Effect of Environmental Performance on Firm Value in Indonesian Stock Exchange: Intervening Role of Profitability

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Abstract−This study aims to examine the effect of environmental performance on firm value, with profitability serving as a mediating variable. The research sample consists of 171 manufacturing companies listed on the Indonesia Stock Exchange and participating in the PROPER program during the period 2017–2019. Environmental performance is measured using the PROPER environmental performance rating. Firm value is measured using Tobin's Q, while profitability is measured by return on equity (ROE). The analysis method employed includes regression analysis to test direct effects and the Sobel test to assess indirect effects. Based on the results of data analysis, this study demonstrates that (1) environmental performance has a positive effect on profitability, (2) profitability positively affects firm value, and (3) environmental performance also has a direct positive impact on firm value. Furthermore, the study confirms the mediating role of profitability, indicating that environmental performance indirectly enhances firm value through improved profitability. This research contributes to fulfil the inconsistent findings reported in prior Indonesian studies.

Keywords: Environmental Performance; Firm Value; Profitability; Indonesian Stock Exchange; PROPER

1. INTRODUCTION

One of the primary interests of shareholders is the maximization of shareholder wealth. Shareholder wealth serves as an indicator of a company's value, which is one of the main objectives of a business (Hall, 2024). In the context of publicly listed companies, firm value is often reflected in stock prices, which act as a proxy for shareholder wealth (Hall, 2024).

To enhance firm value, companies adopt and implement various strategic initiatives, one of which is the improvement of environmental performance (Fauzi, 2022; Khanifah et al., 2020; Rahmawati et al., 2024). In recent years, environmental concerns have become increasingly significant to shareholders, particularly in relation to the long-term sustainability of business operations (Ahmad et al., 2023; Rivera et al., 2023). Consequently, firms are expected to adopt environmentally responsible practices commonly referred to as "green business" in order to mitigate the adverse environmental impacts of their activities. Government authorities have likewise placed greater emphasis on corporate environmental accountability. In Indonesia, this is reflected in regulatory frameworks such as *UU no. 40 2007* concerning Limited Liability Companies and *PP no. 47 2012* on Corporate Social and Environmental Responsibility, which mandate that companies, particularly those with environmental and natural resource impacts, fulfil specific environmental obligations.

Notable environmental degradation cases in Indonesia include those involving PT Freeport Indonesia and PT Lapindo Brantas. PT Freeport Indonesia was found to have violated Forestry Law No. 19/2004 by discharging waste into forests, rivers, and estuaries in Papua without the consent of local communities or governmental authorities, resulting in estimated state losses of USD 12.95 billion (Fitriah & Amarini, 2021). PT Lapindo Brantas, on the other hand, was implicated in a drilling incident that led to a toxic mud eruption in Sidoarjo, East Java (Yunita & Triadi, 2024).

Environmental performance serves as a measure of the extent to which a company engages in environmentally responsible practices, reflecting corporate ethics, sustainability commitments, and long-term viability (Chen et al., 2024; Fosu et al., 2024; Shmelev & Gilardi, 2025). Firms increasingly strive to integrate environmentally friendly activities into their operations (Hermundsdottir & Aspelund, 2022), thereby enhancing the resilience and sustainability of their business models (Chen et al., 2024; Fosu et al., 2024; Shmelev & Gilardi, 2025). As sustainable business practices are maintained, firm value is likely to increase (Aydoğmuş et al., 2022). In Indonesia, *Sekretariat Program Penilaian Peringkat Kinerja Perusahaan Dalam Pengelolaan Lingkungan* (PROPER) (2019) reported a 46% increase in corporate innovation from 2018 to 2019, contributing to business efficiency gains of IDR 192.63 trillion. Enhancing environmental performance is thus seen as a key driver for sustaining business operations and improving firm value.

