup>						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	981.617	2	490.809	4.664	.011 <sup>a</sup>
	Residual	16309.493	155	105.223		
	Total	17291.110	157			

a. Predictors: (Constant), Intellectual Capital, Environmental Performance  
b. Dependent Variable: Company Value

Source: Processed Data, 2025

The F-test results show an F-value of 4.664 with a significance of 0.011, which is less than 0.05. This confirms that environmental performance and intellectual capital together have a significant effect on company value.

#### 5. Results of Partial Test (t-test)

**Table. Results of Partial Test (t-test)**

Coefficients <sup>a</sup>			
Model			
		t	Sig.
1	(Constant)	2.886	.004
	Environmental Performance	1.323	.188
	Intellectual Capital	2.578	.011

a. Dependent Variable: Company Value

Source: Processed Data, 2025

The t-test shows that environmental performance has a significance of 0.188 ( $>0.05$ ), indicating no significant effect on company value ( $H_1$  rejected). Intellectual capital has a significance of 0.011 ( $<0.05$ ), indicating a significant positive effect on company value ( $H_2$  accepted).

### 6. Results of Moderated Regression Analysis (MRA)

**Table. Results of Moderated Regression Analysis (MRA)**

Model		Coefficients <sup>a</sup>				
		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.296	1.868		1.764	.080
	Environmental Performance	-1.073	.841	-.179	-1.276	.204
	Intellectual Capital	.606	.362	.201	1.675	.096
	Green Inovation	1.704	2.332	.081	.731	.466
	Environmental Performance *Green Inovation	2.080	1.097	.311	1.896	.060
	Intellectual Capital*Green Inovation	-.021	.552	-.006	-.038	.970

a. Dependent Variable: Company Value

Source: Processed Data, 2025

The MRA results indicate that the interaction of environmental performance  $\times$  green innovation has a significance of 0.060 ( $>0.05$ ), showing that green innovation does not significantly moderate the effect of environmental performance on company value ( $H_3$  rejected). The interaction of intellectual capital  $\times$  green innovation has a significance of 0.970 ( $>0.05$ ), showing that green innovation does not significantly moderate the effect of intellectual capital on company value ( $H_4$  rejected).

### D. CONCLUSIONS

1. Environmental Performance: Does not have a significant effect on company value in the Basic Materials sector listed on the Indonesia Stock Exchange (2021–2023), as companies focus not only on profits, while investors continue to emphasize financial indicators such as profitability.

2. Intellectual Capital: Positively influences company value in the Basic Materials sector listed on the Indonesia Stock Exchange (2021–2023), as its enhancement supports human resource competencies, internal systems, and external relationships, thereby improving efficiency, innovation, and stakeholder trust.
3. Green Innovation\*Environmental Performance: Does not moderate the effect of environmental performance on company value in the Basic Materials sector listed on the Indonesia Stock Exchange (2021–2023), as its role remains a supplementary initiative, not a core strategy, and its outcomes are neither clearly communicated nor measurable in company reports.
4. Green Innovation\*Intellectual Capital: Is ineffective in moderating the effect of intellectual capital on company value in the Basic Materials sector listed on the Indonesia Stock Exchange (2021–2023), since without strategic and transparent implementation, its contribution remains suboptimal, while investors continue to prioritize short-term financial gains..

## **E. SUGGESTIONS**

This study contributes to the literature on the determinants of company value in the Basic Materials sector and offers both theoretical and practical insights for stakeholders. The findings provide guidance for companies and investors in understanding the roles of environmental performance and intellectual capital in shaping company value. For future research, it is recommended to incorporate additional variables and expand the research scope to achieve a more in-depth, comprehensive, and representative analysis of company value.

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