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# Analyzing the Effect of Environmental Performance on Stock Returns in High-Environmental-Exposure Companies in Indonesia

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A R T I C L E I N F O

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A B S T R A C T

The growing interest in sustainable investment has heightened focus on corporate environmental performance. However, its relationship with stock returns remains inconsistent, particularly for companies with high levels of environmental exposure. This study aims to analyze the impact of environmental performance measured via PROPER ratings along with firm size, Return on Assets (ROA), and the Book to Market (BTM) ratio on the stock returns of companies listed on the Indonesia Stock Exchange during the 2021–2025 period. Employing a quantitative approach, secondary data were collected from financial statements, stock prices, and PROPER ratings using purposive sampling. The data were analyzed using a balanced panel regression, with Chow and Hausman test results supporting the use of a Fixed Effect Model (FEM). The findings indicate that PROPER ratings have a positive but statistically insignificant effect on stock returns, while firm size has a negative but insignificant effect. ROA shows a positive and significant impact, whereas the BTM ratio exhibits a negative and significant impact. These findings underscore the importance of profitability and valuation in explaining stock returns. Consequently, investors should consider environmental indicators alongside fundamental and valuation analyses when making investment decisions

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## INTRODUCTION

The growth of sustainable investment reflects an increasing focus among investors on environmental aspects, alongside a company's financial performance. The Global Sustainable Investment Alliance (2023) reported that global sustainable investment assets reached US$30.3 trillion in 2022. However, superior environmental performance does not necessarily translate into higher stock returns. Pástor et al. (2021) explain that preferences for "green" investments can influence return expectations, while Bolton and Kacperczyk (2021) identify a return premium associated with carbon emission risk. These findings suggest that the relationship between environmental performance and stock returns depends on how investors assess risk and on the specific financial characteristics of the company.

This issue is particularly relevant for companies with high environmental exposure those whose business activities involve the use of natural resources, the generation of emissions and waste, or the potential for pollution. Naeem et al. (2022) indicate that ESG performance carries different implications for environmentally sensitive industries in developing versus developed nations. In Indonesia, environmental performance is assessed through the Public Disclosure Program for Environmental Rating (PROPER), as stipulated in the Regulation of the Minister of Environment and Forestry Number 1 of 2021. Nevertheless, PROPER ratings do not always directly influence stock prices, as investors also take into account factors such as profitability, firm size, and valuation.

Theoretically, Stakeholder Theory emphasizes a company's responsibility toward its stakeholders, while Signaling Theory explains how sustainability-related information serves as a signal of corporate performance to external parties. Previous research has linked ESG activities to corporate risk, value, and performance (Gillan et al., 2021). Rahmaniati and Ekawati (2024) highlight the roles of regulators and stakeholders in the implementation of ESG in Indonesia. López-Santamaría et al. (2021) further explain that sustainability signals may be interpreted differently by investors. Meanwhile, firm size, profitability, and the book-to-market ratio are relevant factors in stock return models (Yulandri et al., 2025). Consequently, this study examines the PROPER rating alongside firm size, Return on Assets (ROA), and the book-to-market (BTM) ratio. Previous empirical findings remain inconsistent. Ma et al. (2024) identified a positive relationship between environmental performance and excess stock returns in China, whereas Mulialim and Madyan (2023) found a generally negative ESG coefficient for portfolios in Indonesia. Yulandri et al. (2025) demonstrated that firm size has a significant impact on stock returns, while the BTM ratio and profitability do not show individual significance for Sharia-compliant stocks. These discrepancies point to an empirical gap regarding the role of PROPER in companies with high levels of environmental exposure. This study contributes by examining the PROPER rating in conjunction with the financial characteristics of companies listed on the Indonesia Stock Exchange specifically within the Energy, Basic Materials, Consumer Non-Cyclicals, and Industrials sectors over the 2021–2025 period. The study aims to analyze the influence of these four variables, both individually and simultaneously, on stock returns using panel data regression.