According to signaling theory, a firm's engagement in environmental responsibility constitutes a positive signal to shareholders, conveying information about the firm's long-term sustainability (Amaya et al., 2021). Sustainable operations are associated with stable earnings and cash flows (Pham et al., 2021), which in turn support consistent dividend payments to shareholders (Mamoori et al., 2025; Nie & Yin, 2022). From the perspective of stakeholder theory, environmental responsibility is a strategic approach to mitigating conflicts of interest between firms and their stakeholders (Wahyuni et al., 2024). Reduced conflicts of interest lower agency costs and subsequently enhance firm value (Moez, 2024). Afzali et al. (2025) found that environmental responsibility reduces costs associated with activist sanctions. Similarly, Foulon & Marsat (2023) showed that better environmental performance helps firms avoid regulatory penalties. Accordingly, improvements in environmental performance are necessary to minimize

stakeholder conflicts and bolster firm value. Such improvements also foster stronger relationships with key stakeholders, including employees, communities, customers, suppliers, regulators, and shareholders.

Empirical studies have shown that environmental performance and responsibility are associated with increased productivity (Sun, 2025), profitability (Otero-González et al., 2021), and long-term business sustainability (Sheehy & Farneti, 2021). In Indonesia, Fauzi (2022) found that environmental performance has a positive impact on firm value. Rahmawati et al. (2024) reported that environmental performance has no effect on corporate performance. In contrast, Khanifah et al. (2020) found no significant relationship between environmental performance and firm value. This study seeks to examine the effect of environmental performance on firm value through the intervening role of profitability, in response to the inconsistent findings reported in prior Indonesian studies including Fauzi (2022); Khanifah et al. (2020); and Rahmawati et al. (2024).

Furthermore, a systematic review by Aydoğmuş et al. (2022) synthesizes global evidence on the relationship between ESG performance and firm value, highlighting that environmental initiatives generally enhance both profitability and shareholder value. However, the findings also reveal heterogeneity across regions, sectors, and ESG components, suggesting the need for context-specific empirical studies. Despite extensive global research, there remains a lack of consensus in Indonesian studies regarding the effect of environmental performance on firm value, particularly with respect to the mediating role of profitability—an empirical gap that this study aims to address.

2. RESEARCH METHODS

This study employs a quantitative explanatory research design with a causal approach. Quantitative research is characterized by the use of numerical data and statistical methods to measure variables and examine the relationships between them in an objective and replicable manner. The explanatory nature of this research aims to go beyond mere description by providing explanations regarding the underlying mechanisms that link the independent and dependent variables. Specifically, the causal approach is utilized to investigate the cause-and-effect relationship among variables, testing whether changes in environmental performance (independent variable) lead to changes in profitability and firm value (dependent variables). By applying regression analysis and mediation testing, this research seeks to empirically validate theoretical assumptions and offer insights into how and why environmental performance influences firm value through profitability.

2.1 Basic Research Framework

Enhancing environmental performance aims to reduce conflicts of interest between the firm and both communities and regulators. This aligns with stakeholder theory, which posits that meeting the interests of society and regulators minimizes conflict. Otero-González et al. (2021) demonstrated that environmental performance enhances profitability.

H1: Environmental performance has a positive effect on profitability

Profitability is a key financial indicator in determining firm value. High profitability reflects the firm's ability to generate earnings, which in turn supports increased dividends and share prices (Mamoori et al., 2025; Nie & Yin, 2022). Signaling theory further supports this, suggesting that highly profitable firms send positive signals regarding expected returns. Ferriswara et al. (2022) found that financial performance, including profitability, increases firm value.

H2: Profitability has a positive effect on firm value

Environmental performance also signals the long-term sustainability of the business (Chen et al., 2024; Fosu et al., 2024; Shmelev & Gilardi, 2025), particularly to key financiers such as shareholders and creditors. Sustainability signals future earnings, positive cash flows (Pham et al., 2021), and higher potential dividends (Mamoori et al., 2025; Nie & Yin, 2022). These are critical pieces of information for investors assessing returns on their capital. Fauzi (2022) found that environmental performance has a positive impact on firm value.

H3: Environmental performance has a positive effect on firm value

Improved environmental performance also adds value for other stakeholders such as employees, customers, and suppliers. This value creation signals corporate ethics, credibility, and sustainability (Chen et al., 2024; Fosu et al., 2024; Shmelev & Gilardi, 2025). These attributes enhance the firm's reputation, which is a powerful marketing tool for developing new market segments (Srivastava, 2024). Strong environmental performance can also be leveraged to promote "green" business operations to attract high-quality suppliers (Liao et al., 2024). Competitive advantages in employee retention and customer loyalty contribute to increased revenues and profitability, while cost-efficient supplier relationships further enhance profit margins.

