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Green Accounting Towards Sustainable Development with Financial Performance as a Mediating Variable: A Case Study in the Consumer Non-Cyclicals Sector

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ABSTRACT.

The purpose of this research is to investigate the influence of green accounting, financial performance, and sustainable development. The study examines how green accounting impacts financial performance and sustainable development, the effect of financial performance on sustainable development, and the role of green accounting in sustainable development through financial performance. The research was conducted on companies in the consumer non-cyclicals sectors listed on the Indonesia Stock Exchange (IDX) from 2021 to 2024. A total of 16 companies were selected using purposive sampling techniques, resulting in 64 observations. Data analysis was carried out using path analysis with the assistance of SPSS software. The findings indicate that green accounting does not have a significant impact on financial performance, but it can influence sustainable development. Additionally, financial performance was not found to directly affect sustainable development. Moreover, the study revealed that green accounting does not influence sustainable development through financial performance as a mediating variable.

Keywords: Sustainable Development; Green Accounting; Financial Performance

INTRODUCTION

Economic and business activities in the modern era are no longer solely oriented toward profit generation but are also required to contribute to environmental sustainability and social welfare, in line with the Sustainable Development Goals (SDGs) established by the United Nations (Lee et al., 2016). Although corporations play a strategic role in integrating these sustainability principles, the pursuit of sustainable development continues to face formidable challenges, particularly as the industrial sector accounts for approximately 25% of total global greenhouse gas emissions, which directly accelerates environmental degradation (UNEP). This environmental damage resulting from economic activities is estimated to cause an annual global economic loss of 2.5% of Gross Domestic Product (GDP), a condition that reflects the continued dominance of conventional financial reporting practices which fail to fully incorporate environmental externalities such as carbon emissions and industrial waste (Gray, 2010). Consequently, the implementation of green accounting has become increasingly imperative as a systematic approach to integrating environmental dimensions into corporate reporting systems, thereby fostering a balance between economic performance and long-term environmental sustainability (Aniela, 2015).

A similar situation is observed in Indonesia, where, as a developing nation with a robust industrial sector, economic activities exert significant pressure on the

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environment. Data from the Ministry of Environment and Forestry (KLHK) indicate that hazardous and toxic waste (B3) generated by industries reached 13.7 million tons in 2023, while the national Environmental Quality Index stood at 70.37, reflecting persistent challenges in maintaining ecological sustainability (KLHK, 2024) (BPS, 2023). Despite the Financial Services Authority (OJK) mandating sustainability reporting through Regulation No. 51/POJK.03/2017, only approximately 35% of companies listed on the Indonesia Stock Exchange (IDX) have complied using the Global Reporting Initiative (GRI) framework as of 2024 (OJK, 2024). This suboptimal implementation indicates a persistent gap between regulatory requirements and actual business practices, primarily due to insufficient technical understanding and the perception that green accounting merely escalates operational costs. Consequently, green accounting emerges as a crucial instrument for internalizing externalities—such as emissions management and waste treatment—into corporate financial reporting to enhance eco-efficiency and transparency (Bennett & James, 2017; Gray, 2010). The continuous rise in industrial waste underscores the urgency for corporations to move beyond conventional reporting and integrate environmental dimensions into their governance to foster long-term sustainable development.

The focus of this study is specifically directed toward the consumer non-cyclicals sector, as it represents a strategic industry that maintains high resilience while exerting a substantial environmental footprint. Unlike extractive industries, companies in this sector—encompassing food, beverages, and household products—possess a unique characteristic due to their direct engagement with the mass market, which reults in significant post-consumption plastic waste and energy-intensive supply chains. Based on data from the National Waste Management Information System (SIPSN), the consumer goods industry is a primary contributor to the national plastic waste crisis, necessitating the implementation of green accounting to internalize the environmental costs of production and packaging. Furthermore, as these companies face high public visibility, their commitment to environmental performance, as reflected in PROPER ratings, is increasingly scrutinized by ethically-conscious consumers. This dynamic creates a critical link where environmental investments are expected to enhance brand reputation and financial performance, which ultimately serves as a catalyst for achieving long-term sustainable development in Indonesia's primary consumption market.

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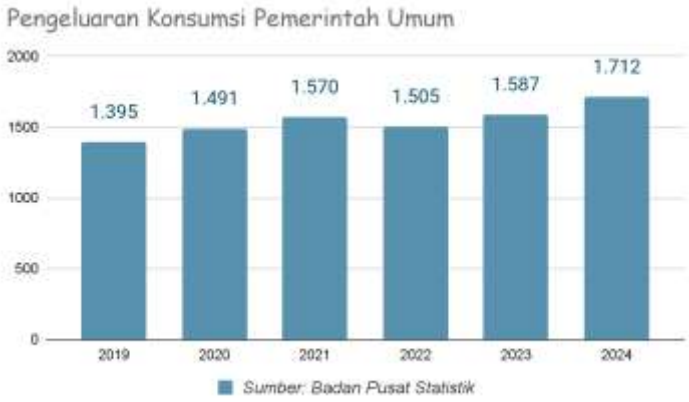

