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The Influences of Environmental Performance and Green Innovation on Firm Value with Mediated Financial Performance

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ABSTRACT

The main purpose of this study is to determine and examine the influences of environmental performance and green innovation on firm value with mediation of financial performance. The object and focus of this research are non-financial companies listed on the IDX for the 2021-2023 period with a population of 649 companies. The sample was selected based on purposive sampling technique with a total of 79 companies that met the criteria. The data was analysed using the SEM-PLS method. The results revealed that environmental performance does not have a significant effect on firm value. Green innovation and financial performance have a significant positive effect on firm value. Environmental performance and green innovation significantly and positively influence financial performance. Furthermore, financial performance is proven to mediate the effect of environmental performance and green innovation on firm value.

INTRODUCTION

In recent years, issues of sustainability and environmental responsibility have become a major concern at the global level. The study of environmental issues is motivated by climate change, environmental pollution and pollution, and the rapid loss of biodiversity on the planet (Anugrah, 2023). In addition, in 2023 the world noted that Indonesia ranked 14th (www.iqair.com). From this phenomenon, now people, consumers, governments and investors are becoming aware of the environmental impact of business activities, thus encouraging companies to be more proactive in adopting environmentally friendly practices (Xie et al., 2024). Implementation that supports environmental policies has been carried out by world organisations such as the International Organization for Standardization (ISO), ISO has implemented and updated environmental management regulations/standards with ISO 14001 in 2015 (Khaireddine & Lacombe, 2024). Through the Ministry of Environment and Forestry (KLHK), Indonesia also issued a Company Performance Rating Assessment Program (PROPER) policy to enhance corporate environmental management performance as mandated by laws and regulations (proper.menlhk.go.id). In addition, the Indonesia Stock Exchange issued OJK

Regulation No. 51/POJK.03/2017 based on the Global Reporting Initiative (GRI) regarding corporate sustainability reporting standards. ISO 14001 and PROPER have been used as environmental performance indicators by previous studies. Environmental performance reflects the measurable outcomes of an environmental management system with controls that the organisation has on its environmental aspects, objectives, impacts and targets based on its environmental policies (Indriastuti & Chariri, 2021). Literature studies reveal that Environmental performance is one of the factors that can improve the company's good reputation from the perspective of investors and society (Deswanto & Siregar, 2018; Hanjani & Kusumadewi, 2023; Kheireddine et al., 2023).

Along with that, green innovation has emerged as an important strategy for companies to improve competitiveness. Green innovation includes the development of products, processes, or technologies that reduce negative impacts on the environment (Asni & Agustia, 2022; Leal-Millán et al., 2017; Tang et al., 2018). Tang et al. (2018) classifies green innovation into two types of innovation, namely green process innovation and green product innovation. Green process innovation is the renewal of production/service processes to reduce environmental impact, reduce costs, improve quality, and Incorporate improved methods into supporting activities (Asni & Agustia, 2022; García-Granero et al., 2018; Tang et al., 2018). Meanwhile, green product innovation is the development of new or improved products or services designed to minimise or eliminate negative impacts on environmental sustainability (Asni & Agustia, 2022; García-Granero et al., 2018; Tang et al., 2018). Green innovation practices implemented by companies do not only support sustainability but also contributes to the improvement of corporate image and investor attractiveness (Keman & Avcı, 2024; Keter et al., 2024; Silkfan & Azwir, 2022). In addition, the application of green innovation also contributes to creating a competitive advantage and added value for society and consumers, thereby improving the company's financial performance (Asni & Agustia, 2022).

Research on environmental performance and firm value has been conducted previously. Previous research found that environmental performance is proven to have a positive effect on firm value (Fauzi, 2022; Indriastuti & Chariri, 2021; Khaireddine & Lacombe, 2024; Kheireddine et al., 2023). However, Khanifah et al. (2020) found that environmental performance has a negative effect on firm value. Widiyaningsih & Nugroho Jati (2024) found that environmental performance has no influence on firm value. Research on green innovation and firm value has also been conducted previously. Previous research found that green innovation can increase or have a positive effect on firm value. However, Yuliandhari et al. (2023) state that green innovation has a negative effect on firm value, Iqbal & Brawijaya (2024) and Asni & Agustia (2022) found that green innovation has no effect on firm value.