These dynamics are consistent with stakeholder theory, which argues that firms must create value for stakeholders to sustain productive relationships (Mahajan et al., 2023). Vuong & Bui (2023) found that high-performing employees prefer to remain with reputable firms. Tran (2022) noted that environmental responsibility fosters customer loyalty. Liao et al. (2024) observed that green practices attract suppliers offering high-quality inputs at lower costs, enhancing profitability. As profitability increases, so does shareholder welfare, thereby maximizing firm value.

H4: Environmental performance positively affects firm value through profitability
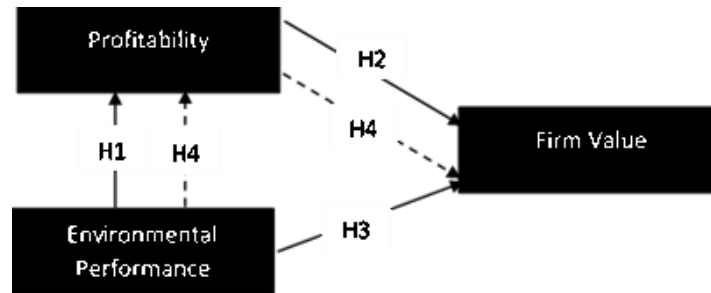
Figure 1. Research Framework

2.2 Population and Sample

The population in this study consists of companies listed on the Indonesia Stock Exchange (IDX). The sample was selected using purposive sampling, a method that involves selecting samples based on specific criteria. First, the selected companies must operate within the manufacturing sector. Manufacturing companies are those engaged in production and fabrication activities. Muliani and Rijal (2018) explain that such activities significantly contribute to environmental pollution. Second, the companies must have participated in the PROPER program by the Ministry of Environment and Forestry during the 2021–2023 period. This timeframe was chosen because financial reports on the IDX are only accessible for the past three years. Third, the companies must not have negative equity. Negative equity indicates an absence of positive shareholder funding contributions and makes it difficult to assess shareholder welfare, which serves as a proxy for firm value. Additionally, negative equity may bias the measurement of Tobin's Q.

Total manufacturing companies listed on the IDX are 213 companies in 2021, 226 companies in 2022, and 219 companies in 2023. Manufacturing companies that do not participate in PROPER are 132 companies in 2021, 179 companies in 2022, and 153 companies in 2023. Manufacturing companies that have negative equities are 9 companies in 2021, 7 companies in 2022, and 7 companies in 2023. Total net samples are 171 companies. Details can be seen in table 1.

2.3 Research Variables

This research uses firm value as dependent variable, environmental performance as independent variable, and profitability as intervening variable. Firm value an profitability are measured by ratio measurement while environmental performance is measured by ordinal measurement.

The dependent variable in this study is firm value, which serves as an indicator of shareholder welfare, typically reflected through stock price. Firm value is measured using Tobin's Q, calculated as in equation 1 (Faria et al., 2022).

$$Tobin's\ Q = \frac{(stock\ price\ x\ outstanding\ stock\ )+liability}{assets} \qquad (1)$$

The stock price refers to the closing price on March 31 following the end of the fiscal year, based on data from the IDX. This date is selected in accordance with the decision of the *Keputusan Ketua Badan Pengawas Pasar Modal dan Lembaga Keuangan no. KEP-346/BL/2011* Regulation No. X.K.2, which stipulates that financial reports must be submitted no later than the third month after the fiscal year ends. Hence, shareholders can evaluate profitability only by that time.

The independent variable is environmental performance. Score 1 for black rating, score 2 for red rating, score 3 for blue rating, score 4 for green rating, and score 5 for gold rating (Mar'ati & Darsono, 2023).

