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Profitability and Firm Value in the Perspective of Signaling Theory and Stakeholder Theory: The Moderating Role of Sustainability Reporting

Revi Candra[1], Nurul Nazifah[2], Gampito[3], Elfadhli[4], Fatimah Setia Wardani[5]
[12345]Universitas Islam Negeri Mahmud Yunus Batusangkar, West Sumatra, Indonesia
Correspondence: revicandra@uinmybatusangkar.ac.id[1]

Abstract

The increase in profitability does not automatically lead to a higher firm value, indicating that other supporting factors may influence this relationship. One factor frequently associated with strengthening this linkage is sustainability reporting, which reflects a company's commitment to transparency and responsibility toward its stakeholders. Accordingly, this research investigates how profitability affects firm value and examines whether sustainability reporting moderates this relationship in plantation companies listed on the Indonesia Stock Exchange during the 2021–2023 period. This study differs from prior research in mining or other ESG-sensitive sectors by addressing the unique land-use legitimacy challenges of the plantation industry, where a conditional moderation model is theoretically essential to explain how sustainability disclosure reconfigures the interpretation of financial signals. This research applies a quantitative research design with a causal approach. The population includes 24 plantation sector companies, from which 11 firms that consistently publish sustainability reports were selected using a purposive sampling technique. The data analysis was conducted through classical assumption testing followed by Moderated Regression Analysis (MRA). The findings reveal that profitability and sustainability reporting individually exhibit negative and significant effects on firm value. However, the interaction term shows a positive and significant coefficient, indicating a conditional moderating effect. This suggests that sustainability reporting strengthens the influence of profitability under certain conditions rather than directly increasing firm value. Unlike previous studies that focus solely on the linear relationship between profitability and firm value, this research examines the specific nuances of ESG-sensitive industries through a moderation lens.

KEYWORDS

profitability; firm value; sustainability reporting; moderation effect.

Introduction

In the contemporary business environment, corporate performance is no longer assessed solely on the basis of financial achievement. Organizations are increasingly expected to consider the social and environmental consequences of their operational activities. This shift has contributed to the growing relevance of sustainability reporting as a mechanism for demonstrating corporate accountability to various stakeholders. Corporate activities are commonly guided by the principle of the Triple Bottom Line, which highlights the importance of maintaining balance among economic performance, social responsibility, and environmental preservation. Within this framework, sustainability reports serve not merely as supplementary disclosures but as strategic communication tools that enhance corporate transparency, strengthen organizational reputation, and foster greater public trust in an increasingly competitive business landscape (Kas et al., 2023).

In fulfilling their responsibilities toward society and the environment, companies are increasingly expected to incorporate Environmental, Social, and Governance (ESG) principles into their business operations. The adoption of ESG practices reflects not only a company's commitment to ethical business conduct but also serves as an important strategic framework for evaluating corporate sustainability and long-term performance. Consequently, ESG considerations have become a key reference for stakeholders and investors when assessing the future prospects of a company (Prasetyo, 2024). Effective adoption of Environmental, Social, and Governance (ESG) practices demonstrates a company's dedication to addressing various non-financial risks associated with its operations. These risks, particularly those related to social and environmental issues, have increasingly attracted the attention of investors and other stakeholders when evaluating a firm's long-term sustainability and governance quality.

The plantation industry has increasingly become a focal point in discussions surrounding sustainability challenges. This attention arises from the nature of its operational activities, which are closely associated with major environmental concerns at the global level. Issues such as deforestation, the decline of biodiversity, and the contribution to greenhouse gas emissions are frequently linked to plantation-based production systems, making sustainability practices a critical consideration for companies operating in this sector (Perkebunan, 2024). The complexity of environmental and social issues surrounding plantation activities makes the implementation of sustainability practices in this sector more demanding compared to other industries. For example, sectors such as manufacturing typically concentrate on improving energy efficiency and managing production waste, whereas plantation operations are often directly connected to broader ecological concerns. Because of these characteristics, sustainability reporting in plantation companies can function as a stronger signal of corporate accountability, helping to enhance public confidence and ultimately contribute to increased firm value. One important instrument for assessing sustainability disclosure is the Sustainability Report Disclosure Index (SRDI), which is commonly used to evaluate the extent to which companies communicate their sustainability commitments. In the context of increasingly intense economic competition, transparent sustainability disclosure becomes a key mechanism for demonstrating an organization's long-term commitment to responsible and sustainable business practices (Budi Setyawan, 2021).

Firm value is widely regarded as a key indicator of how effectively a company generates economic benefits for its shareholders. A higher firm value generally reflects positive market perceptions and signals strong corporate performance. Such signals are commonly communicated through the disclosure of both financial information and non-financial reports, which provide stakeholders with a more comprehensive understanding of the company's overall condition and future prospects (Zahra et al., 2024). One of the widely applied measures for evaluating firm value is the Price to Book Value (PBV), which reflects the relationship between a company's market share price and its book value per share. A PBV ratio above one generally indicates that the market assesses the company at a value higher than its recorded book value, suggesting strong investor confidence. Conversely, a PBV ratio below one may signal that investors perceive the company's future prospects less favorably. In practice, firm value is not determined by a single factor but is influenced by a range of internal and external elements. These may include dividend policy, corporate growth, capital structure, firm size, the implementation of Good Corporate Governance (GCG), sustainability reporting, and the company's level of profitability (Amin et al., 2023).

