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# COMPANY SIZE AS A MODERATING VARIABLE OF THE INFLUENCE OF GREEN INNOVATION, ECO-EFFICIENCY, AND ENVIRONMENTAL PERFORMANCE ON CORPORATE VALUE. THE IMPACT OF GREEN INNOVATION, ECO-EFFICIENCY, AND ENVIRONMENTAL PERFORMANCE ON CORPORATE VALUE: THE MODERATING ROLE OF COMPANY SIZE

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**Abstract**

This research seeks to examine how Green Innovation, Eco-Efficiency, and Environmental Performance shape Firm Value, with Firm Size functioning as a moderating variable. The population for this study consists of companies listed on the Indonesia Stock Exchange, with a selected sample of 100 observations. The data analysis methods employed include descriptive statistics and Moderated Regression Analysis (MRA). The results indicate that the constructed regression model meets the criteria for model validity with an Adjusted R-Square value of 27.3%. Empirical findings suggest that Firm Size significantly moderates the relationship by strengthening the positive effects of Green Innovation and Eco-Efficiency on Firm Value. However, Firm Size was found not to moderate the relationship between Environmental Performance and Firm Value. The conclusion of this study indicates that investors tend to place a higher value on green innovation and eco-efficiency in large-scale companies, while environmental performance is viewed as a standard obligation that is not influenced by firm size in the formation of market value.

**Keywords: Eco-Efficiency; Environmental Performance; Green Innovation; Firm Value; Firm Size**

## INTRODUCTION

Growing awareness of climate change and the worsening global environmental conditions has prompted the business community to integrate sustainability principles more comprehensively into their business strategies. As the impacts of the environmental crisis become increasingly evident to various stakeholders, business priorities have undergone a fundamental shift—no longer focusing solely on financial gains, but instead embracing a more holistic approach through the concept of the triple bottom line, which balances social (people), environmental (planet), and economic (profit) aspects. As we enter 2026, the capital market's demands for the implementation of ESG (Environmental, Social, and Governance) principles have reached a peak. This phenomenon indicates that investors are no longer solely chasing short-term dividends but are paying close attention to environmental sustainability as a key indicator of a company's fundamental health. In the capital markets, sustainability-oriented measures are often interpreted as positive indicators by investors when assessing a company's long-term prospects and viability. The relevance of this is felt even more strongly in the Indonesian context, given that some pollution cases involving companies in the manufacturing sector have proven that production activities not accompanied by adequate environmental governance can cause widespread negative impacts—ranging from losses suffered by the surrounding community and damage to the environmental ecosystem to a plummeting of the company's reputation in the public

eye. These impacts not only result in social and environmental costs but also have the potential to erode investor confidence and reduce corporate value in the long term. In addition to pollution, the manufacturing sector—particularly the Basic Materials sector—is also a major generator of industrial waste. Data from the Ministry of Environment and Forestry (KLHK) shows that the processing industry contributes a significant volume of Hazardous and Toxic Waste (B3) annually, with the cement, chemical, and base metals subsectors as the main contributors. According to records from the Ministry of Environment and Forestry, the volume of hazardous and toxic waste (B3) generated in Indonesia in 2021 reached a significant figure. The manufacturing sector was recorded as the largest contributor, involving thousands of industries that contributed to the production of this hazardous waste. Next on the list, the infrastructure sector, as well as agriculture and agroindustry, also made significant contributions, while the mining, energy, and oil and gas sectors rounded out the list of major contributors to national B3 waste. However, the rate of utilization of hazardous waste that has been generated is still far from optimal. A report by the Ministry of Environment and Forestry reveals that only a small fraction of the total waste stockpile has been successfully recycled—a situation that reflects the significant environmental burden still caused by production activities in the raw materials sector, while also highlighting the need for a significant improvement in sustainable industrial waste management (Kementerian Lingkungan Hidup dan Kehutanan, 2019).