The intervening variable in this study is profitability, measured using the Return on Equity (ROE) ratio. ROE is used as a measure of profitability because shareholder welfare is closely related to how well equity (shareholder funding) is managed to generate profits. The formula is as in equation 2 (Ningsih et al., 2022).

$$Return\ on\ Equity = \frac{net\ income}{equity} \qquad (2)$$

2.4 Data Analysis

Although the environmental performance variable in this study is originally measured on an ordinal scale through the PROPER rating system (black, red, blue, green, and gold), it is treated as a continuous variable in the regression analysis. This approach is statistically justified under the assumption that the ordinal categories represent an underlying continuum of environmental responsibility, and the numerical scores assigned (ranging from 1 to 5) approximate equal intervals between levels. In many empirical studies, especially in corporate social responsibility and environmental performance research, ordinal indicators with five or more levels are frequently treated as quasi-interval variables to allow for parametric analysis.

Moreover, regression analysis is generally robust to minor violations of the interval-level assumption, particularly when the sample size is sufficiently large—as is the case in this study with 158 observations. This robustness is supported by the central limit theorem, which allows for valid inferences in large samples even when strict assumptions about measurement levels are not fully met. Treating environmental performance as a continuous

predictor also simplifies interpretation and enables direct estimation of marginal effects, which is particularly useful when assessing its impact on profitability and firm value. Therefore, the use of regression analysis in this context remains methodologically sound and consistent with prior research practices (Fauzi, 2022; Khanifah et al., 2020). This research examines the hypotheses by using regression and Sobel tests. Models of regression and Sobel test can be seen in equation 3-5.

$$ROE = a_0 + a_1 ENV + e \qquad (3)$$

$$Q = b_0 + b_1 ROE + b_2 ENV + e \qquad (4)$$

$$z = \frac{a_1 \; x \; b_1}{\sqrt{(b_1^2 \; x \; SE_{a1}^2) + (a_1^2 \; x \; SE_{b1}^2)}} \qquad (5)$$

ROE is return on equity. Q is Tobin's. ENV is environmental performance. Notation of a1 is coefficient of a1 in equation 3. Notation of b1 is coefficient of b1 in equation 4. Notation of SEa1 is standard error of a1 in equation 3. Notation of SEb1 is standard error of b1 in equation 4. Equation 3 is designed to test H1, which examines the effect of environmental performance on profitability.

3. RESULTS AND DISCUSSION

3.1 Result of Data Collection

This research uses financial report, stock market data, and PROPER rating for manufacturing companies on the IDX 2021-2023. Number of manufacturing companies are 213 in 2021, 226 in 2022, and 219 in 2023. The process of sample selection can be seen in Table 1.

Table 1. Sample Selection

Criteria	Year			Total
	2021	2022	2023	
Manufacturing companies listed on IDX	213	226	219	658
Excluded for not participating in PROPER	(132)	(179)	(153)	(465)
Excluded due to negative equity	(9)	(7)	(7)	(23)
Final Sample	72	40	59	171

Table 1 shows the exclusions of PROPER non-participants and negative equity. PROPER participants are included since the environmental performance assessment is based on the PROPER evaluation. Negative equity reflects a lack of positive capital contributions from shareholders, complicating the evaluation of shareholder welfare a common indicator of firm value. Moreover, it can distort the calculation of Tobin's Q. Based on these criteria, this study includes 171 manufacturing firms listed on the IDX that participated in the PROPER program and reported positive equity from 2021 to 2023.

3.2 Descriptive Statistics

Table 2. Descriptive Statistics

Variables	Minimum	Maximum	Average	Standard Deviation
Q	0.29	20.99	2.12	2.89
ROE	-3.48	2.24	0.10	0.45
ENV	2.00	4.00	3.03	0.48

Table 2 shows that the lowest firm value (Q) is 0.29, while the highest is 20.99. On average, the sampled firms have a firm value (Q) of 2.12, with a standard deviation of 2.89. The lowest profitability (ROE) is -3.48, indicating that the company incurred a loss of IDR 3.48 for every IDR 1 of equity used. The highest profitability (ROE) is 2.24, meaning the company generated a profit of IDR 2.24 for every IDR 1 of equity. On average, the sampled firms recorded a profitability (ROE) of 0.10, indicating a profit of IDR 0.10 per IDR 1 of equity, with a standard deviation of 0.45. The lowest environmental performance (ENV) score is 2.00, corresponding to a "red" rating according to the PROPER assessment. The highest score is 4.00, representing a "green" rating. On average, the sampled firms have an environmental performance (ENV) score of 3.03, with a standard deviation of 0.48.