Previous studies have also explored the effect of environmental performance and financial performance. Previous research has shown that environmental performance is proven to have a positive effect on financial performance (Hanjani & Kusumadewi, 2023; IFADA et al., 2021; Kalash, 2021). Where companies that prioritize environmental issues are likely to enhance their profitability. However, Research by Septiavin et al. (2023) revealed that environmental performance has a negative impact on financial performance. Indriastuti & Chariri (2021) found that environmental performance does not affect financial performance Furthermore, research on

green innovation and financial performance has also been conducted previously. Previous research reveals that green innovation is proven to have a positive and significant effect on financial performance. (Asni & Agustia, 2022; Benkraiem et al., 2023; Kasraoui et al., 2024). However, Casciello et al. (2024) found that green innovation has a negative effect on financial performance.

Research on the role of financial performance in mediating the effect of environmental performance on firm value has also been conducted previously. Previous research found that financial performance is proven to mediate the effect of environmental performance on firm value (Widiyaningsih & Nugroho Jati, 2024). However, Fauzi (2022) revealed that financial performance proved unable to mediate the effect of environmental performance and firm value. Furthermore, research on the role of financial performance in mediating the effect of green innovation on firm value has also been conducted previously. Previous studies have shown that financial performance is proven to mediate the effect of green innovation on firm value (Asni & Agustia, 2022). However, research by Amalo & Husen (2024) found that financial performance cannot mediate the effect of green innovation on firm value. This research has a novelty by focusing on non-financial companies listed on the Indonesia Stock Exchange (IDX). In contrast to previous studies that explored companies outside Indonesia, in addition, research with broader objects is still rarely found in Indonesia, some research on green innovation and environmental performance on firm value in Indonesia is more likely to focus on certain sectors. Furthermore, research on the mediating role of financial performance on the relationship between green innovation and environmental performance on firm value is also still rare in Indonesia.

The inconsistency in the results of previous studies highlights the need for further research on the effect of environmental performance and green innovation on firm value, the effect of environmental performance and green innovation on financial performance, and the effect of environmental performance and green innovation on firm value with financial performance mediation. The purpose of this research is to determine and examine the effect of environmental performance and green innovation on firm value, the effect of environmental performance and green innovation on financial performance, the effect of environmental performance on firm value with mediation of financial performance, and the effect of green innovation on firm value with mediation of financial performance in non-financial companies listed on the Indonesia Stock Exchange for the period 2021-2023.

This research is very important considering the issue of sustainability and green innovation has become an inevitable global agenda. With increasing pressure from society, consumers, investors and regulators, companies are required to enhance their environmental performance and integrate green innovation practices as part of the company's business strategy. This study also offers a theoretical contribution by testing two main theories, namely stakeholder theory and legitimacy theory, in linking sustainability and green innovation dimensions with financial performance and firm value. This research provides a more comprehensive and in-depth understanding compared to previous studies that tend to examine the relationship and influence between these variables separately. The results of this study are expected to be useful for investors to identify sustainable investment opportunities, as a guide for companies in

improving performance and reputation, as well as a reference for regulators in formulating effective sustainability policies.

METHODOLOGY

This research uses stakeholder theory, legitimacy theory, and signalling theory. Stakeholders are a group of individuals or parties who are influenced and have an influence by the company's activities (Freeman, 1998). Stakeholder theory reveals that companies will inform and be accountable for company activities related to environmental sustainability (Widiyaningsih & Nugroho Jati, 2024). Meanwhile, Legitimacy refers to the general belief or assumption that the definition of an entity is correct, consistent, or in accordance with a socially developed system of norms, values, and definitions (Cho & Patten, 2007). Legitimacy theory is one of the most frequently used theories to provide an explanation of a company's social activities and environmental disclosures to fulfil its social contract. Legitimacy theory asserts that companies that have poor environmental performance are expected to provide more in-depth disclosures about environmental aspects in their reports (van de Burgwal & Vieira, 2014). Signalling theory is a company response that provides signals in the form of information to investors regarding the company's good prospects or prospects for failure (Brigham & Houston, 2019). by conveying external signals through financial information. By providing clear and transparent information, uncertainty about the company's future prospects can be reduced, so as to improve the company's value (Yuliana, 2019).

Environmental performance and firm value are built on stakeholder theory. Stakeholder theory reveals that companies will inform and be responsible for company activities related to the environment (Widiyaningsih & Nugroho Jati, 2024). Previous research found that environmental performance has a positive and significant impact on firm value (Fauzi, 2022; Indriastuti & Chariri, 2021; Khaireddine & Lacombe, 2024; Kheireddine et al., 2023).