## LITERATURE RIVIEW

### Stakeholder Theory

Stakeholder Theory explains that a company's business continuity doesn't just depend on the interests of shareholders, but also on the company's ability to meet the interests of various parties affected by its activities, such as the government, society, investors, and employees (Freeman, 1984). In the context of sustainability, environmental management is one way a company shows responsibility to its stakeholders. For companies with high environmental exposure, this responsibility becomes even more relevant because their operations involve the use of natural resources, emissions, waste, and pollution risks.

Empirical evidence on the relationship between environmental performance and stock returns still shows mixed results. Widayanti et al. (2025) found that the environmental dimension does not have a significant impact on stock returns in both Islamic and conventional banks. Irman et al. (2025) also found that environmental performance based on PROPER in energy sector companies in Indonesia has a positive direction but does not significantly affect stock returns. On the other hand, Ma et al. (2024) found that improvements in environmental performance are positively and significantly related to excess stock returns in companies in China. These differences in results suggest that fulfilling stakeholder interests through environmental performance does not always result in the same market response.

### Signaling Theory

Signaling Theory explains that information about a company's condition and quality can be used to reduce information asymmetry between the company and external parties (Spence, 1973).In the capital market, non-financial information such as environmental performance can serve as a signal for investors to assess a company's risks and prospects. In this study, PROPER ratings are seen as external information because they are obtained through government evaluation and are publicly available. Previous research shows that environmental information can get different market responses. Wang et al. (2023) found that ESG disclosure requirement announcements led to negative market reactions, suggesting that environmental transparency isn’t always seen positively by investors. Bang et al. (2023) also showed that ESG controversies can increase trading activity and affect institutional investor ownership. In the context of Indonesia, Irman et al. (2025) found that PROPER-based environmental performance has a positive direction of relationship but doesn’t have a significant impact on stock returns. These findings suggest that environmental information can be available to investors, but it’s not necessarily considered material in determining stock returns. Based on Signaling Theory, PROPER has the potential to be a signal about a company's ability to manage the environment and comply with government regulations. However, the direction and strength of the market's response depend on how investors perceive that information.

**Efficient Market Hypothesis (EMH)**

The Efficient Market Hypothesis, especially the semi-strong form, explains that stock prices can reflect public information available to investors. The PROPER rating announced by the government is public information that, in theory, can be considered in investment decisions. However, public information doesn't always lead to significant changes in returns if the information is not considered material or has already been reflected in the stock price.

Sunardi et al. (2023) showed that the market's response to information can differ between abnormal returns and trading volume. Wang et al. (2023) also found that information related to ESG policies can trigger different market reactions depending on a company's characteristics and industry. In the context of PROPER, Irman et al. (2025) found that environmental performance does not have a significant impact on the stock returns of Indonesian energy sector companies. Therefore, EMH is used as a supporting theory to explain that PROPER information can be considered by the market, but it doesn't necessarily lead to significant changes in returns.

Based on Stakeholder Theory, Signaling Theory, and the Efficient Market Hypothesis, environmental performance can serve as information for stakeholders and investors that may potentially influence stock returns. Previous research has yielded mixed results. Ma et al. (2024) found a positive effect of environmental performance on excess stock returns, whereas Luo (2022) and Mulialim and Madyan (2023) found a negative relationship. Meanwhile, Irman et al. (2025) found that environmental performance, as measured by PROPER, had no significant effect on stock returns. Thus, the first hypothesis is formulated as follows:

***H1: Environmental performance, as measured by PROPER rankings, affects stock returns for companies in the high environmental exposure sector in Indonesia***

Firm size describes the size of a company, which can reflect the scale of its operations and the resources it possesses. These characteristics may influence investors' investment decisions. Yulandri et al. (2025) demonstrated the relevance of firm size to excess returns. Based on this, the second hypothesis is formulated:

***H2: Firm size affects stock returns for companies in the high environmental exposure sector in Indonesia.***

Return on Assets (ROA) indicates a company's ability to generate profit from its total assets. This information can serve as a signal to investors, potentially influencing stock returns. Yulandri et al. (2025) found that profitability is not individually significant within a sample of Sharia-compliant stocks; therefore, its role in companies with high environmental exposure warrants further examination. Consequently, the third hypothesis is formulated as follows:

***H3: Return on Assets (ROA) has an effect on stock returns in companies within the high environmental exposure sector in Indonesia.***

The book-to-market (BTM) ratio compares the book value of equity to its market value, serving as a consideration for investors when assessing a

company's valuation. Yulandri et al. (2025) found that the book to market ratio is not individually significant within a sample of sharia compliant stocks; therefore, its influence on companies with high environmental exposure warrants further examination. Based on this, the fourth hypothesis is formulated as follows:

***H4: The book to market (BTM) ratio influences stock returns for companies in the high environmental exposure sector in Indonesia.***

A company's environmental performance and financial characteristics can influence investors' investment decisions. Sari et al. (2025) found that fundamental variables simultaneously affect stock returns. Therefore, the fifth hypothesis is formulated as follows:

***H5: Environmental performance, as measured by the PROPER rating, firm size, Return on Assets (ROA), and Book to Market ratio (BTM), simultaneously influence stock returns for companies in the high environmental exposure sector in Indonesia.***

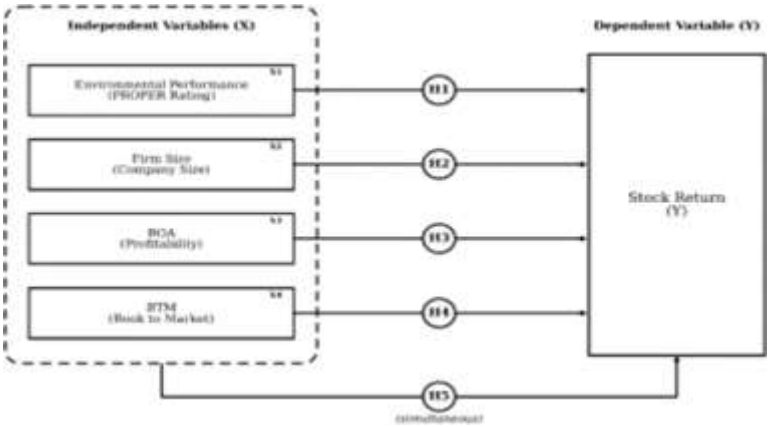



**Figure 1. Conceptual Framework**

## METHODOLOGY

### Sample Selection

This study employs a quantitative, causal-associative (explanatory) research method. The research population consists of companies listed on the Indonesia Stock Exchange (IDX) that fall under sectors with high environmental exposure namely the Energy, Basic Materials, Consumer Cyclicals, and Industrials sectors based on the IDX-IC classification (Indonesia Stock Exchange, 2026). According to the IDX Daily Statistics as of December 30, 2025, the initial population comprised 389 companies. The sample was selected using a purposive sampling technique based on the following criteria: (1) the company belongs to one of the four aforementioned sectors; (2) it is included in the PROPER program documentation for the 2021–2025 period and can be matched with a stock ticker symbol; (3) its shares are listed on the IDX, with available stock price data for the years under observation; (4) it holds a verifiable PROPER rating for the years under observation; and (5) it provides financial statements containing the data necessary to calculate firm size, Return on Assets (ROA), and the Book to Market (BTM) ratio. Out of the 389 companies, 278 were excluded due to the absence of PROPER data, leaving a final sample of 111 companies. This study utilizes balanced panel data, consisting of companies with complete

observations throughout the five-year study period (2021-2025). Consequently, every company meeting the criteria must have complete data for each year within the specified observation period.

**Data Collection**

This study utilizes secondary data covering the 2021–2025 period. PROPER ratings are obtained from official announcements by the Ministry of Environment or Environmental Management Agency of the Republic of Indonesia (Ministry of Environment/Environmental Management Agency of the Republic of Indonesia, 2025). Financial data including total assets, net income, book value of equity, and the number of shares outstanding are sourced from financial statements and annual reports available on the Indonesia Stock Exchange (IDX) website and the respective companies' websites. Stock closing prices are retrieved from Yahoo Finance and used to calculate stock returns and the market value of equity. Sector classification follows the IDX-IC framework.