In light of these conditions, the Indonesian government has demonstrated an increasingly strong commitment to promoting sustainable development. This commitment is reflected in the strengthening of environmental regulations and sustainable finance policies issued by the Financial Services Authority (OJK). The OJK encourages companies, particularly public companies, to integrate Environmental, Social, and Governance (ESG) aspects into their business strategies, risk management, and corporate reporting. Additionally, the government has implemented the Corporate Environmental Performance Rating Program (PROPER) as an objective, transparent tool to evaluate companies' environmental performance. PROPER serves as a key indicator for assessing corporate environmental performance in Indonesia. The program classifies companies' environmental management performance into five categories: Gold (excellent), Green (exceeds compliance), Blue (compliant with regulations), Red (non-compliant), and Black (serious violations). Based on the 2024 PROPER Assessment Results for 4,495 companies, 85 companies received a gold rating, 227 companies received Green, 2,649 companies received Blue, 1,313 companies received Red, and 16 companies received Black. This distribution shows that while most companies have successfully met the basic environmental compliance requirements, a significant number of them still exhibit substandard environmental performance that warrants further attention.

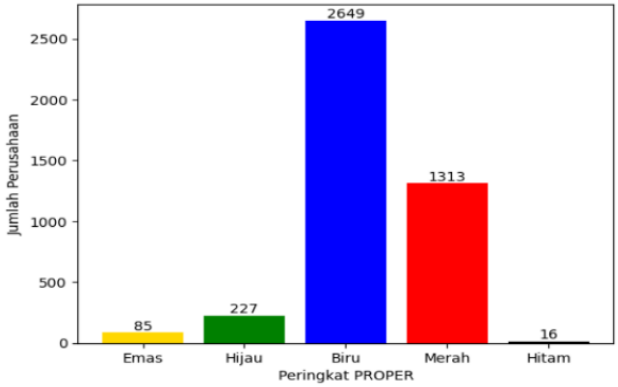


Figure 1. Distribution of PROPER Ratings for Companies in Indonesia in 2024
Data source: PROPER, Ministry of Environment and Forestry (2024), processed independently by the author

Based on the 2024 PROPER Rating Distribution in Figure 1, the majority of companies are in the blue category, indicating a minimum level of compliance with environmental regulations. However, there are still companies that received Red and Black ratings, indicating violations or suboptimal environmental management. This situation indicates that corporate environmental performance in Indonesia, particularly in the manufacturing sector, remains uneven and faces various challenges in implementing sustainable business practices. The low PROPER scores serve as a negative signal that could trigger investment pressure from investors concerned about ecological issues. In the capital markets, firm value reflects how investors perceive a company's long-term sustainability, particularly its ability to anticipate and address environmental risks. Empirical studies examining the relationship between environmental performance and firm value have not reached a unified conclusion. (Damas, Maghviroh, & Meidiyah,

2021) Additionally, Chika Dianti & Puspitasari (2024) found a positive effect, whereas Aviyanti & Isbanah (2019) reported non-significant results. The challenges of achieving environmental performance are closely linked to the implementation of green innovation and eco-efficiency. However, in practice, there is a gap between policy and reality. The current phenomenon of green innovation is often trapped in greenwashing practices, where companies engage in superficial innovation without altering their core production processes, which remain high in emissions. This inconsistency fuels market skepticism, leading to green investments that do not always correlate directly with increased corporate value. On the other hand, eco-efficiency efforts face the challenge of high energy transition costs and investments in zero-waste technology, which can squeeze short-term profitability, thereby creating a dilemma for management in optimizing corporate value.

Beyond environmental performance, two other factors identified as contributors to increased firm value are green innovation and eco-efficiency. Evidence from studies conducted by Dewi & Rahmianingsih (2020) and Maulana and Mulyadi (2022) suggests that the adoption of green innovation practices tends to have a positive impact on firm value (Dian Fauziah et al., 2025). However, differing results have been found. A similar pattern is observed for the eco-efficiency variable, where (Yuliandhari, Saraswati, & Rasid Safari, 2023) found a positive effect, whereas Avianti and Isbanah (2019) reported non-significant results.

Given the inconsistent findings regarding the impact of environmental practices on firm value in previous studies, it is hypothesized that an internal factor influences this relationship: firm size. Large firms possess greater financial resources (slack resources) and broader access to technology to support green activities, yet they are also subject to much stricter public scrutiny and regulation. Conversely, small firms may be more flexible but are constrained by limited capital. Therefore, this study aims to examine how green innovation, eco-efficiency, and environmental performance influence firm value—both individually and simultaneously—by treating firm size as a moderating variable to clarify these relationships.