H_1: Environmental performance has a significant effect on firm value

Environmental performance and financial performance are grounded in legitimacy theory. Legitimacy theory explains that companies that contribute well to the environment have a better competitive advantage, increase added value, and attract consumers compared to companies that do not care about environmental sustainability. (IFADA et al., 2021). Previous research has revealed that environmental performance is proven to have a positive and significant effect on financial performance (Hanjani & Kusumadewi, 2023; IFADA et al., 2021; Kalash, 2021). Where companies that prioritize environmental issues are likely to enhance their profitability.

H_2: Environmental performance has a significant effect on financial performance

Green innovation and firm value are built on stakeholder theory. This theory explains that the information needed by stakeholders is not only information about the company's financial condition, but companies also need to convey information related to company activities related to social and environmental issues to stakeholders (Widiyaningsih & Nugroho Jati, 2024). Green innovation fosters stakeholder expectations that companies will adopt sustainable business strategies with an environmental focus, contributing to the enhancement of firm value. (Asni & Agustia, 2022; Soewarno & Tjahjadi, 2020). Previous research has found that green

innovation as a form of environmentally friendly innovation can increase firm value, or has a positive and significant effect on firm value (Chouaibi & Chouaibi, 2021; Dai & Xue, 2022; Lestari & Soewarno, 2024).

H_3: Green innovation has a significant effect on firm value

Green innovation and financial performance are built on legitimacy theory. The theory explains that companies that contribute well to the environment have more competitive advantages, increase added value, and attract consumers (IFADA et al., 2021). Previous research found that green innovation has a positive and significant effect on financial performance (Asni & Agustia, 2022; Benkraiem et al., 2023; Kasraoui et al., 2024).

H_4: Green innovation has a significant effect on financial performance

Financial performance and firm value are built on signalling theory. Signalling theory states that companies need to convey positive and negative signals to investors about the company's prospects (Brigham & Houston, 2019). I Yuliana (2019) added that firm value can be increased through external signals in the form of information or financial reports. Previous research has found that financial performance has a positive and significant effect on firm value (Keman & Avcı, 2024; Keter et al., 2024; Ramadhan et al., 2022; Silkfan & Azwir, 2022).

H_5: Financial performance has a significant effect on firm value

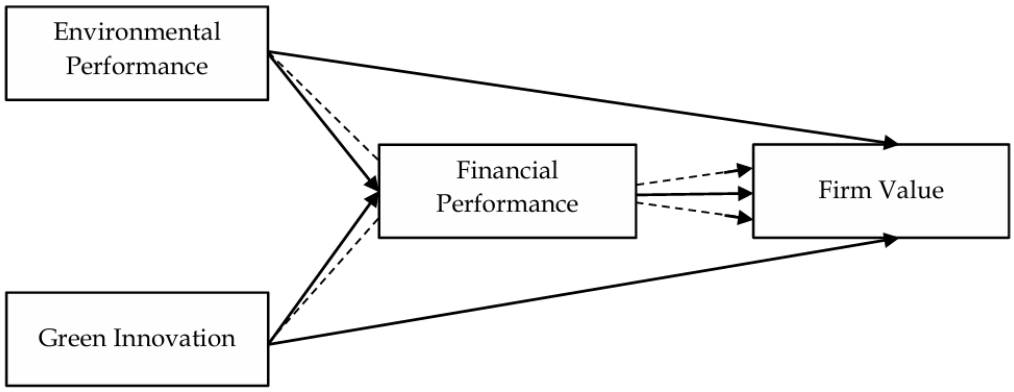
The effect of environmental performance on firm value mediated by financial performance is grounded in legitimacy theory. There is some literature that has examined the effect of environmental performance, financial performance, firm value, and company value. Previous research has revealed that environmental performance has a positive and significant effect on financial performance (Hanjani & Kusumadewi, 2023; IFADA et al., 2021; Kalash, 2021). In addition, financial performance positively and significantly impacts firm value (Keman & Avcı, 2024; Keter et al., 2024; Silkfan & Azwir, 2022). Widiyaningsih & Nugroho Jati (2024) also found that financial performance is proven to mediate the effect of environmental performance on firm value.

H_6: Financial performance can mediate the effect of environmental performance on firm value

The effect of green innovation on firm value mediated by financial performance is also founded on legitimacy theory. There is some literature that has examined the effect of green innovation, financial performance, firm value, and company value. Previous research reveals that green innovation has a positive and significant effect on financial performance (Asni & Agustia, 2022; Benkraiem et al., 2023; Kasraoui et al., 2024). Furthermore, financial performance positively and significantly impacts firm value (Keman & Avcı, 2024; Keter et al., 2024; Silkfan & Azwir, 2022). Asni & Agustia (2022) also discovered that financial performance is proven to mediate the effect of green innovation on firm value.