**Measurement**

The dependent variable is stock return (Y) specifically, the annual price return calculated as $(P_t - P_{t-1}) / P_{t-1}$ based on the closing price on the final trading day of each year (Irman et al., 2025). The independent variables include environmental performance (X1), measured using the PROPER score on an ordinal scale (Gold = 5, Green = 4, Blue = 3, Red = 2, Black = 1; Irman et al., 2025), as well as firm size (X2; natural logarithm of total assets), profitability (X3; ROA = net income / total assets), and valuation (X4; BTM = book value of equity / market value of equity) (Yulandri et al., 2025).

**Data Analysis**

Data were analyzed using panel data regression in EViews, based on the following equation: $Return_{it} = \alpha + \beta_1 PROPER_{it} + \beta_2 SIZE_{it} + \beta_3 ROA_{it} + \beta_4 BTM_{it} + \varepsilon_{it}$. Model selection was conducted via the Chow test and the Hausman test, resulting in the selection of the Fixed Effect Model (FEM) ($p < 0.05$). Classical assumption tests included normality (Jarque-Bera; $p > 0.05$ indicates residuals are normally distributed), multicollinearity (correlation matrix; coefficients < 0.80), heteroskedasticity (Panel LR test; $p > 0.05$ indicates the absence of heteroskedasticity), and autocorrelation (Durbin-Watson; with a criterion of 1.5–2.5). Hypothesis testing was performed using the t-test (partial) and F-test (simultaneous) at a 5% significance level ($p < 0.05$), alongside the coefficient of determination (Adjusted $R^2$).

## RESULT

### *Descriptive Statistics*

Descriptive statistical analysis aims to provide an overview of the research data characteristics, which include Stock Returns, Environmental Performance proxied by the PROPER Score, Firm Size, Return on Assets (ROA), and Book to Market ratio (BTM). The statistics used include minimum value, maximum value, average, and standard deviation.

Table 1. Descriptive Statistics of Research Variables

| Variable | Minimum | Maximum | Mean | Standard Deviation |
|---|---|---|---|---|
| Return Saham | -0.560 | 1.070 | 0.030 | 0.339 |
| PROPER Score | 2.000 | 4.000 | 3.127 | 0.408 |
| Firm Size | 28.330 | 32.960 | 30.572 | 1.471 |
| ROA | -0.200 | 0.340 | 0.058 | 0.078 |
| BTM | 0.060 | 4.430 | 1.085 | 0.879 |

Source: Eviews 12 Output, Data Processed by the Researcher (2026)

Based on Table 1, Stock Return has a minimum value of -0.560 and a maximum value of 1.070, with a mean of 0.030 and a standard deviation of 0.339. The fact that the standard deviation is significantly larger than the mean indicates a relatively high degree of dispersion in Stock Return over the observation period. The PROPER Score has a minimum value of 2.000 and a maximum value of 4.000, with a mean of 3.127 and a standard deviation of 0.408. These figures suggest that the environmental performance scores of the companies in the sample fall within the PROPER rating range of 2 to 4, with relatively low dispersion around the mean.

The Firm Size variable has a minimum value of 28.330 and a maximum value of 32.960, with a mean of 30.572 and a standard deviation of 1.471. Meanwhile, ROA has a minimum value of -0.200 and a maximum value of 0.340, with a mean of 0.058 and a standard deviation of 0.078. The standard deviation of ROA, being larger than its mean, indicates significant variation in profitability among the companies, including those that incurred losses. BTM has a minimum value of 0.060 and a maximum value of 4.430, with a mean of 1.085 and a standard deviation of 0.879. These results indicate that the valuation levels of the companies in the sample also exhibit relatively high variation.

### *Panel Data Regression Model Selection*

Model selection aims to choose the most appropriate estimation method between the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). Testing was carried out on two research models.