A high standard deviation, such as that observed for Tobin's Q (SD = 2.89), indicates substantial variability in market valuation relative to the book value of firms' assets. This can be attributed to extremely high stock prices in certain companies, particularly those with strong growth prospects or market speculation, resulting in valuations that deviate significantly from the average. Such dispersion suggests heterogeneity in market perceptions, but it also raises concerns about the presence of potential outliers in the dataset. In the context of regression modeling, a high standard deviation warrants careful consideration, as it may reflect a non-normal distribution and the presence of influential

extreme values (outliers) that can distort parameter estimates. In normality test, this research performs trimming approach to mitigate normality problem as in Table 4.

3.3 Normality Test

The normality test aims to assess whether the residuals in this study are normally distributed. A well-specified regression model should be free from normality issues. This study employs the Kolmogorov-Smirnov test, and the results are presented in Table 3.

Table 3. Normality Test

Residual	Kolmogorov-Smirnov Significance Value
ROE regression model	0.000
Q regression model	0.000

Table 3 shows that the Kolmogorov-Smirnov significance values for the residuals in both the ROE and Q regression models are 0.000 (below 0.05), indicating that the residuals are not normally distributed. According to West (2022), one method for addressing non-normality is to transform variables using the natural logarithm. Variables eligible for transformation are those with values above zero (0). In this study, the variables transformed using natural logarithms are environmental performance (ENV) and firm value (Q), resulting in Ln ENV and Ln Q, respectively. The post-transformation Kolmogorov-Smirnov test results are presented in Table 4.

Table 4. Normality Test Post Transformation

Residual	Kolmogorov-Smirnov Significance Value
ROE regression model	0.000
Q regression model	0.028

Table 4 shows that the significance values remain below 0.05, indicating that the residuals are still not normally distributed. Keselman et al. (2002) suggest trimming as an alternative method, which involves removing observations with extreme residual values. Extreme values are defined as those exceeding two standard deviations from the mean. For the ROE regression model, the mean residual is 0.00 with a standard deviation of 0.45, so values above 0.90 or below -0.90 are considered extreme. For the Ln Q regression model, the mean residual is 0.00 with a standard deviation of 0.71, and extreme values are those above 1.42 or below -1.42. Based on these cut-off values, 13 observations were removed, reducing the sample from 171 to 158.

Table 5. Normality Test Post Transformation And Trimming

Residual	Kolmogorov-Smirnov Significance Value
ROE regression model	0.175
Q regression model	0.061

Table 5 shows that the Kolmogorov-Smirnov significance values are 0.175 for the ROE model and 0.061 for the Ln Q model (both above 0.05), indicating that the residuals are now normally distributed. Therefore, the study is free from normality issues. Although 13 observations were removed during the trimming process to address the issue of non-normal residuals, this adjustment does not significantly affect the generalizability of the study's findings. The remaining 158 observations still represent a substantial and diverse sample of manufacturing firms listed on the IDX and participating in the PROPER program. The consistency of the regression results before and after trimming indicates that the model's explanatory power remains stable, suggesting that the core relationships among variables are robust. In this context, the trimming process can be interpreted as a form of robustness check or sensitivity analysis, ensuring that the reported statistical relationships are not driven by outliers or extreme values, but reflect systematic patterns in the broader dataset.

3.4 Heteroscedasticity Test

The heteroscedasticity test assesses whether there is constant variance in the residuals across observations. A good regression model should be free from heteroscedasticity. This study uses the Glejser test, which involves regressing the independent variables on the absolute values of the residuals. The results are shown in Table 6.

Table 6. Heteroscedasticity Test

Independent Variable	Significance	
	ROE Model	Ln Q Model
ROE		0.490
Ln ENV	0.683	0.277

Table 6 shows that for the ROE regression model, the significance value for Ln KL is 0.683 (above 0.05), indicating no heteroscedasticity. For the Ln Q model, the significance values for ROE and Ln KL are 0.490 and 0.277, respectively (both above 0.05), also indicating no heteroscedasticity in the model.

3.5 Autocorrelation Test

The autocorrelation test is used to determine whether there is a correlation between residuals across observations. A well-specified regression model should be free from autocorrelation. This study uses the Runs test, and the results are presented in Table 7.