H_7: Financial performance can mediate the effect of green innovation on firm value

Figure 1. Conceptual Framework



The object and focus of this research are non-financial companies listed on the Indonesia Stock Exchange for the period 2021-2023. Secondary data was obtained from the official website of the Indonesia Stock Exchange (www.idx.co.id), annual report and sustainability report through each company's official website, the decision letter on the results of the company performance rating assessment program (PROPER) through the KLHK PROPER official website (proper.menlhk.go.id), and Stockbit digital securities (stockbit.com). The population of this research consists of 649 non-financial companies listed on the Indonesia Stock Exchange from 2021-2023. The sample selection method in this research is non-probability sampling using purposive sampling technique with criteria 1) non-financial companies listed on the IDX in 2021-2023; 2) Companies that received PROPER in 2021-2023; 3) Companies that have never experienced losses in 2021-2023. From the results of this selection, there are 79 companies that meet the sample criteria with observations for 3 years, so there are 237 observation data.

Environmental performance (EP) refers to a company's efforts to minimize the negative environmental impacts of its production processes while also reflecting society's perception of these impacts (Djoutsa Wamba et al., 2020). It assesses the extent to which a company contributes to environmental preservation or enhancement (Ahsan, 2024). The environmental performance indicator in this study is measured by ISO 14001 and PROPER colour/rating. The ISO 14001 indicator is assessed using dummy variables obtained from the company's annual and sustainability reports (Hardiyansah et al., 2021; Khaireddine & Lacombe, 2024). Companies that have ISO 14001 certification are given a value of 1, while companies that do not have certification are given a value of 0 (Hardiyansah et al., 2021; Khaireddine & Lacombe, 2024). The PROPER indicator is by giving a score of 1 to 5 based on the PROPER colour rating, gold is rated 5, green is rated 4, blue is rated 3, red is rated 2, black or suspended is rated 1 (Deswanto & Siregar, 2018; Susbiyani et al., 2024; Widiyaningsih & Nugroho Jati, 2024).

Green innovation (GI) is an environmentally friendly business practice, as defined by Cai & Li (2018). Tang et al. (2018) classifies green innovation into two types of innovation, namely green process innovation is the updating of production or service processes to reduce environmental impact, costs and improve quality while enhancing supporting activities and green product innovation focuses on developing products or services that minimise environmental damage. The measurement of green innovation involves eight indicators, with four representing green process innovation and the other four representing green product

innovation, as outlined by Asni & Agustia (2022). These indicators are identified through a content analysis of annual reports and corporate sustainability reports (Agustia et al., 2019; Asni & Agustia, 2022). Each indicator is scored on a scale from 0 to 2. A score of 0 indicates the absence of any description of the indicator item, while a score of 1 reflects a basic description without details of implementation. A score of 2 denotes a comprehensive explanation, including numerical indicators, specific types of product or process innovations, detailed environmental practices, and illustrations of green innovation (Asni & Agustia, 2022; Lestari & Soewarno, 2024). Where the total score for each item is divided by the number of items as an average or index which becomes the final data for indicators of green process innovation and green product innovation. The items or indicators of both types of green innovation can be seen in table 1.

Table 1. Green Innovation Items

Indicator	Item
Green process innovation	1. Reduce resources, water, and energy consumption while improving their efficiency. 2. Utilise recycled materials, adopt recycling techniques, or apply green technology. 3. Conduct environmental campaigns and conservation initiatives. 4. Adopt equipment or technology to minimize the use of energy, water, and waste.
Green product innovation	1. Redesign products to reduce hazardous materials, avoiding pollution or toxic compounds in the production process. 2. Design and implement environmentally friendly packaging solutions for both existing and new products. 3. Create or modify products to enhance energy efficiency during consumer use. 4. Use fewer non-polluting or hazardous materials in product design, ensuring they are eco-friendly during use.

Source: (Asni & Agustia, 2022; Lestari & Soewarno, 2024)

Firm value (FV) is defined as the market value of a company from an investor's perspective (Martins & Lopes, 2016). Within the concept of firm value is company valuation. Firm valuation is the process of assessing and determining the fair value of a company, which reflects the amount that investors are willing to pay to acquire all ownership of the company (Sarker & Hossain, 2023). In this research, firm value is measured using indicators such as Price to Book Value (PBV) and Tobin's Q. PBV represents the company's market valuation ratio, determined by dividing the price per share by the book value per share (BVPS) (Ferriswara et al., 2022; Liu, 2024). Tobin's q is a measure of the market value of a company (Khasawneh & Dasouqi, 2017). Tobin's Q can be calculated by market capitalization (MVS) plus the book value of debt (D) then divided by total assets (TA) (Wolfe & Aidar Sauaia, 2005).