## LITERATURE REVIEW

### The Impact of Green Innovation on Corporate Value

Environmental issues have prompted companies to create environmentally friendly innovations. These innovations are known as green innovations—innovations similar to the general concept of innovation but that prioritize reducing the risk of environmental damage as a competitive advantage (Dai & Xue, 2022). The implementation of green innovation reflects a company's commitment to responsible and sustainable business practices. Based on Signaling Theory, companies send signals to external parties—particularly investors and stakeholders—regarding the company's prospects and quality through published information. In this context, the adoption of green innovation can be viewed as a positive signal that the company is committed to sustainability, operational efficiency, and sound environmental risk management. Several empirical studies support this relationship. (Dewi & Rahmianingsih, 2020), Damas et al. (2021) and Rahmawati (2024) state that there is a positive influence of green innovation on firm value based on their research. Thus, this study was conducted to test the influence of green innovation on firm value.

**H1: Green innovation influences firm value.**

### The Impact of Eco-Efficiency on Firm Value

A company's success in addressing environmental issues can serve as a competitive advantage. However, efforts to reduce environmental impact often entail high costs. Eco-efficiency serves as a management tool to reduce a company's environmental impact while simultaneously creating additional value for shareholders (Dewi & Rahmianingsih, 2020). Additionally, research conducted by Zen & Sofie (2023) found that eco-efficiency has a positive impact on corporate value.

**H2: Eco-efficiency influences corporate value.**

### The Impact of Environmental Performance on Firm Value

Environmental performance reflects a company's success in managing its environmental impacts. According to research findings (Sapulette & Limba, 2021), companies with strong environmental performance tend to have a positive social reputation, which ultimately enhances firm value. Information regarding superior environmental performance typically receives a positive response from investors and potential investors, which is reflected in the movement of the company's stock price. This finding aligns with research (Mardiana et al., 2019), which states that the better a company is at demonstrating environmental sustainability, the better its reputation.

**H3: Environmental Performance influences Firm Value**

### The Role of Firm Size in Moderating the Effect of Green Innovation on Firm Value

Companies operating in high-profile industries generally contribute more to environmental damage (Nuurhasanat &

Haq, 2024). Unlike low-profile companies, high-profile companies have operational activities that are more integrated with the environment, thus posing a high risk of causing negative impacts on nature (Hidayah et al., 2022). Research supports this view, as demonstrated by Anggraini & Gunawan (2024). It shows that the effect of green innovation on firm value can be moderated by firm size, as supported by (Yao, Zhou, Zhang, & Li, 2019).

**H4: Firm size moderates the effect of green innovation on firm value.**

**The Role of Firm Size in Moderating the Effect of Eco-Efficiency on Firm Value**

Firm size is measured using the natural logarithm of total assets. Companies with larger asset ownership generally have greater flexibility in managing operational activities and improving company performance. Larger firms also tend to benefit from economies of scale, enabling them to implement eco-efficiency practices more efficiently compared to smaller companies. In addition, the implementation of eco-efficiency often requires substantial costs and long-term investment commitments (Kurnianta & Dianawati, 2020). (Atiningsih, & Andre Setiyono, 2023) Previous studies also indicate that organizational size can influence the relationship between eco-efficiency and firm value. Empirical findings further show that efficient capital management contributes positively to increasing firm value. Therefore, the researchers will use firm size as a moderating variable to re-examine the effect of eco-efficiency on firm value.

**H5: Firm size moderates the effect of eco-efficiency on firm value**

**The Role of Firm Size in Moderating the Effect of Environmental Performance on Firm Value**

By participating in the Proper program, companies have built a positive image in the community. Investors will naturally be more interested and feel more confident about purchasing the company's shares. As trading volume increases, stock prices rise, which in turn leads to an increase in corporate value. (Hardianti & Mulyani, 2023). This provides empirical evidence that firm size has a significant effect and can moderate the relationship between environmental performance and corporate value. However, Renita Sari et al. (2025) revealed that environmental performance does not have a positive impact. Firms with larger organizational capacity tend to have better monitoring systems and greater stakeholder pressure, which can strengthen the relationship between environmental performance and firm value (Trisdianti & Kusufi, 2025). Therefore, the researchers will use firm size as a moderating variable to re-examine the influence of environmental performance on firm value.