Profitability refers to a company's capacity to generate earnings through its operational activities and is commonly used as a key indicator in evaluating financial performance (Alhayra et al., 2024). Companies that demonstrate higher profitability levels are generally viewed more favorably by investors, as strong earnings performance often signals operational efficiency and promising business prospects. Such conditions may stimulate greater investor interest in the company's shares, which in turn can contribute to an increase in firm value. In empirical research, profitability is typically assessed through several financial ratios. One of the most frequently used indicators is Return on Assets (ROA), which measures how effectively a company utilizes its assets to generate net income (Oktaviana et al., 2025).

The interaction among profitability, firm value, and sustainability reporting reflects a closely linked relationship within corporate performance evaluation. Profitability indicates the company's financial capability to generate earnings, whereas firm value illustrates how the market interprets and assesses the company's performance and future potential. In this context, sustainability reporting serves as an important form of non-financial disclosure that can reinforce this relationship by providing additional information for investors (Saputri & Giovanni, 2022). Transparent and comprehensive sustainability disclosure may help reduce information asymmetry between corporate management and investors, thereby lowering uncertainty in investment decision-making. As a result, such disclosures can influence investor perceptions and contribute to improvements in firm value. Moreover, as awareness of non-financial risks continues to grow, investors increasingly tend to assign higher valuations to companies that demonstrate a clear commitment to sustainable business practices (Puspita & Jasman, 2022).

This research is conceptually based on Signaling Theory and Stakeholder Theory. Signaling theory explains that companies intentionally disclose information to the market in order to reduce information asymmetry between management and investors. Within this framework, profitability can be interpreted as a financial signal that reflects the company's operational performance. At the same time, sustainability reporting represents a non-financial signal that communicates the organization's commitment to social and environmental responsibility. The presence of both financial and non-financial disclosures can strengthen investor trust, as they provide a more comprehensive picture of corporate performance and long-term sustainability. Consequently, the integration of these signals may positively influence investor perceptions and contribute to the enhancement of firm value (Natalia, 2024).

From the perspective of Stakeholder Theory, companies are expected to address the interests of a broad range of stakeholders rather than focusing solely on shareholder returns. This perspective highlights the importance of balancing economic objectives with social and environmental responsibilities. In sectors such as the plantation industry, stakeholder attention toward sustainability-related issues is particularly significant due to the sector's direct interaction with environmental and social conditions. Consequently, transparent sustainability reporting can play a crucial role in strengthening the relationship between corporate profitability and firm value, as it demonstrates the company's responsiveness to stakeholder expectations while reinforcing market confidence in the firm's long-term sustainability (Anggara et al., 2023).

Regulatory developments have also played an important role in encouraging companies to improve transparency in sustainability disclosure. In Indonesia, the obligation to report sustainability-related information has been reinforced through Financial Services Authority Regulation No. 51/POJK.03/2017, which requires issuers, publicly listed companies, and financial service institutions to prepare and submit sustainability reports on a regular basis. The implementation of this regulation demonstrates that sustainability reporting is no longer viewed merely as a voluntary corporate initiative. Instead, it has evolved into an essential element of corporate governance that supports accountability, transparency, and responsible business practices (Wijaya & Novianto, 2024). Previous research have examined the association between profitability and firm value; however, the empirical findings remain inconsistent. While several research report a positive influence of profitability on firm value, others reveal mixed or contradictory results. These differences suggest that the relationship between the two variables may be affected by additional factors that have not been fully considered in earlier research. For this reason, the inclusion of moderating variables becomes important in order to provide a more comprehensive explanation of the relationship. Sustainability reporting is frequently proposed as a potential moderating factor because it reflects the extent to which companies integrate economic performance with social and environmental responsibilities within their operational strategies. Consequently, sustainability disclosure may either strengthen or weaken the influence of profitability on firm value (Juliana & Sembiring, 2025).

Based on the discussion above, this research offers several significant contributions from both theoretical and empirical perspectives. First, it contributes to the existing literature on the relationship between profitability and firm value by introducing sustainability reporting as a moderating mechanism. This perspective is particularly relevant in the plantation industry, which is widely recognized as a sector with substantial environmental and social risks and is often categorized as a high ESG-risk industry.

Second, this research provides empirical evidence indicating that sustainability reporting does not necessarily function as a direct driver of firm value. Instead, it may operate as a credibility-enhancing mechanism that strengthens how the market interprets a company's profitability performance. These findings highlight a distinction between the direct influence of sustainability disclosure and its interactive role when combined with financial performance indicators.

Third, this research extends the application of Signaling Theory within the context of emerging markets. The results demonstrate that non-financial signals, particularly sustainability disclosures, tend to be more effective when they complement strong financial signals. This effect is especially evident in industries that face significant sustainability-related challenges, such as the plantation sector.

Despite extensive research, prior studies have largely focused on the direct effects of sustainability reporting, with limited attention to its conditional interaction with financial performance under negative coefficient structures. This study addresses this gap by examining how sustainability disclosure alters the direction and magnitude of profitability's effect on firm value. Unlike prior research centered on the mining industry, the plantation sector provides a distinct landscape for ESG-sensitive studies due to its cyclical nature and high visibility in global deforestation and social rights debates. This research contributes a unique perspective by identifying a negative direct relationship between profitability and firm value, suggesting that in the absence of transparency, high profits in plantations may be interpreted by investors as a result of environmental negligence. The theoretical significance of this study lies in the conditional moderation model, which demonstrates that sustainability reporting is not merely a disclosure tool but a strategic necessity that reconfigures the signaling value of financial performance, transforming potential skepticism into market confidence

Literature Review

Signaling Theory

Signaling Theory is frequently applied to explain behavior in capital markets, particularly in understanding how investors interpret information disclosed by corporations (Jurnal et al., 2025). The theory proposes that companies intentionally provide signals to the market through various forms of disclosure in order to reduce information asymmetry between management and external stakeholders. In practice, information released by firms—such as financial statements, annual reports, and sustainability reports serves as an important reference for investors when assessing corporate financial performance, overall condition, and future prospects (Astriani, 2025).