Table 2. Results of Panel Data Regression Model Selection

| Testing | Statistics/Probability | Decision |
|---|---|---|
| Chow Test | Cross-section F = 2.0534 ; Prob. = 0.0112 | FEM |
| Chow Test | Cross-section F = 45.5759; Prob. = 0.0015 | FEM |
| Hausman Test | Cross-section random Chi-square = 24.8647; Prob. = 0,0001 | FEM |

Source: Eviews 12 Output, Data Processed by the Researcher (2026)

The results in Table 2 show that the Chow test yields a Cross-section F-statistic of 2.0534 with a probability of 0.0112, and a Cross-section Chi-square statistic of 45.5759 with a probability of 0.0015. Since both probabilities are less than 0.05, the Fixed Effect Model (FEM) is more appropriate than the Common Effect Model (CEM). Furthermore, the Hausman test yields a Chi-square statistic of 24.8647 with a probability of 0.0001. As this value is less than 0.05, the FEM is selected over the Random Effect Model (REM). Because both tests point to the same model, the Lagrange Multiplier test is no longer required for model selection. Consequently, the Fixed Effect Model is used as the estimation model in this study

***Classical Assumption Testing***

Classical assumption testing aims to ensure that the regression model used does not show problems that could disrupt parameter estimation. The tests include normality, multicollinearity, heteroscedasticity, and autocorrelation.

Table 3. Results of the Classical Assumptions Test

| Testing | Results | Criteria | Conclusion |
|---|---|---|---|
| Normality | Jarque-Bera = 2.9530; Prob. = 0.2284 | Prob. > 0.05 | The residuals are normally distributed |
| Multicollinearity | All VIFs < 10 (highest correlation = −0.5303) | VIF < 10 | There is no multicollinearity |
| Heteroscedasticity | Prob. = 0.9920 | Prob. > 0.05 | There is no indication of heteroskedasticity |
| Autocorrelation | DW = 1.6368 | Between 1.5 and 2.5 | There is no indication of strong autocorrelation |

Source: Eviews 12 Output, Data Processed by the Researcher (2026)

Based on the test results, the residuals are normally distributed, with a Jarque-Bera probability value of 0.2284—which is greater than 0.05. All correlation coefficients between the independent variables are below 0.80, with the highest value being -0.5303 (between ROA and BTM), and all VIF values are less than 10; therefore, there is no indication of multicollinearity in the model. The heteroskedasticity test yielded a probability value of 0.9920, which is greater than 0.05, indicating the absence of heteroskedasticity. Furthermore, the Durbin-

Watson statistic of 1.6368 falls within the 1.5 to 2.5 range. These results suggest that there is no strong autocorrelation present in the model.

***Results of the Panel Data Regression Analysis***

Based on the estimation using a Fixed Effect Model with cross-section fixed effects, the resulting regression equation is as follows:

Stock Return = 8.685125 + 0.117931(PROPER) − 0.289221(Firm Size) +2.274626(ROA) − 0.288905(BTM) + e

The coefficient for PROPER, 0.117931, indicates a positive relationship with stock return. Firm Size has a negative coefficient of −0.289221, ROA has a positive coefficient of 2.274626, and BTM has a negative coefficient of −0.288905.

Mathematically, assuming other variables remain constant, a one-unit increase in the PROPER score is associated with a 0.117931-unit change in stock return; a one-unit increase in Firm Size is associated with a change of −0.289221 units; a one-unit increase in ROA is associated with a change of 2.274626 units; and a one-unit increase in BTM is associated with a change of −0.288905 units. The constant of 8.685125 is not interpreted as a single intercept for all companies, as the model incorporates firm-specific fixed effects. The significance of each coefficient is determined through a partial test.

***Hypothesis Testing Results***

Hypothesis testing was conducted using partial t-tests, a simultaneous F-test, and the coefficient of determination. A significance level of 5% was applied. The hypotheses tested include H1 through H4, which address the partial effects of PROPER, firm size, ROA, and BTM, as well as H5, which concerns the simultaneous effect of these four variables.