**H6: Firm size moderates the effect of environmental performance on firm value**

**Conceptual Framework**

The conceptual framework in the study can be described as follows:

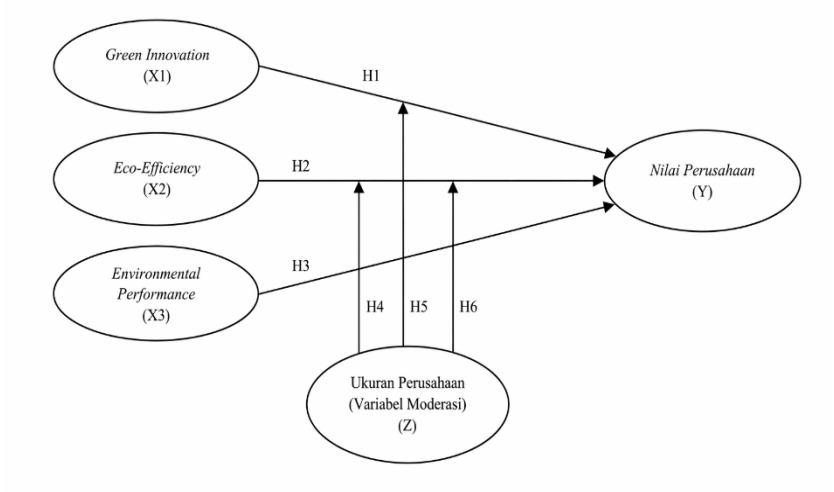


**Figure 2. Conceptual Framework**

## RESEARCH METHOD

**Type and Object of Research**

A quantitative research design was used in this study. The units of analysis are companies operating in the Basic Materials sector that were officially listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 observation

period.

**Type and Source of Data**

This study relies entirely on secondary data sources. All data were gathered from the annual financial reports and sustainability disclosures published by the selected sample companies, accessible through the IDX official portal (www.idx.co.id) as well as each company's respective corporate website. Environmental performance data were additionally sourced from PROPER assessment reports released by the Ministry of Environment and Forestry of the Republic of Indonesia (KLHK).

**Population and Sample**

The research population comprises all companies classified under the Basic Materials sector that were continuously listed on the IDX throughout the 2020–2024 period, totalling 20 companies. Sample selection was carried out using a purposive sampling approach, whereby observations were included based on the fulfilment of predetermined eligibility criteria. The criteria applied in the selection process are as outlined in Table 1.(Maryanti & Rahayu, 2025).

**Table 1. Sample Selection**

| | Information | |
|---|---|---|
| Manufacturing companies in the Basic Materials sector are listed on the IDX during the 2020–2024 period. | | 113 |
| 1 | Companies in the Basic Materials sector that have published financial reports consecutively from 2020 to 2024 | (52) |
| 2 | Companies that provide data related to research variables | (41) |
| | Number of companies meeting the sampling criteria | 20 |
| | The total amount of sample data used (20 companies × 5 years) | 100 |

Source: Summarized by researchers (2026)

**Definition, Identification, and Indicators**

**Table 2. Definition, Identification, and Indicators**

| Variable | Definition | Measurement | Scale |
|---|---|---|---|
| Green Innovation (X1) | (Lehmann, 2017) Green innovation is the introduction of new products, processes, or systems within a company that significantly reduce environmental impact and meet market needs without compromising the quality of life for future generations. | The green innovation disclosure index, measured by the number of green innovation items disclosed in the annual report or sustainability report, compared to the total number of items that should be disclosed (GI = score/total items) | Ratio |
| Eco-Efficiency (X2) | Eco-efficiency is a management philosophy that encourages business activities to generate economic benefits alongside environmental improvements, enabling companies to be more environmentally responsible and reduce their environmental impact. (Aviyanti & Isbanah, 2019) | Ratio of Net Sales to Total Energy Consumption over one year (EE = Sales / Energy) | Ratio |
| Environmental Performance (X3) | By definition, the environment encompasses everything surrounding human beings that is related to all their activities. | Rankings from the Corporate Environmental Performance Rating Program (PROPER), converted into numerical scores | Ordinal (treated as numerica |

| | | | |
|---|---|---|---|
| | Environmental elements include all aspects related to: land, water, air, natural resources, flora, fauna, humans, and the interactions among these factors (Ahmadi & Bouri, 2017; Gu et al., 2020) | (Gold=5, Green=4, Blue=3, l) Red=2, Black=1) | |
| Firm Value (Y) | Firm value is a market-based ratio, meaning it reflects current market conditions. This ratio helps company management understand the implementation conditions and their future implications. (Ningrum Endah Prawesti, 2022) | Price-to-Book Ratio (PBV) = Stock Price / Book Value per Share | Ratio |
| Firm Size (Z) | Firm size is a metric that can be calculated based on total assets and sales, which can indicate a company's financial condition; larger companies typically have an advantage in terms of access to funding to finance their investments and generate profits. (Toni, Simorangkir, & & Kosasih, 2021) | Natural logarithm of total assets (SIZE = Ln Total Assets) | Ratio |