From the perspective of signaling theory, the information communicated by companies may be interpreted by the market either as positive signals or negative signals. Profitability, for example, represents a financial signal that reflects the firm's capacity to generate earnings and maintain operational performance. Meanwhile, sustainability reporting can be viewed as a non-financial signal that demonstrates the organization's commitment to social and environmental responsibility. These financial and non-financial signals play an important role in shaping investor perceptions regarding corporate risk and long-term prospects, which ultimately influence stock valuation and firm value (Hartati, 2024).

Stakeholder Theory

Stakeholder Theory explains that a company's obligations are not limited solely to maximizing shareholder returns but also include addressing the interests of various stakeholder groups. These stakeholders may consist of employees, customers, suppliers, local communities, government institutions, and even the natural environment that is affected by corporate activities. From this perspective, the long-term sustainability and success of a company are closely related to its ability to establish and maintain balanced relationships with these parties. Companies that manage stakeholder relationships effectively are more likely to achieve sustainable performance because they are able to create mutually beneficial interactions while maintaining social legitimacy and organizational stability (Kharisma & Priyadi, 2018).

Within this framework, sustainability reporting can be viewed as an important communication mechanism that connects companies with their stakeholders by providing transparent information related to economic, social, and environmental performance. Such disclosure allows organizations to demonstrate accountability and openness regarding the broader impacts of their business activities. By publishing sustainability reports, companies are able to strengthen stakeholder confidence, enhance organizational legitimacy, and reinforce their corporate reputation. These outcomes may ultimately support the continuity and long-term sustainability of business operations. Consequently, Stakeholder Theory offers a relevant theoretical basis for explaining how sustainability disclosure can influence firm value, particularly in sectors that have substantial environmental exposure, such as the plantation industry (Hartati, 2024).

Profitability

Profitability represents a firm's capability to generate earnings from the resources and capital employed during a specific period (Sulistyowati, 2025). In financial analysis, profitability is commonly evaluated through several indicators such as Return on Assets (ROA), Return on Equity (ROE), operating profit, and net profit. These indicators provide important information regarding how efficiently a company utilizes its assets and operations to produce financial returns. Financial ratio analysis, therefore, becomes a key analytical tool for interpreting a company's profitability performance and overall financial condition (Triana & Simatupang, 2025).

From a managerial perspective, profitability also reflects the effectiveness of management in generating returns from investments and business activities. Strong profitability indicates that the company is able to manage its resources efficiently and maintain stable operational performance. In the long term, the ability to sustain profitability becomes essential for supporting business growth and ensuring organizational sustainability. Consequently, companies continuously seek to improve their profitability because higher profit performance strengthens confidence in the continuity and future prospects of the firm (Maulidia & Mustika, 2024)(Lucky & Putri, 2023).

Firm Value

Firm value reflects the overall market valuation assigned to a company and represents how the market assesses the company's performance and future prospects (Saputra & Yanti, 2025). In the context of capital markets, firm value is commonly associated with investors' perceptions of the company's success in managing its business activities. These perceptions are generally manifested in the company's stock price, which serves as an important indicator of market confidence in the firm's financial performance and growth potential (Dian Agustia, 2023).

As capital market participation continues to expand, firm value has become an increasingly important consideration for investors when making investment decisions. Investors typically evaluate firm value by analyzing information contained in corporate financial reports, which provide insights into the company's financial condition and operational performance. From a managerial perspective, firm value also serves as an indicator of corporate success and organizational effectivenesse (Akuntansi et al., 2025). Consequently, financial managers are required to make strategic decisions related to investment, financing, dividend distribution, and working capital management in order to enhance firm value and maximize shareholder wealth. Companies with higher firm value tend to attract greater investor interest because they are perceived as having stronger performance and more promising future prospects (Yeni, 2024).

Sustainability Report

A sustainability report is a formal disclosure prepared by a company to communicate its commitment and accountability regarding sustainable development to relevant stakeholder (Modjaningrat & Bahri, 2026). This report provides information on how corporate activities affect economic performance, social welfare, and environmental conditions. In practice, sustainability reporting follows specific disclosure standards that enable companies to present structured information regarding their sustainability initiatives and achievements.

Beyond serving as a disclosure instrument, sustainability reports also function as a managerial tool that supports companies in setting sustainability goals, assessing performance outcomes, and managing organizational transformation toward more responsible business practices. The report generally includes information about both the positive and negative impacts generated by corporate operations on society, the environment, and the economy. By presenting sustainability information in measurable indicators, the report facilitates stakeholders in evaluating corporate responsibility and monitoring the effectiveness of sustainability strategies implemented by the company. Ultimately, the adoption of sustainability reporting is expected to support long-term corporate growth while reinforcing the principles of ethical and responsible business conduct (Ganis Sukaharsono, 2021).

Sustainability reporting is measured using the Sustainability Report Disclosure Index (SRDI) based on the GRI Standards 2021. Following the latest framework, this study evaluates the disclosures across universal and topic-specific standards, encompassing a total of 91 from 98 applicable items. The disclosure is assessed using a dichotomous scoring method, where a score of 1 is assigned if an item is disclosed and 0 if it is not. To ensure the integrity of the data, the coding procedure followed a rigorous content analysis protocol. The disclosures were coded independently by the authors. To maintain consistency and minimize subjectivity (inter-coder reliability), a cross-check mechanism was implemented where a random sample of 20% of the reports was re-evaluated by both coders. Any discrepancies in scoring were discussed and resolved through a consensus-based approach until 100% agreement was reached. The final SRDI score for each firm-year observation is calculated as follows:

$$SRDI_{it} = \frac{\sum X_{it}}{n}$$

Where:

Xit : Total items disclosed by firm i in year t.