Table 4. Partial Test Results (t)

| Variable | Coefficient | t-statistic | Prob. | Decision |
|---|---|---|---|---|
| PROPER (H1) | 0.117931 | 1.218099 | 0.2266 | Not significant |
| Firm Size (H2) | −0.289221 | −1.272146 | 0.2068 | Not significant |
| ROA (H3) | 2.274626 | 2.652331 | 0.0096 | Significantly positive |
| BTM (H4) | −0.288905 | −3.364229 | 0.0012 | Significantly Negative |

Source: Eviews 12 Output, Data Processed by the Researcher (2026)

The environmental performance variable, proxied by PROPER, has a coefficient of 0.117931, with a t-statistic of 1.218099 and a probability value of 0.2266. The positive coefficient indicates a direct relationship between the PROPER score and stock returns, assuming other variables remain constant. However, the probability value—well above 0.05—suggests there is no statistical evidence to support a partial effect of PROPER; therefore, H1 is not supported. These findings are specific to the sample, time period, and model specification used. Firm size has a negative coefficient of −0.289221, with a t-statistic of −1.272146 and a probability of 0.2068. The negative sign indicates that larger

firms tend to have lower stock returns; however, this relationship is not statistically significant, meaning H2 is not supported. Return on Assets (ROA) has a coefficient of 2.274626, a t-statistic of 2.652331, and a probability of 0.0096. A positive coefficient with a probability below 0.05 indicates that ROA has a positive and significant effect on stock returns at the 5% level; thus, H3 is supported. If ROA is expressed as a decimal, a one-percentage-point (0.01) increase is associated with an increase in returns of approximately 0.0227.

The Book-to-Market ratio (BTM) has a coefficient of −0.288905, a t-statistic of −3.364229, and a probability of 0.0012. A negative coefficient with a probability below 0.05 indicates that BTM has a negative and significant effect on stock returns; therefore, H4 is supported. Consequently, among the four independent variables, only ROA and BTM have a significant partial effect on stock returns within this research sample.

Table 4. Results of the Simultaneous Test and Coefficient of Determination

| Indicator | Value |
|---|---|
| F-statistic | 2.109278 |
| Prob. (F-statistic) | 0.006135 |
| R-squared | 0.385659 |
| Adjusted R-squared | 0.202820 |
| S.E. of regression | 0.303108 |

Source: Eviews 12 Output, Data Processed by the Researcher (2026)

The simultaneous test yields an F-statistic of 2.109278 with a probability of 0.006135. Since the probability is less than 0.05, the model is significant overall, meaning H5 is supported by the F-test. This result is consistent with the individual (partial) significance of ROA and BTM. In the Fixed Effects Model (FEM), the F-statistic also incorporates the contribution of firm-specific fixed effects, rather than reflecting only the four independent variables. The R-squared value of 0.385659 (38.57%) and the Adjusted R-squared value of 0.202820 (20.28%) indicate a moderate explanatory power for the model, which includes firm-specific effects. Consequently, the Adjusted R-squared value cannot be attributed entirely to the four independent variables. This is to be expected, given that stock returns are influenced by market and macroeconomic factors. Overall, ROA has a significant positive effect and BTM has a significant negative effect, whereas PROPER and firm size do not have a significant impact. Nevertheless, the model is significant when considered simultaneously, based on the F-test.

## DISCUSSION

The estimation results indicate that environmental performance as measured by PROPER ratings has a positive but statistically insignificant relationship with the stock returns of companies with high environmental exposure. According to Stakeholder Theory, environmental management represents a corporate responsibility toward the government, the public, and other stakeholders. Within the framework of Signaling Theory, PROPER ratings may serve as an indicator of the quality of environmental risk management; however, they do not yet demonstrate a compelling link to changes in stock returns. These findings differ from those of Ma et al. (2024), who identified a positive correlation between environmental performance and excess returns in China. In the Indonesian context, meeting environmental standards may be perceived as a compliance obligation or a measure to ensure operational sustainability, rather than necessarily serving as a signal that immediately drives up stock prices. This explanation is interpretive in nature and does not constitute the result of an empirical analysis of investor behavior.