Table 7. Autocorrelation Test

Residual	Run Test Significance Value
ROE Regression Model	0.425
Ln Q Regression Model	0.110

Table 7 shows that the significance values are 0.425 and 0.110 for the ROE and Ln Q models, respectively (both above 0.05), indicating no autocorrelation issues in this study.

3.6 Multicollinearity Test

The multicollinearity test determines whether there is a significant correlation among independent variables. A good regression model should not suffer from multicollinearity. This study uses the Variance Inflation Factor (VIF) and tolerance values to test for multicollinearity. In this research, multicollinearity test only applies to Ln Q regression model since there are 2 independent variables. The results are shown in Table 8.

Table 8. Multicollinearity Test

Independent Variable	Ln Q Regression Model	
	VIF	*Tolerance*
ROE	1.048	0.954
Ln ENV	1.048	0.954

Table 8 shows that, for the Ln Q regression model, both ROE and Ln ENV have VIF values of 1.048 (below 10) and tolerance values of 0.954 (above 0.1), indicating no multicollinearity.

3.7 Regression Analysis

Table 9. Regression Analysis

Variable	Coefficient	t-statistic	Significance	Coefficient	t-statistic	Significance
Constant	-0.092			-1.269		
Profitability				2.722	6.979	0.000*
Environmental Performance	0.155	2.746	0.007*	0.187	4.214	0.000*
Independent Variable	Profitability			Firm Value		
F-statistic	7.543*			14.455*		
Adj R-Squared	0.046			0.348		
*Significant in 0.01						

Table 9 shows that coefficient values of environmental performance on profitability is 0.155 with t-statistic of 2.746 and significance of 0.007 (significant in 0.01). The result shows that environmental performance increases profitability. H1 is accepted where environmental performance has a positive effect on profitability. Coefficient values of profitability on firm value is 2.722 with t-statistic of 6.974 and significance of 0.000 (significant in 0.01). The result shows that profitability increases firm value. H2 is accepted where profitability has a positive effect on firm value. Coefficient values of environmental performance on firm value is 0.187 with t-statistic of 4.214 and significance of 0.000 (significant in 0.01). The result shows that environmental performance increases firm value. H3 is accepted where environmental performance has a positive effect on firm value.

3.8 Sobel Test

Table 10. Sobel Test

Variable	Coefficient	Standard Error	Coefficient	Standard Error
Profitability			2.722	0.390
Environmental Performance	0.155	0.056		
Independent Variable	Profitability		Firm Value	
z- value		2.573*		
*Significant in 0.01				

Table 10 shows that profitability on firm value has coefficient value of 2.722 and standard error of 0.390. Environmental performance on profitability has coefficient value of 0.155 and standard error of 0.056. Based on Sobel test, z-value is 2.573 (significant in 0.01). The result indicates that environmental performance has an indirect effect

on firm value by profitability. H4 is accepted where environmental performance positively affects firm value through profitability.

3.9 Discussion

The first finding demonstrates that environmental performance has a positive effect on profitability. According to stakeholder theory, environmental responsibility aims to foster a mutually beneficial relationship between the company and its stakeholders, particularly regulators, the public, and the community. Environmental responsibility helps to reduce conflicts of interest, thereby lowering the associated costs. These conflict costs may include sanctions imposed by environmental activists, representing the public and community, as well as penalties from regulators. The higher a company's performance in fulfilling its environmental responsibilities, the lower the conflict with environmental activists and regulators, resulting in reduced sanction costs and, consequently, enhanced profitability. These findings are consistent with Otero-González et al. (2021), who found that environmental performance enhances corporate profitability.

Second, the study confirms that profitability has a positive influence on firm value. According to signaling theory, based on Ferriswara et al. (2022), profitability sends a signal about the potential returns to shareholders. Shareholder returns reflect shareholder welfare and, in turn, represent firm value. These returns take the form of dividends and share price appreciation, both of which are influenced by the company's financial performance, particularly profitability. Higher profitability reflects a stronger ability to generate profits, which increases the likelihood of dividend distribution since dividends are derived from profits. Higher profits also send positive signals to capital market participants, leading to increased demand for the company's shares and, ultimately, a rise in share price. These findings support Ferriswara et al. (2022) found that profitability contributes to an increase in firm value.