**Data Analysis Techniques**

Data processing and hypothesis examination in this study were conducted using IBM SPSS Statistics software. The primary analytical method employed was multiple linear regression, implemented within the Moderated Regression Analysis (MRA) framework. Standard multiple linear regression was applied to evaluate the direct influence of each independent variable on the dependent variable, while the MRA approach served to determine whether the moderating variable, firm size, functions to strengthen or attenuate the relationships between the independent and dependent variables.

**Hypothesis Testing**

Hypothesis evaluation was carried out to verify the validity of each research proposition concerning the influence of the independent variables on the dependent variable, whether through a direct path or via the moderating variable. The scope of this examination covers the effect of Green Innovation, Eco-Efficiency, and Environmental Performance on Firm Value, with Firm Size positioned as the moderating variable anticipated to either reinforce or diminish these relationships. Statistical testing was performed through the partial t-test at a 5% significance threshold ($\alpha = 0.05$). The decision criterion applied is as follows: if the significance value (Sig.) does not exceed 0.05, the hypothesis is supported; conversely, if the significance value (Sig.) surpasses 0.05, the hypothesis is rejected.

## RESULTS AND DISCUSSION

### Results

### Descriptive Statistics

**Table 3. Descriptive Statistics**

| Variable | N | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Firm Value (Y) | 100 | 1.00 | 926.00 | 118.15061 | 130.1561 |
| Green Innovation (X1) | 100 | .00 | 75.00 | 27.6100 | 29.73788 |
| Eco-Efficiency (X2) | 100 | 123.00 | 1968.00 | 1277.4600 | 452.99043 |
| Environmental Performance (X3) | 100 | 2.00 | 5.00 | 3.3200 | .70896 |
| Firm Size (Z) | 100 | 255.00 | 3205.00 | 2643.0600 | 775.54765 |
| Valid N (listwise) | 100 | | | | |

Drawing on the descriptive statistical output presented in Table 3, this study utilised 100 data points (N=100). For Firm Value, the variable ranges from 1.00 to 926.00, with a computed mean of 118.5100 and a standard deviation of 130.1561. Notably, the standard deviation surpasses the mean value, which implies that the distribution of Firm Value across the sample is considerably dispersed, reflecting substantial variation among the observed companies. Turning to Green Innovation, the variable ranges from 0.00 at its lowest to 75.00 at its highest, with an average score of 27.6100 and a standard deviation of 29.73788. On average, sample companies disclosed approximately 27 green innovation items, though the relatively wide standard deviation signals that green innovation adoption levels differ markedly across firms, ranging from those yet to disclose any green innovation activity to those already highly active in this domain. The Eco-Efficiency variable shows a broader spread, with values ranging from 123.00 to 1,968.00, a mean of 1,277.4600, and a standard deviation of 452.99043. The magnitude of this deviation underscores meaningful heterogeneity in the capacity of sample firms to manage environmental costs efficiently. As for Environmental Performance, measurements are based on a scale with a floor of 2.00 and a ceiling of 5.00, yielding an average score of 3.3200 and a standard deviation of 0.70896. Benchmarked against the PROPER rating system — where a score of 3 corresponds to Blue and 4 to Green — this average suggests that the majority of sample companies have generally maintained satisfactory environmental compliance and met government regulatory expectations, with most observations clustering within the Blue to Green performance band. The Firm Size variable records a minimum of 255.00 and a maximum of 3,205.00, with a mean of 2,643.0600 and a standard deviation of 775.54765, indicating that the sample is predominantly composed of large-scale enterprises exhibiting a fairly broad range of asset sizes Before testing the hypothesis, it was confirmed that the regression model met the requirements of the classical assumption tests, which include tests for normality, multicollinearity, and heteroscedasticity.