N : Total number of applicable items according to GRI 2021 Standards.

Previous Research

Empirical evidence from Juliana and Sembiring (2025) highlights the strategic role of sustainability reporting in strengthening the association between profitability and firm value, particularly in coal mining firms. Their findings reveal that investors generally view sustainability disclosure as a credible signal of a company's responsibility toward sustainable business practices. This perception encourages higher levels of investor confidence, meaning that firms with consistent sustainability disclosures are more likely to achieve improved firm valuation, especially in sectors that face substantial environmental scrutiny, such as mining (Juliana & Sembiring, 2025). This research shares several similarities with previous research, particularly in the utilization of profitability, sustainability reporting, and firm value as the principal variables. Both research also adopt a quantitative approach and employ moderated regression analysis using secondary data to examine the relationships among these variables. Despite these similarities, several differences distinguish the current research from the earlier research. The previous research concentrated on companies operating in the coal mining industry, whereas the present research focuses on plantation sector firms listed on the Indonesia Stock Exchange during the 2022–2024 observation period. Furthermore, this research potentially incorporates the more recent disclosure framework introduced in the 2021 Global Reporting Initiative standards. By adopting a different industry context and more updated reporting guidelines, this research is expected to generate empirical findings that are more relevant and contextual in explaining the role of sustainability reporting in influencing firm value.

Empirical findings from Amin et al. (2023) demonstrate that profitability contributes positively and significantly to firm value in mining companies listed on the Indonesia Stock Exchange during 2019–2021. However, the study also reports that sustainability reporting does not significantly influence firm value. In addition, profitability fails to act as an effective moderating variable in the relationship between sustainability disclosure and firm value, suggesting that its interaction effect is not statistically supported. Despite these findings, the present research shares several methodological similarities with the research conducted by Amin et al. (2023). Both research examine the interaction among sustainability reporting, profitability, and firm value using a quantitative research design and moderation analysis. Nevertheless, notable differences exist in terms of the industrial context, the observation period, and the empirical outcomes obtained.

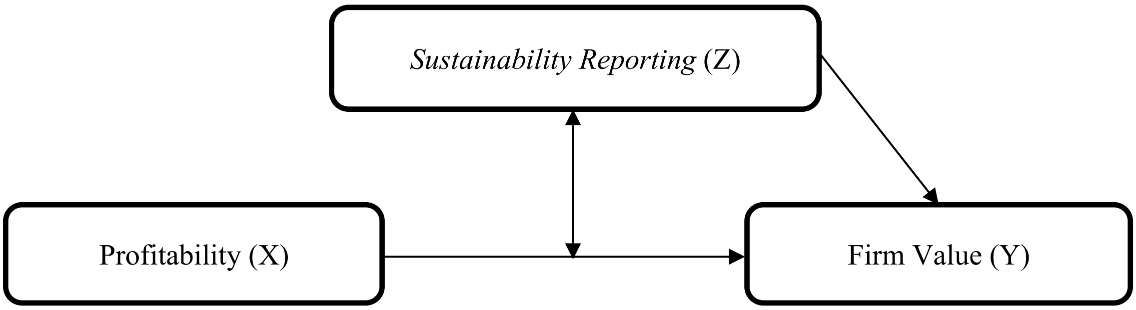


Figure 1. Conceptual Framework

These differences highlight the presence of inconsistent findings in previous research, which further justifies the need for additional investigation to better understand the role of sustainability reporting in influencing firm value (Amin et al., 2023).

The mixed findings reported in prior research indicate that the relationship between profitability, sustainability reporting, and firm value has not yet reached a consistent conclusion. These inconsistencies suggest that further investigation is required, particularly by examining different industrial settings and observation periods in order to obtain a more comprehensive understanding of the interaction among these variables. In response to this research gap, the present research investigates the moderating role of sustainability reporting in the relationship between profitability and firm value within plantation sector companies. This sector is selected because it faces relatively complex sustainability challenges, including environmental and social issues associated with its operational activities. By focusing on this industry context, the research seeks to provide additional empirical evidence regarding the importance of sustainability disclosure in strengthening the relationship between corporate financial performance and market valuation.

Theoretical Framework and Hypotheses Development

This research seeks to analyze the influence of profitability on firm value, with sustainability reporting positioned as a moderating variable in plantation companies listed on the Indonesia Stock Exchange during the 2022–2024 observation period. The conceptual framework of this research is built upon two theoretical perspectives, namely Signaling Theory and Stakeholder Theory. Within the perspective of signaling theory, profitability reflects a firm's capability to generate earnings from its operational activities and serves as an important financial signal communicated to investors. Higher profitability generally indicates stronger corporate performance, which can increase investor confidence and positively influence the market valuation of the company.

Accordingly, profitability is expected to exert a direct effect on firm value. Nevertheless, investment decisions are not determined solely by financial performance. Investors increasingly pay attention to non-financial disclosures, particularly those related to corporate responsibility toward social and environmental issues. Sustainability reporting represents one form of such disclosure, providing information regarding the company's commitment to sustainable practices and stakeholder interests. From the perspective of stakeholder theory, transparent sustainability disclosure can strengthen corporate legitimacy, improve organizational reputation, and enhance trust among stakeholders, which in turn contributes to increased firm value.