Firm size has a negative, yet statistically insignificant, relationship with stock returns. Firm size reflects the scale of assets and operational capacity, which can influence how investors assess a company's stability and growth prospects. However, large assets do not automatically translate into high returns, as they often entail significant operating costs, investment requirements, and efficiency challenges. These findings differ from those of Yulandri et al. (2025), who reported that the size factor is relevant within asset-pricing models for Sharia-compliant stocks. It is important to note a key distinction: the previous study utilized size-based portfolio factors, whereas this study employs the logarithm of total assets. For firms operating in high-exposure environments, a large scale of operations may necessitate substantial capital expenditure and complex operational risk management. Consequently, asset size alone is insufficient to explain the variation in returns within the sample.

Return on Assets (ROA) has a positive and significant relationship with stock returns. This finding highlights the relevance of profitability as measured by asset utilization. According to Signaling Theory, profitability can provide investors with information regarding asset efficiency and business prospects. These results differ from those of Yulandri et al. (2025), who did not find individual significance for profitability factors in the context of Sharia-compliant stocks. Such discrepancies may stem from differences in sample characteristics, variable measurement, and estimation methods. For companies operating in high-exposure environments, the need for productive assets and substantial operational costs makes the ability to generate profit a relevant metric for assessing performance. However, this study does not directly examine whether investors actually use ROA when making transaction decisions.

The book to market (BTM) ratio has a significant negative relationship with stock returns. The BTM compares the book value of equity to its market value, serving as an indicator of valuation characteristics. In this sample, a higher BTM is associated with lower returns, even after accounting for other variables. This does not imply that all stocks with a high BTM perform poorly; a high ratio may also reflect a lower market assessment of a company's prospects or its associated risks. Yulandri et al. (2025) found no individual significance for the book-to-market factor. In sectors sensitive to commodity cycles and environmental risks, valuations may be

linked to expectations regarding profitability and business sustainability; the underlying mechanisms warrant further investigation.

Overall, ROA has a significant positive effect on stock returns, while BTM has a significant negative effect; conversely, PROPER and firm size do not show a significant partial effect. Nevertheless, all four variables, when considered simultaneously, have a significant impact on stock returns. These findings underscore the relevance of profitability and valuation to investors. At the same time, PROPER remains relevant as a source of information regarding environmental management: Gillan et al. (2021) outline the link between ESG and both firm risk and value, while Rahmaniati and Ekawati (2024) discuss the roles of regulators and stakeholders in the implementation of ESG in Indonesia. Annual stock returns may not yet fully reflect the market's response to the announcement of PROPER ratings.

## CONCLUSIONS AND RECOMMENDATIONS

This study concludes that the PROPER rating has a positive but statistically insignificant relationship with the stock returns of companies with high environmental exposure listed on the Indonesia Stock Exchange. Firm size also shows a negative, yet statistically insignificant, relationship. Conversely, Return on Assets (ROA) exhibits a positive and significant relationship, while the Book to Market (BTM) ratio shows a negative and significant relationship. Although the fixed effects model is significant overall, the results also reflect firm-specific influences. These findings indicate that profitability and valuation are significantly related to stock returns, whereas environmental ratings and firm size lack sufficient statistical evidence. Nevertheless, the insignificance of the PROPER results does not diminish the importance of environmental management in terms of regulatory compliance, risk management, and operational sustainability.

These findings suggest that investors should use environmental information as a complement to fundamental analysis and valuation, rather than as the sole basis for investment decisions. From a policy perspective, the Ministry of Environment, the Financial Services Authority (OJK), and the Indonesia Stock Exchange need to improve the quality, comparability, and accessibility of environmental information by integrating PROPER ratings into corporate sustainability disclosures. Companies, in turn, should incorporate environmental performance into their risk governance and long-term strategies, while simultaneously enhancing profitability and financial transparency. Overall, environmental performance, financial fundamentals, and valuation should be assessed in conjunction, without assuming that a better PROPER rating automatically leads to higher stock returns.

## FURTHER STUDY

This study has limitations, including the use of a balanced panel sample, limited variation in PROPER ratings, and the reliance on annual stock returns, which fail to capture immediate market reactions. Furthermore, macroeconomic conditions and year-specific effects have not been accounted for. Future research should consider expanding the sample, incorporating year effects, and employing

abnormal returns or an event study methodology to measure market responses more accurately.

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