Financial performance (FP) is a crucial indicator used to assess a company's overall financial health and stability (Waris & Din, 2024). Profitability is commonly used as a measure of financial performance success because it reflects the company's operating results. It indicates the profit generated by the company through its activities, demonstrating how well the company manages its business operations (Soewarno & Tjahjadi, 2020). The profitability ratios used as indicators in this research are return on assets (ROA) and return on equity (ROE), these ratios are generally used to measure the company's financial performance (Soewarno & Tjahjadi, 2020).
This study uses the data analysis technique Structural Equation Model (SEM) based on Partial Least Square (PLS) with the SmartPLS 3.0 application. According to Ghozali & Latan (2014), Partial Least Square is an analytical method that is soft modelling because it does not require data to have a certain measurement scale, does not depend on data distribution, and can be used with a small sample size. The stages of data analysis in this study consist of descriptive statistics, convergent validity testing, discriminant validity testing, and composite reliability testing, which serve as part of the measurement model evaluation (outer model), determination coefficient test, predictive relevance test as a structural model test (inner model) and hypothesis testing.

RESULT AND DISCUSSION

Descriptive Statistics

Table 2. Descriptive Statistics Results

Indicator	N	Mean	Median	Min	Max	Standard Deviation
PBV	237	2.042	1.180	0.310	17.540	2.291
TOBIN'S Q	237	1.121	0.710	-0.180	7.090	1.170
PROPER	237	3.257	3	1	5	0.691
ISO 14001	237	0.747	1	0	1	0.435
GI PROCESS	237	0.948	1	0.500	1.50	0.163
GI PRODUCT	237	0.750	0.750	0.250	1.25	0.205
ROA	237	0.086	0.070	0.001	0.580	0.069
ROE	237	0.131	0.100	0.002	0.710	0.093

Based on the results of descriptive statistics, PBV has an average of 2.042, indicating the company's market value is on average twice its book value, with a right-skewed distribution with a median of 1.180 over a range of 0.310-17.540, and a standard deviation of 2.291. TOBIN'S Q has an average of 1.121, reflecting a market value slightly higher than the replacement value of assets, with a median of 0.710 in the range -0.180-7.090 and a standard deviation of 1.170. On the environmental performance indicator, the average PROPER score is 3.257, mostly in the green category with a range of 1-5 and a standard deviation of 0.691. ISO 14001 shows 74.7% of companies have environmental certification, with a standard deviation of 0.435. The green innovation indicator shows good performance, green process innovation with an average of 0.948 and in the range of 0.500-1.5 and green product innovation with an average of 0.750 in the range of 0.250-1.250, both have low variation. In the financial performance indicators, ROA averaged 8.6% and ROE averaged 13.1%, showing moderate stability despite significant variations in PBV and TOBIN'S Q. Meanwhile, environmental performance and green innovation indicators tend to be more uniform.

Convergent Validity

Figure 2. Outer Model

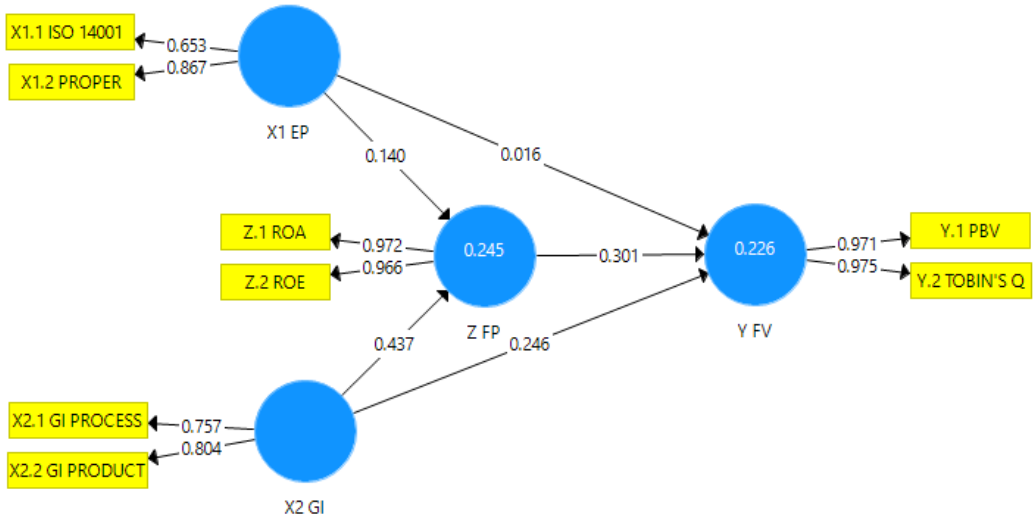


Table 3. Convergent Validity Test Results (Outer Loading)