Furthermore, sustainability reporting may also function as a moderating factor in the relationship between profitability and firm value. Companies demonstrating strong profitability may receive more favorable evaluations from investors when their financial performance is accompanied by transparent and comprehensive sustainability disclosures. In this context, sustainability reporting serves to reinforce the positive signal conveyed by profitability, thereby strengthening the influence of financial performance on the market's assessment of firm value

Based on these relationships among variables, the research framework illustrates that profitability (X) affects firm value (Y), both directly and indirectly through the moderating role of sustainability reporting (Z), which is examined through the interaction between profitability and sustainability reporting (X×Z) (see Figure 1).

Based on the theoretical arguments and conceptual framework presented earlier, this research proposes the following hypotheses to empirically test the relationships among the research variables

Ha_1	:	Profitability significantly influence firm value.
Ha_2	:	Sustainability reporting significantly influences firm value.
Ha_3	:	Sustainability reporting moderates the relationship between profitability and firm value.

Methods

This research applies a quantitative research design with a causal approach to investigate the relationships among the variables examined (Ismanto, 2021). he quantitative method is employed because it emphasizes the measurement and analysis of relationships between variables using numerical data that can be statistically tested. Through this approach, the research evaluates the effect of profitability on firm value while also examining the moderating role of sustainability reporting in strengthening or weakening this relationship (Amin et al., 2023)(Gainau, 2021)(Hutabarat, 2023). The regression equation used is:

$Y=\alpha+\beta_1X+ \beta_2Z+\beta_2X*Z+\varepsilon$

Description:

Y : Firm Value
X : Profitability
Z : Sustainability Report
$B_{1,2,3}$: Regresion Coefecient
ε : Error

The population of this study comprises plantation companies listed on the Indonesia Stock Exchange (IDX) for the period 2021–2023. A purposive sampling technique was employed to ensure the data's relevance and completeness. The specific criteria for sample selection were: (1) firms listed on the IDX throughout the 2021–2023 observation period; (2) firms that published audited annual reports and sustainability reports (either integrated or standalone) consistently during these years; and (3) firms with complete financial data and Sustainability Report Disclosure Index (SRDI) indicators. Based on these criteria, the final sample consists of 11 firms over 3 years, resulting in a total of 33 firm-year observations. This research utilizes panel data regression analysis. To determine the most robust model specification, we evaluated firm and year effects through the Chow test and Hausman test. These tests were conducted to decide between the Fixed Effect Model (FEM) and Random Effect Model (REM), ensuring that unobserved firm-specific heterogeneity and time-specific shocks were appropriately controlled. Furthermore, given the specific nature of the 33 firm-year observations, alternative panel specifications were considered to ensure the consistency and reliability of the interaction coefficients.

Result and Discussion

Classical Assumption Test

To evaluate whether the residuals follow a normal distribution, the Jarque–Bera test was applied. The test produced a statistic of 0.479978 and a probability value of 0.786637 (see Figure 2). As the probability exceeds the 0.05 significance level, there is insufficient evidence to reject the null hypothesis, implying that the residuals are normally distributed. This outcome confirms that the normality assumption in the panel regression model is met, allowing the model to be reliably used for subsequent statistical analysis and interpretation.

The distribution of residuals observed in the Y Residuals graph indicates that the residual values are scattered randomly around the zero (0) line without displaying any systematic pattern, either increasing or decreasing. Although a few observations exhibit relatively extreme residual values, the majority remain within a consistent and stable range. This distribution pattern suggests that the variance of the residuals remains relatively constant across observations. Consequently, the panel regression model can be considered free from heteroscedasticity problems and has fulfilled the assumption of homoscedasticity required for reliable regression analysis (see Figure 3).

The multicollinearity test was conducted using a correlation matrix to examine the relationships among the independent variables (see Table 1). The results show that the correlation coefficient between profitability (X) and sustainability reporting (Z) is −0.124470, while the correlation between sustainability reporting (Z) and the interaction term (X_Z) is 0.245738. Both coefficients are considerably lower than the commonly accepted threshold of 0.85, suggesting that multicollinearity is not detected among these variables. Furthermore, the correlation between profitability (X) and the interaction variable (X_Z) is relatively high at 0.816659. However, this condition is expected because the interaction term is constructed through the multiplication of the independent variable and the moderating variable. In moderated regression analysis, such a relationship is considered normal and does not indicate a multicollinearity problem that could undermine the reliability of the regression model.

The autocorrelation test was evaluated using the Durbin–Watson statistic (see Table 2). The estimation results produce a Durbin–Watson value of 2.024624. Since this value is close to 2 and lies within the commonly accepted interval of 1.5 to 2.5, it indicates that the regression model does not suffer from either positive or negative autocorrelation. These findings imply that the residuals across the observation periods are statistically independent and do not exhibit systematic correlation over time. Consequently, the regression model can be considered to have satisfied the assumption of no autocorrelation, indicating that the model is appropriate for subsequent regression analysis.

The Moderated Regression Analysis (MRA) results show that the interaction variable between profitability (X) and sustainability reporting (Z), referred to as X_Z, has a coefficient value of 3.459691 with a significance level of 0.0033 (see Table 3). Because this value is below 0.05, it confirms that sustainability reporting acts as a moderating variable in the relationship between profitability and firm value. In terms of the individual effects, profitability (X) is associated with a coefficient of −2.002506 and a significance value of 0.0013, indicating a negative and statistically significant impact on firm value. Similarly, sustainability reporting (Z) also has a negative and significant effect, as evidenced by its coefficient of −32.75654 and probability value of 0.0058.