### Model Feasibility Test

**Table 4. Model Feasibility Test**

| **Description** | **Statistical Results** |
|---|---|
| F-Statistic | 6,300 |
| Sig. F | 0,000 |
| Adjusted R-Square | 0,273 |
| Std. Error of the Estimate | 111,002 |

Based on the test results in Table X, this research model is deemed suitable for use. This is evidenced by an F-statistic value of 6.300 with a significance level of 0.000, which is less than 0.05. Furthermore, the Adjusted R-Square value of 0.273 indicates that the independent variables (Green Innovation, Eco-Efficiency, Environmental Performance) and their interaction with Firm Size account for 27.3% of the variation in Firm Value, while the remaining 72.7% is explained by other variables outside this research model.

**Hypothesis Test**

**Table 5. Hypothesis Test**

| Variable | Coeff (B) | t-stat | Sig. |
|---|---|---|---|
| (Constant) | 715,325 | 2,214 | 0,029 |
| Green Innovation (X1) | -8,125 | -3,826 | 0,000 |
| Eco-Efficiency (X2) | -0,518 | -6,359 | 0,000 |
| Environmental Performance (X3) | 56,858 | 0,598 | 0,552 |
| Ukuran Perusahaan (Z) | -0,220 | -1,938 | 0,056 |
| Moderation 1 | 0,003 | 3,705 | 0,000 |
| Moderation 2 | 0,000 | 6,014 | 0,000 |
| Moderation 3 | -0,016 | -0,477 | 0,634 |

The results of the hypothesis testing in Table 5 demonstrate the role of firm size as a moderating variable. The interaction variable GI_UP has a significance value of 0.000, and EE_UP has a significance value of 0.000. This indicates that firm size significantly moderates (amplifies) the effects of Green Innovation and Eco-Efficiency on Firm Value. On the other hand, the interaction variable EP_UP has a significance value of 0.634 ($p > 0.05$), which means that Firm Size is unable to moderate the effect of Environmental Performance on Firm Value.

**The Impact of Green Innovation on Firm Value**

Based on the results of the hypothesis testing, green innovation was found to have an impact on firm value. These results indicate that companies that are increasingly active in implementing environmentally friendly innovations tend to receive higher valuations from investors. The implementation of green innovation sends a positive signal regarding the company's commitment to sustainability and its ability to address future environmental challenges. These research findings align with Signaling Theory, which explains that the information communicated by a company can serve as the basis for investors' investment decisions. Disclosing green innovation activities reflects a company's efforts to create long-term value, thereby enhancing investor confidence in the company's prospects. These findings also support the research by Dewi and Rahmianingsih (2020), Damas et al. (2021), and Darmajati Setyawan and Wijayanti (2023), which found that green innovation has a positive impact on firm value. In the Basic Materials sector, the implementation of green innovation is becoming increasingly important because the company's operational activities have a significant impact on the environment. Therefore, companies capable of developing environmentally friendly innovations will receive a positive response from the market, which ultimately reflects in an increase in firm value.

**The Impact of Eco-Efficiency on Firm Value**

Test results show that eco-efficiency has an impact on firm value. These results indicate that a company's ability to manage resources efficiently while reducing its environmental impact can improve investors' assessment of the company. The implementation of eco-efficiency enables companies to reduce operational costs, increase productivity, and utilize resources more optimally. These conditions provide economic benefits for the company and create a positive perception in the eyes of investors. Investors tend to assess that companies capable of achieving environmental efficiency have a better ability to maintain the sustainability of their business. These research findings support the studies by Danang Satrio (2020), Damas et al. (2021), and Yuliandhari et al. (2023), which state that eco-efficiency can increase a company's value. Thus, eco-efficiency not only provides environmental benefits but also delivers economic value to the company.

**The Effect of Environmental Performance on Firm Value**

The test results show that environmental performance does not affect firm value. These results indicate that a company's level of environmental performance has not yet become a primary consideration for investors in evaluating a company. This may be because investors pay more attention to information related to a company's financial performance, profitability, and growth prospects than to information regarding its environmental performance. Furthermore, achieving good environmental performance may be viewed as merely a form of

compliance with applicable regulations, thus failing to provide significant added value in market valuation. These findings align with the research by Aviyanti and Isbanah (2019), which found that environmental performance does not influence firm value. Consequently, a company's success in obtaining a good environmental rating does not necessarily enhance its value in the eyes of investors.