Indicator	X1 EP	X2 GI	Y FV	Z FP
X1.1 ISO 14001	0.653			
X1.2 PROPER	0.867			
X2.1 GI PROCESS		0.757		
X2.2 GI PRODUCT		0.804		
Y.1 PBV			0.971	
Y.2 TOBIN'S Q			0.975	
Z.1 ROA				0.972
Z.2 ROE				0.966

Ideally, the loading factors value exceeds 0.7. However, according to Ghozali & Latan (2014), the value of loading factors in the range of 0.50 to 0.60 is still acceptable. The results of the convergent validity test show that the loading factor values for all indicators exceed 0.6, indicating that all indicators in this research are considered valid.

Discriminant Validity

Table 4. Discriminant Validity Test Results (Cross Loading)

Indicator	X1 EP	X2 GI	Y FV	Z FP
X1.1 ISO 14001	0.653	0.185	0.110	0.151
X1.2 PROPER	0.867	0.249	0.143	0.245
X2.1 GI PROCESS	0.419	0.757	0.224	0.410
X2.2 GI PRODUCT	0.046	0.804	0.383	0.338
Y.1 PBV	0.149	0.373	0.971	0.395
Y.2 TOBIN'S Q	0.173	0.392	0.975	0.425
Z.1 ROA	0.264	0.470	0.445	0.972
Z.2 ROE	0.250	0.454	0.369	0.966

The results of the discriminant validity test are determined by examining the cross loading values, the loading value must demonstrate a higher indicator value for each construct compared to the indicators of other constructs, if the cross loading test is fulfilled then the construct has good discriminant validity (Sekaran & Bougie, 2016). From the results of the discriminant validity test, all indicators have a higher loading value on their respective constructs than other constructs, Thus, the discriminant validity for all constructs is met according to the criteria or measurements are more strongly/highly correlated with the variables they measure and are less correlated with other variables.

Composite Reliability

Table 5. Composite Reliability Test Results

Variable	Composite Reliability
X1 EP	0.738
X2 GI	0.758
Y FV	0.972
Z FP	0.969

Hair et al, (2014) explain that the composite reliability value should be > 0.7 and a construct is considered to have high reliability if the composite reliability value exceeds 0.70. Based on the results of the composite reliability test, the composite reliability value of all variables is > 0.7. indicating that the construct has high reliability and the data obtained from the research instrument demonstrates adequate internal consistency.

Coefficient of Determination

Table 6. Test Results of the Coefficient of Determination

Variable	R Square
Y FV	0.226
Z FP	0.245

According to Chin (1998), the R Square value can be classified into three categories, the R Square value > 0.67 is considered strong, 0.67 > R Square value> 0.33 is considered moderate, and 0.33 > R Square value > 0.19 is considered weak. Based on the results of the coefficient of determination test, the R Square firm value is 0.22. This indicates that the environmental performance, green innovation, and financial performance variables have a weak ability to explain the firm value variable. These three variables collectively influence the firm value variable by 22.6%, while the remaining 77.4% is influenced by other factors outside the scope of this study. Meanwhile, the R Square value for financial performance is 0.24, indicating that the environmental performance and green innovation variables have a weak ability to explain the financial performance variable. This means that these two variables influence the financial performance variable by 24.5%, while the remaining 75.5% is influenced by other factors outside the scope of this study.

Predictive Relevance

Table 7. Predictive relevance test results

	SSO	SSE	Q^2 (=1-SSE/SSO)
Y FV	474.000	159.351	0.664
Z FP	474.000	162.439	0.657

Source: Research Data, 2024

The predictive relevance results are assessed using the Q-Square (Q^2) value. A construct model is considered relevant if the Q^2 value is greater than 0.05.(Hair et al., 2018). From the predictive relevance test results, the Q^2 value of the firm value variable is 0.66 > 0.05 and the Q^2 value of the financial performance variable is 0.65 > 0.05. So that the construct model can be said to be relevant or the research results obtained have good predictive quality.