The positive interaction term indicates that sustainability reporting moderates the relationship between profitability and firm value. Given the negative coefficients of the main effects, this moderation suggests a buffering effect. At low levels of sustainability reporting, profitability is associated with a reduction in firm value. However, as sustainability disclosure increases, this negative pressure is significantly attenuated, suggesting that transparency serves to mitigate investor skepticism regarding financial performance in the plantation sector.

Table 1. Multicollinearity Test Results

	X	Z	X_Z
X	1.000000	-0.124470	0.816659
Z	-0.124470	1.000000	0.245738
X_Z	0.816659	0.245738	1.000000

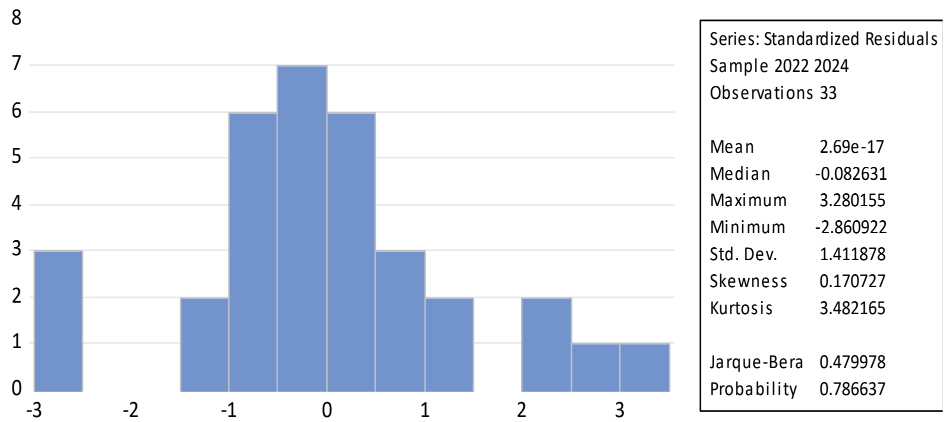
Source: Data processed using EViews 13

Table 2. Autocorrelation Test Results

Durbin-Watson Statistic	Decesion
2.024624	No autocorrelation occurs

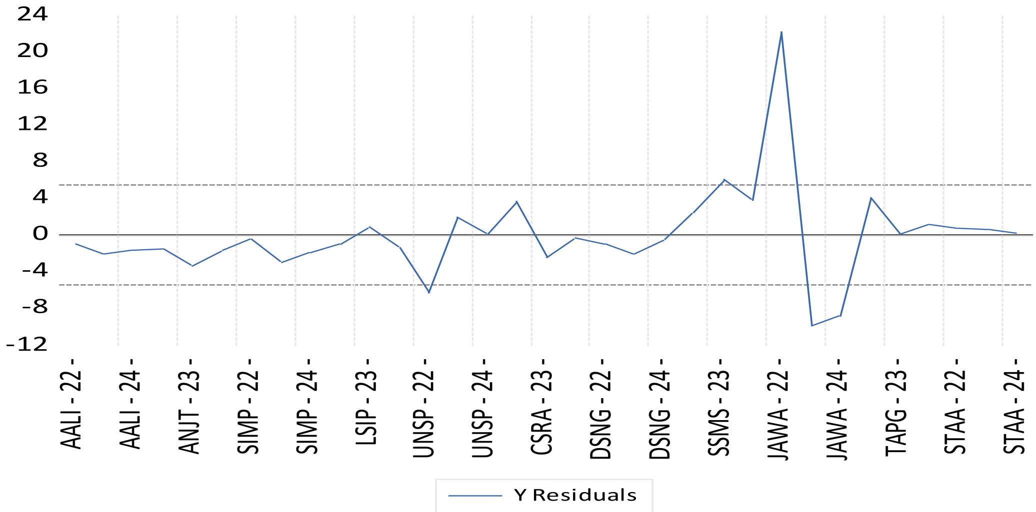
Source: Data processed using EViews 13

Figure 2. Normality Test Results



Source: Data processed using EViews 13

Figure 3. Heteroscedasticity Test Results



Source: Data processed using EViews 13

Table 3. Moderated Regression Analysis (MRA) Results

Variable	Coefficient	Std. Error	T-Statistic	Prob.
C	20.45164	5.663448	3.611164	0.0011
X	-2.002506	0.562513	-3.559930	0.0013
Z	-3275654	11.00484	-2.976556	0.0058
X_Z	3.459691	1.080965	3.200559	0.0033
R-Squared	0.353489	Mean dependent var		2.371054
Adjusted R-Squared	0.286609	S.D. dependent var		6.399998
S.E. of Regression	5.405598	Akaike Info criterion		6.325960
Sum Squared Resid	847.3942	Schwarz Criterion		6.507355
Log likelihood	-100.3783	Hannan-Quinn criter.		6.386994
F-Statistic	5.285392	Durbin-Watson stat		2.024624
Prob (F-Statistic)	0.004959			

Source: Data processed using EViews 13

Table 4. t-Test Results (Partial Test)

Variable	Coefficient	Std. Error	T-Statistic	Prob
C	20.45164	5.663448	3.611164	0.0011
X	-2.002506	0.562513	-3.559930	0.0013
Z	-32.75654	11.00484	-2.976556	0.0058
X_Z	3.459691	1.080965	3.200559	0.0033

Source: Data processed using EViews 13

Table 5. Summary of Hypothesis Decisions

Hypothesis	Statement	Decision
Ha_1	Profitability significantly influence firm value.	Accepted
Ha_2	Sustainability reporting significantly influences firm value.	Accepted
Ha_3	Sustainability reporting moderates the relationship between profitability and firm value.	Accepted

Hypothesis Test Results

The t-test is employed to examine the individual effect of each independent variable on firm value at a 5% level of significance (see Table 4). The results show that profitability (X) has a p-value of 0.0013, which is below 0.05, indicating a statistically significant impact on firm value. Likewise, sustainability reporting (Z) also exhibits a significant effect, as reflected by its p-value of 0.0058. Furthermore, the interaction variable between profitability and sustainability reporting (X_Z) produces a probability value of 0.0033, confirming its role as a significant moderating variable. Overall, these findings demonstrate that profitability, sustainability reporting, and their interaction jointly and individually play a significant role in explaining variations in firm value within the proposed model.