Third, the study shows that environmental performance positively affects firm value. Improved environmental performance is associated with higher firm value. In line with signaling theory, environmental responsibility serves to communicate the sustainability of the company's business operations. A company that performs well in its environmental responsibilities signals its ability to sustain its business in the long term. Business sustainability is a key consideration for capital providers, especially shareholders, in enhancing their welfare. Sustainable operations indicate a company's ability to generate future profits and cash flows, both of which are critical in determining future dividend distributions. The stronger a company's capacity to generate future profits and cash flows, the higher the potential dividends received by shareholders, thereby increasing shareholder welfare. These findings support Fauzi (2022) who found that environmental performance positively influences firm value.

Fourth, the findings reveal that environmental performance positively affects firm value through profitability. Beyond its role in addressing the concerns of society and regulators, stakeholder theory also posits that environmental responsibility seeks to deliver added value to other stakeholders, such as employees, customers, and suppliers. Creating added value helps maintain strong business relationships with these stakeholders. Enhanced environmental performance indicates that the company upholds ethical standards, credibility, and business sustainability. These attributes contribute to building a positive corporate reputation, which, in turn, helps retain highly productive employees who tend to remain with reputable organizations. A strong reputation also serves as an effective marketing tool to capture new market segments. Additionally, high environmental performance can be leveraged to promote "green" and "clean" business operations to high-quality suppliers. Companies that are able to maintain high productivity, effective marketing, and cost-efficient relationships with quality suppliers are more likely to increase revenues and reduce expenses, thereby boosting profits. According to signaling theory, increased profits send a positive signal about rising returns and shareholder welfare, which ultimately enhances firm value. Therefore, improved environmental performance indirectly contributes to firm value through increased profitability. These findings are in line with Liao et al. (2024) who found that environmental performance influences firm value indirectly.

The present study presents an additional dimension in the Indonesian and Southeast Asian as it advances empirical evidence for the meditative role of profitability linking environmental performance with firm value. Even when different studies have been carried out in different parts of the world with respect to ESG impacts, region-specific studies have not focused on profitability as pathways. The present research thus furthers the applicability of stakeholder and signaling theories by adding the PROPER-based environmental performance metric in a mediating framework within a budding market context. Propounding Tobin's Q and ROE as proxies draws closer to world financial metrics while localizing the analysis in an embedded regulatory environment, namely, the Indonesian Ministry of Environment's PROPER program. The research thus holds up within-the-context-specific insights that speak volumes towards garnering the regional discourse of corporate sustainability vis-a-vis firm valuation.

Nonetheless, some limitations should be acknowledged. First, the period of the study covers only three years (from 2021 to 2023), which might not capture all the trends or impacts of policy in the long run. Secondly, the environmental performance is only graded in terms of the PROPER index, which, despite being widely accepted, may still not accommodate and capture all dimensions of environmental responsibility. Thirdly, since purposive sampling focuses on firms participating in PROPER, there is an element of risk involved in self-selection bias. This is because companies with better environmental practices would voluntarily join the program. Results must be interpreted in light of these limitations, while future research endeavours may consider longer periods, use of other ESG indicators, and different sampling methods to enhance potential generalizability and robustness.

4. CONCLUSION

Based on the results of regression analysis, this study demonstrates that environmental performance has a positive effect on profitability, profitability positively affects firm value, and environmental performance also has a direct positive impact on firm value. Furthermore, by using the Sobel test, the study confirms the mediating role of profitability, indicating that environmental performance indirectly enhances firm value through improved profitability. This research confirms the literature of stakeholder theory and signaling theory. These findings have important implications for companies, investors, and regulators. Companies can formulate policies aimed at improving environmental performance, which in turn can contribute to enhanced profitability and firm value. Investors may use these insights to guide their investment decisions, directing capital toward firms with strong environmental performance, thereby promoting investor welfare. Regulators can develop policies that support companies with lower environmental performance, encouraging them to improve their environmental responsibility and mitigate the negative environmental impact of their business activities. This study is subject to the limitation of a relatively small sample, comprising 171 manufacturing firms over a three-year period. This limitation arises due to the limited number of manufacturing firms voluntarily participating in the PROPER program. Future research is encouraged to expand the sample size by extending the observation period.

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