Hypothesis Testing

Table 8. Hypothesis Test Results (Path Coefficients)

Variable	Original Sample (O)	T Statistics	P Values
X1 EP -> Y FV	0.016	0.229	0.819
X1 EP -> Z FP	0.140	2.424	0.016
X2 GI -> Y FV	0.246	4.232	0.000
X2 GI -> Z FP	0.437	8.331	0.000
Z FP -> Y FV	0.301	3.507	0.000
X1 EP -> Z FP -> Y FV	0.042	2.022	0.044
X2 GI -> Z FP -> Y FV	0.131	2.675	0.008

Hypothesis testing in this study was conducted by examining the Original Sample value to determine whether the relationship between each exogenous and endogenous variable was positive or negative. Additionally, the T-statistics value was compared to the t-table value, and the P-Values from the path coefficients table were analyzed. The hypothesis is accepted if the t-statistics value > t-table (1.970) and P-Values < 0.05 (significant) (Ghozali, 2016).

DISCUSSION

The Influences of Environmental Performance on Firm Value

The first hypothesis test results show a positive original sample value, which is 0.016. With the results of T-statistics worth 0.229 < 1.970 and P-Values worth 0.819 > 0.05, then H_1 is rejected. That is, environmental performance has a positive relationship with firm value, but the effect of environmental performance is not significant enough to firm value. While environmental performance demonstrates a company's commitment to environmental sustainability, financial performance alone is insufficient to provide the direct impact that the market or investors recognize in increasing company value. Investors may focus more on concrete financial indicators, such as profit or revenue growth, compared to environmental performance whose impact is more long-term. These results are in line with research by Herlina et al. (2025), which revealed that environmental management assessment is not significant enough to increase the value of companies in the Indonesian capital market. However, these results cannot strengthen stakeholder theory and are inconsistent with previous studies (Fauzi, 2022; Indriastuti & Chariri, 2021; Khaireddine & Lacombe, 2024; Kheireddine et al., 2023).

The Influences of Environmental Performance on Financial Performance

The second hypothesis test results show a positive original sample value, which is 0.140. With the results of T-statistics worth 2.424 > 1.970 and P-Values worth 0.016 < 0.05, then H_2 is accepted. This means that environmental performance has a positive relationship with financial performance and environmental performance has a significant effect on financial performance. Companies that contribute well to environmental sustainability will have a better reputation in the eyes of consumers, investors, and business partners. A better reputation can attract new customers and retain customers who care about environmental issues, thus improving the financial performance of the company's revenue and profit. These findings support the legitimacy theory, which asserts that companies that act responsibly toward stakeholders and environmental preservation can establish strong legitimacy. The results align with previous research, demonstrating that environmental performance can enhance a company's financial performance (Hanjani & Kusumadewi, 2023; IFADA et al., 2021; Kalash, 2021).

The Influences of Green Innovation on Firm Value

The third hypothesis test results show a positive original sample value, which is 0.246. With the results of T-statistics worth 4.232 > 1.970 and P-Values worth 0.000 < 0.05,then H_3 is accepted. That is, green innovation has a positive relationship with firm value and green innovation has a significant effect on firm value. Green innovation, which includes environmentally friendly innovations, such as reducing carbon emissions, energy efficiency, and the use of environmentally friendly materials and processes, creates positive perceptions from investors. This aligns with stakeholder theory, which posits that a company's ability to meet stakeholders' environmental and social expectations enhances its reputation and strengthens investor trust. In addition, green innovation strengthens business sustainability by creating added value through innovation efforts that can reduce negative impacts on the environment. These results are in line with previous research findings, which states that companies that implement green innovation can increase firm value (Chouaibi & Chouaibi, 2021; Dai & Xue, 2022; Lestari & Soewarno, 2024).

The Influences of Green Innovation on Financial Performance

The fourth hypothesis test results show a positive original sample value, which is 0.437. With the results of T-statistics worth 8.331 > 1.970 and P-Values worth 0.000 < 0.05, then H_4 is accepted. That is, green innovation has a positive relationship with financial performance and green innovation has a significant effect on financial performance. The implementation of green innovation increases the efficiency of energy consumption and optimisation of resource use can reduce operational costs. In addition, the implementation of green innovation also attracts consumer interest through environmentally friendly and energy-efficient products (Priyanka D. F., 2019), which ultimately improves financial performance through increased sales. These results strengthen legitimacy theory which states that companies that demonstrate a commitment to sustainability and environmentally friendly practices will gain greater social legitimacy and trust from society, including consumers and business partners. This result is in line with previous findings that green innovation not only increases cost efficiency but also creates opportunities to gain competitive advantage in the market, thus having a positive impact on the financial performance of the company (Asni & Agustia, 2022; Benkraiem et al., 2023; Kasraoui et al., 2024).