The simultaneous significance of the regression model was evaluated using the F-test (see Table 5). The estimation results produce an F-statistic value of 5.285392 with a probability value of 0.004959. Since this probability value is lower than the significance level of 0.05, the regression model can be considered statistically significant when the variables are tested jointly. This result indicates that profitability (X), sustainability reporting (Z), and the interaction term (X_Z) simultaneously influence firm value. In other words, the combination of these variables contributes significantly to explaining the variation in firm value within the research model. Therefore, the regression model is deemed appropriate for further interpretation and analysis.

The Effect of Profitability on Firm value

The hypothesis testing results reveal that profitability has a negative and statistically significant influence on firm value. The estimated coefficient for profitability is −2.002506, accompanied by a t-statistic of −3.559930 and a probability value below the 5% significance threshold. These findings indicate that an increase in profitability does not necessarily lead to a higher firm value among plantation sector companies listed on the Indonesia Stock Exchange during the 2022–2024 observation period. Accordingly, the first alternative hypothesis

Table 6. F-test Results (Simultaneous Test)

R-squared	0.353489	Mean dependent var	2.371054
Adjusted R-squared	0.286609	S.D. dependent var	6.399998
S.E. of regression	5.405598	Akaike info criterion	6.325960
Sum squared resid	847.3942	Schwarz criterion	6.507355
Log likelihood	-100.3783	Hannan-Quinn Criter.	6.386994
F-statistic	5.285392	Durbin-Watson Stat	2.024624
Prob (F-statistic)	0.004959		

Source: Data processed using EViews 13sustainability-

(Ha_1) is accepted. These results indicate that profitability is not the only factor considered by investors when assessing firm value. In the plantation sector, high profitability may even trigger concerns if it is not supported by proper environmental and social responsibility practices. This industry is closely associated withrelated risks such as deforestation, land conversion, greenhouse gas emissions, and potential conflicts with local communities. Consequently, strong financial performance without transparent sustainability practices may signal potential long-term environmental and social risks.

The findings of this study are consistent with those reported by Juliana and Sembiring (2025), who also found a negative relationship between profitability and firm value. Their study highlights that investors tend to prioritize companies that demonstrate a strong commitment to sustainable business practices rather than those focusing solely on short-term earnings. However, this result differs from Amin et al. (2023), who documented a positive association between profitability and firm value. These contrasting findings suggest that the relationship between profitability and firm value is influenced by contextual factors such as industry characteristics and investor sensitivity to sustainability risks.From a signaling theory perspective, profitability serves as an indicator of a company's financial performance and future growth potential. However, this signal is not always interpreted positively, especially when investors perceive significant non-financial risks. In sectors like plantations, profitability that is not accompanied by credible sustainability practices may weaken the positive signal and reduce its effectiveness in increasing firm value.

The Effect of Sustainability Reports on Firm value

The hypothesis testing results show that sustainability reporting has a negative and statistically significant impact on firm value. The coefficient value of −32.75654, along with a t-statistic of −2.976565 and a probability of 0.0058 (below the 5% threshold), confirms that the second hypothesis (Ha_2) is supported.

These findings imply that higher levels of sustainability disclosure, when assessed independently from financial performance, do not necessarily generate a positive market response. One possible explanation is that investors may view sustainability initiatives as additional costs, particularly in the short term. In plantation companies, activities such as environmental management, land restoration, and community development often require significant financial resources, which may temporarily reduce efficiency and influence investor perceptions of firm value.

These findings contrast with prior studies that reported either positive or insignificant effects of sustainability reporting on firm value, including Amin et al. (2023). However, this study supports the argument that the benefits of sustainability practices are more likely to be realized in the long term and may not yet be fully reflected in current market valuations, particularly when investors focus on short-term profitability.

From the perspective of Stakeholder Theory, sustainability reporting functions as a communication mechanism through which companies demonstrate accountability to various stakeholders. Nevertheless, when the economic benefits of sustainability initiatives are not immediately observable, the market may interpret such disclosures as an additional operational burden. Similarly, within the framework of Signaling Theory, sustainability reporting represents a non-financial signal whose effectiveness depends on the presence of strong financial signals, particularly profitability.

The Moderating Role of Sustainability Reporting on the Relationship Between Profitability and Firm Value

The results of the Moderated Regression Analysis (MRA) reveal that the interaction variable between profitability and sustainability reporting (X_Z) has a positive and statistically significant effect on firm value. The interaction coefficient of 3.459691, accompanied by a t-statistic of 3.200559 and a probability value of 0.0033, indicates that sustainability reporting strengthens the relationship between profitability and firm value. Accordingly, the third hypothesis (Ha_3) is accepted.