**The Effect of Green Innovation on Firm Value Moderated by Firm Size**

The test results indicate that firm size moderates the effect of green innovation on firm value. This is evidenced by the significance value of the interaction between Green Innovation and Firm Size, which is 0.000—smaller than 0.05. These results suggest that the larger the firm size, the stronger the effect of green innovation on firm value. Larger companies generally have more adequate resources to support the implementation of environmentally friendly innovations. The availability of capital, technology, and the company's ability to develop products and production processes oriented toward sustainability enable large companies to derive more optimal benefits from the application of green innovation. Additionally, large companies tend to be the focus of attention from investors, the government, and the public, so the green innovation activities they undertake are more easily appreciated by stakeholders. Based on signaling theory, the adoption of green innovation by large firms can serve as a stronger positive signal to investors than that of small firms. Investors tend to perceive that large firms are better equipped to sustain environmental innovation over the long term, thereby enhancing market confidence in the firm's prospects. Therefore, firm size can strengthen the relationship between green innovation and firm value. The results of this study support the research by Anggraini and Gunawan (2024) as well as Yao et al. (2019), which states that firm size can strengthen the influence of green innovation on firm value.

**The Effect of Eco-Efficiency on Firm Value Moderated by Firm Size**

The test results show that firm size moderates the effect of eco-efficiency on firm value. This is indicated by the significance value of the interaction between the eco-efficiency and firm size variables, which is 0.000—smaller than 0.05. These results suggest that the larger the firm size, the stronger the effect of eco-efficiency on firm value. Companies with a large business scale have a greater capacity to allocate resources to support the implementation of eco-efficiency. Investments in energy-saving technologies, waste management, and raw material efficiency require relatively large costs, making them easier to implement by companies with strong assets and financial capacity. With such resource support, the economic benefits generated from the implementation of eco-efficiency can be realized more optimally. Additionally, large companies have greater opportunities to achieve operational cost efficiencies through the application of economies of scale. This situation means that the implementation of eco-efficiency not only provides environmental benefits but also enhances a company's economic performance, ultimately leading to an increase in corporate value. Investors tend to assign higher valuations to companies that demonstrate operational efficiency while maintaining environmental sustainability. The findings of this study are consistent with the research by Atiningsih et al. (2023) and Kurnianta and Dianawati (2020), which indicate that firm size plays a significant role in strengthening the relationship between eco-efficiency and firm value.

**The Effect of Environmental Performance on Firm Value Moderated by Firm Size**

The test results indicate that firm size does not moderate the effect of environmental performance on firm value. This is evidenced by the significance value of the interaction between environmental performance and firm size, which is 0.634—greater than 0.05. Thus, the size of the firm does not affect the relationship between environmental performance and firm value. These results indicate that investors do not differentiate their assessment of environmental performance based on company size. Environmental performance, as measured by the PROPER rating, tends to be viewed as a form of corporate compliance with applicable environmental regulations. Therefore, achieving good environmental performance does not necessarily provide significant added value in increasing firm value, whether for large or small firms. Furthermore, investors likely focus more on information related to financial performance, profitability, and the firm's growth prospects rather than information regarding environmental performance. Consequently, firm size does not strengthen or weaken the influence of environmental performance on firm value. The findings of this study indicate that environmental performance has not yet become a primary factor considered by the market in determining firm value. These results are consistent with the study by Renita Sari et al. (2025), which found that environmental performance does not always have a significant impact on firm value, and thus firm size is unable to alter this relationship.

## CONCLUSION

The overall findings of this study conclude that the regression model developed has a good fit, in which the variables Green Innovation, Eco-Efficiency, and Environmental Performance are able to simultaneously predict Firm Value with a combined explanatory power of 27.3%. Through Moderated Regression Analysis (MRA), it was established that Firm Size functions as a meaningful moderating variable by reinforcing the positive contribution of Green Innovation and Eco-Efficiency to Firm Value. This finding points to a tendency among investors to assign elevated valuations to large-scale companies that demonstrate active commitment to green innovation and environmental efficiency. In contrast, Firm Size was not found to exert any moderating influence on the relationship between Environmental Performance and Firm Value, suggesting that environmental performance is widely regarded as a standard regulatory obligation whose contribution to market valuation operates independently of company scale. Taken together, these results address the research questions posed and affirm the hypotheses concerning the moderating capacity of Firm Size across specific dimensions of environmental accounting practice and its effects on market-based firm valuation.

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