Thus, green innovation is a crucial strategy to ensure the sustainability and financial performance of a firm amidst increasing attention to environmental issues.

The Influences of Financial Performance Firm Value

The fifth hypothesis test results show a positive original sample value, which is 0.301. With the results of T-statistics worth 3.507 > 1.970 and P-Values 0.000 < 0.05, then H_5 is accepted. That is, financial performance has a positive relationship with firm value and financial performance has a significant effect on firm value. In accordance with signaling theory, good financial performance is a positive signal from the company to investors indicating good and promising future prospects. This signal aims to reduce information asymmetry between company management and external parties, such as investors and creditors who often have limited access to internal company information. Good financial performance information is an important indicator for the market to distinguish between good and bad performing companies. In addition, good financial performance can improve the quality of company shares in the capital market (Mutia et al, 2018). Therefore, financial performance not only acts as an internal evaluation tool, but also as a strategic tool to strengthen the company's reputation and value in the eyes of stakeholders, especially investors. These results are also consistent with previous research, which states that financial performance has a positive and significant effect on firm value (Keman & Avcı, 2024; Keter et al., 2024; Silkfan & Azwir, 2022). However, this result is not in line with research by Saputri et al. (2024), which states that financial performance has a significant negative effect on firm value.

The Influences of Environmental performance on Firm Value with Mediated Financial Performance

The sixth hypothesis test results show a positive original sample value, which is 0.042. With the results of T-statistics worth 2.022 > 1.970 and P-values worth 0.044 < 0.05, then H_6 is accepted. This means that financial performance mediates the effect of environmental performance on firm value. Financial performance plays an important role in mediating the influence of environmental performance on firm value, because good environmental performance contributes to increasing firm value indirectly through improved financial performance. Legitimacy theory provides a strong foundation for this result, where companies that demonstrate a strong commitment to environmental performance with efforts to reduce adverse environmental impacts, often gain good legitimacy from society and create added value from a consumer perspective, thereby increasing company profits and ultimately attracting investors to buy company shares. Investors see companies with good environmental performance and financial performance as more sustainable and profitable investments in the long run. This finding aligns with the research of Widiyaningsih & Nugroho Jati (2024), which demonstrated that financial performance mediates the relationship between environmental performance and firm value.

The Influences of Green Innovation on Firm Value with Mediated Financial Performance

The seventh hypothesis test results show the original sample with a positive value, namely 0.131. With the results of T-statistics worth 2.675 > 1.970 and P-Values worth 0.008 < 0.05, H_7 is accepted. This means that financial performance mediates the effect of green innovation on

firm value. These results provide a complex explanation of the two indicators of green innovation, namely green process innovation and green product innovation. Green process innovation focuses on resource efficiency, reduced energy consumption, and adoption of environmentally friendly technologies that not only reduce environmental impacts but also reduce operating costs (Asni & Agustia, 2022; García-Granero et al., 2018). With reduced operational costs, financial performance can improve from cost reduction and efficiency implemented by the company. Meanwhile, the implementation of green product innovation creates products that minimise waste, use non-hazardous materials, and save energy (Asni & Agustia, 2022; García-Granero et al., 2018; Wong et al., 2012). By designing these products, the impact can attract consumers and partners who care about sustainability issues, thus creating a competitive advantage and ultimately improving financial performance from increased company profits. The increase in financial performance resulting from the application of these two types of innovation attract investors to buy the company's shares or invest in the company, thus contributing significantly to the increase in firm value in the capital market. These results strengthen legitimacy theory and are in line with the research of Asni & Agustia (2022) which found that financial performance mediates the effect of green innovation on firm value.

CONCLUSION

This research reveals that environmental performance, which reflects the company's concern for environmental sustainability, its influence on firm value has not been recognised significantly in the capital market without the support of improved financial performance. In contrast, green innovation emerges as an important strategy that not only strengthens the company's financial performance but also increases firm value in the eyes of investors. Financial performance proves to be the key mediating influence of environmental performance and green innovation on firm value, the relationship shows that, the company's success in carrying out environmental compliance and environmental sustainability innovation strategies, must be integrated with financial performance to produce maximum impact on the company's market value.

This study has limitations, including the scope of the research object which is limited to non-financial companies listed on the IDX in the 2021-2023 period and uses PROPER as one of the environmental performance indicators, so the results may not fully apply to companies that do not get PROPER. Future research can also use other indicators that can cover more companies. In addition, future research can also combine secondary and primary data such as surveys on companies and interviews with managers, investors, employees and the community as part of the company's stakeholder elements.

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