These findings suggest that sustainability reporting plays a critical and conditional role in determining how profitability is translated into firm value. Because the direct effect of profitability is negative, it implies that in the plantation sector, high earnings alone may be perceived as a risk—potentially signaling short-term exploitation at the expense of ESG standards. Therefore, profitability is valued more favorably by investors only when it is accompanied by transparent and comprehensive sustainability disclosures. Such reporting provides necessary assurance that the profits are generated through ethical practices and are not achieved at the expense of environmental or social considerations. From the perspective of Signaling Theory, sustainability reporting serves as a vital 'qualifying signal' that reconfigures the interpretation of financial performance. By reducing information asymmetry, this disclosure transforms potential skepticism into investor confidence, a result that aligns with Juliana and Sembiring (2025) in suggesting that the positive valuation of profitability is contingent upon the level of sustainability transparency.

Furthermore, these findings align with the principles of Stakeholder Theory, which emphasize that companies must address the interests of various stakeholders. In the plantation sector, where environmental and social risks are particularly prominent, sustainability disclosures based on internationally recognized standards such as the Global Reporting Initiative can enhance corporate legitimacy and strengthen positive investor perceptions. Therefore, sustainability reporting should not merely be viewed as supplementary disclosure but rather as a strategic factor that strengthens the relationship between financial performance and firm value creation.

Sustainability Reports as Signal Amplifiers, Not Direct Value Creators

The findings of this research reveal that sustainability reporting has a negative direct effect on firm value but plays a positive role in strengthening the relationship between profitability and firm value. This result indicates that sustainability reporting is not yet perceived by investors as a direct determinant of corporate value. In the plantation sector, sustainability disclosures are frequently associated with additional operational expenditures, including environmental management costs, land restoration initiatives, and community empowerment programs. Consequently, when these disclosures are not supported by strong financial performance, sustainability reporting may be interpreted by the market as a cost center rather than as a value-generating activity. However, when companies demonstrate strong profitability, sustainability reporting can enhance investor confidence regarding the sustainability of those profits. In this context, sustainability disclosure functions as a mechanism that strengthens corporate legitimacy and credibility by assuring investors that financial performance is achieved through responsible and sustainable business practices.

Conclusion

This research analyzes how profitability affects firm value while considering sustainability reporting as a moderating factor among plantation firms listed on the Indonesia Stock Exchange for the 2022–2024 period. The results indicate a negative and significant relationship between profitability and firm value. This implies that increases in profitability may not necessarily lead to favorable market responses if they are not accompanied by proper handling of environmental and social issues.

Furthermore, sustainability reporting is also found to have a negative and significantly influence on firm value. These results suggest that sustainability disclosures, when evaluated independently from financial performance, may not yet be fully appreciated by investors, particularly within a short-term investment horizon. However, the primary finding of this study demonstrates that sustainability reporting significantly strengthens the relationship between profitability and firm value.

The positive interaction between profitability and sustainability reporting indicates that strong financial performance combined with transparent sustainability disclosures tends to receive a more favorable response from investors. These findings indicate that sustainability reporting does not act as a direct driver of firm value, but rather as a mechanism that enhances the interpretation of financial performance

Theoretical Implications

From a theoretical perspective, this study contributes to the development of Signaling Theory by demonstrating that profitability as a financial signal alone is insufficient to enhance firm value. Sustainability reporting functions as a complementary non-financial signal that enhances the credibility of financial performance and reduces information asymmetry between management and investors. In addition, this research supports the perspective of Stakeholder Theory by highlighting that sustainability disclosures, which reflect attention to stakeholder interests, can strengthen corporate legitimacy and contribute to the creation of long-term corporate value.

Practical Implications

From a managerial perspective, this study highlights the need for plantation firms to integrate profit-oriented strategies with strong sustainability management and transparent reporting practices. Adopting sustainability reporting standards established by the Global Reporting Initiative on a consistent basis can improve investor confidence and enhance the role of financial performance in increasing firm value.

From the investor's viewpoint, the findings underline the relevance of sustainability information as an additional consideration in evaluating corporate performance and risk exposure. Sustainability disclosures serve as an important source of insight into how well a company manages long-term environmental and social challenges

Limitations and Suggestions for Further Research

This research has several limitations that should be acknowledged. First, the analysis focuses only on plantation companies that published sustainability reports during the 2021–2023 period. Consequently, the generalization of these findings to other industry sectors should be interpreted with caution. Second, the final sample is constrained to 11 firms and 33 firm-year observations. This small sample size may limit the statistical power of the results and increase sensitivity to outliers. Future research should consider longer observation periods or expand the sample size to enhance the robustness of the findings. Third, while this study utilizes the Sustainability Report Disclosure Index (SRDI) to capture the extent of disclosure, it does not fully evaluate the underlying quality or credibility of the reported information. Additionally, this study primarily relies on Tobin's Q as a proxy for firm value. Future studies could employ alternative firm-value proxies, such as Price-to-Book Value (PBV) or stock returns, to conduct further robustness tests and provide a more comprehensive understanding of these relationships.

Future studies are encouraged to expand the scope of analysis by including additional industrial sectors and extending the observation period. Moreover, future research may develop more comprehensive measurements of sustainability disclosure, such as indicators based on disclosure quality, assurance mechanisms, or ESG performance metrics. Incorporating additional variables—including corporate governance, capital structure, and corporate risk—may also provide a more comprehensive understanding of the determinants of firm value.

Author contributions

Revi Candra, Gampito, and Elfadhli contributed to the Conceptualization, Methodology, Software, Supervision, Validation, Writing-Original Draft Preparation Investigation. Nurul Nazifah and Fatimah Setia Wardani contributed to the Visualization, Data Curation, Writing - Reviewing and Editing.

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