As illustrated in Figure 1, the rising trend of industrial waste in the consumer goods sector underscores the critical need for a more systematic environmental management. In this regard, green accounting plays a crucial role in assisting companies in identifying and managing the environmental impacts arising from their operational activities (Gray, 2010). Through accurate recognition and measurement of environmental costs associated with the waste production shown previously, firms can improve resource-use efficiency and mitigate environmental risks, which ultimately support financial performance. Although many companies perceive the implementation of green accounting as increasing costs and reducing profitability, numerous international studies suggest otherwise. Lee et al. (2016) demonstrate that corporate environmental responsibility has a positive effect on financial performance. Similarly, Clarkson et al., (2008) find that firms with superior environmental performance and disclosure gain higher investor trust. Moreover, the (WB, 2022) reports that companies consistently implementing sustainability practices tend to have stronger reputations and lower operational risks. These findings indicate that green accounting not only promotes sustainability but also has the potential to enhance corporate financial performance by transforming environmental burdens into strategic competitive advantages.

Despite the theoretical assertion within sustainable accounting literature that the adoption of green accounting should improve efficiency, corporate reputation, and financial performance, empirical evidence remains inconclusive. Most prior studies, including Aniela, (2015); Chasbiandani et al., (2019); Dianty & Nurrahim, (2022); Dura & Suharsono, (2022); Endiana et al., (2020); Hamidi, (2019); Sari & Astari, (2023) report that green accounting exerts a positive effect on financial performance, particularly profitability, through mechanisms such as energy efficiency, waste reduction, and enhanced investor confidence. In contrast, the findings of Ezeagba et al., (2017); Pratiwi & Suripto, (2022); Riyadh et al., (2020) reveal that environmental costs associated with green accounting negatively affect financial performance. Meanwhile, Faizah, (2020) concludes that green accounting has no significant impact on financial performance. These mixed results suggest that, in certain firms, substantial environmental expenditures may reduce profitability and

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impose additional operational burdens. The inconsistency among empirical findings—ranging from positive and negative effects to no effect—highlights a critical research gap that warrants further investigation. Therefore, more comprehensive studies are needed to elucidate the relationships among green accounting, financial performance, and sustainable development, particularly within industrial sectors that exert significant environmental impacts.

The urgency of this study is underscored by Indonesia's transition toward a green economy, which demands accounting systems capable of integrating economic, environmental, and social dimensions (Bappenas, 2023). While many firms remain focused on short-term profits, global reports from the (WB, 2022) and (UNEP, 2022) emphasize that long-term sustainability depends on managing environmental risks and meeting stakeholder expectations. Furthermore, since sustainability reporting quality in Indonesia remains heterogeneous and inconsistent with global standards (OJK, 2024), research on green accounting is crucial to bridge the gap between regulatory requirements and actual business practices, particularly in sectors with high environmental impacts.

RESEARCH METHODS

This study employs a quantitative method with an explanatory research strategy and a causal associative approach. This strategy is selected to explain the cause-and-effect relationships and to test the formulated hypotheses empirically. The research focuses on the Consumer Non-Cyclicals sector companies listed on the Indonesia Stock Exchange (IDX) for the period of 2021–2024. Data were obtained through secondary sources, including annual reports and sustainability reports. The sampling was conducted using a purposive sampling technique with the following criteria (Dura & Suharsono, 2022):

Num.	Information	Amount
1	Consumer non-cyclicals ompanies from Consumer Non-Cyclicals that consistently listed on the IDX during 2021-2024	103
2	Companies participating in the Enviromental Performance Rating Program (PROPER) consecutively during the observation period	-76
3	Companies that use green accounting practices published in annual reports and financial statements	-11
Number of companies that can be used in this research		16
Number of years of research		4
Total sample observed		64

Data Analysis Technique

The data analysis in this study is performed using SPSS (Statistical Package for the Social Sciences) (Ghozali, 2018). The analysis consists of several systematic stages as follows:

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1. Descriptive Statistical Analysis: This analysis is used to provide a general overview of the research data, including the minimum, maximum, mean, and standard deviation values for Green Accounting (X), Financial Performance (Z), and Sustainable Development (Y).
2. Classical Assumption Test: To ensure that the regression model is a Best Linear Unbiased Estimator (BLUE), the following tests are conducted:
    - Normality Test: Using the Kolmogorov-Smirnov test to determine if the residual data is normally distributed.
    - Multicollinearity Test: Examining the Tolerance and Variance Inflation Factor (VIF) values to ensure no high correlation exists between independent variables.
    - Autocorrelation Test: Used to ensure that there is no correlation between residuals in the regression model, typically measured using the Durbin-Watson statistic.
    - Heteroscedasticity Test: Conducted to verify that the variance of the residuals remains constant across all observations, ensuring the model's reliability.
3. Path Analysis Following the conceptual framework, this study employs Path Analysis to examine both direct and indirect effects. The analysis is divided into two regression models:
    - Model I: Regressing Green Accounting (X) on Financial Performance (Z).
    - Model II: Regressing Green Accounting (X) and Financial Performance (Z) on Sustainable Development (Y).
4. Mediation Test (Sobel Test): A specialized statistical test performed to verify the significance of the indirect effect within a mediation model.
5. Hypothesis Testing
    - T-Test (Partial): Used to determine the individual significance of each independent variable in influencing the dependent variable.
    - Coefficient of Determination (R^2): Represents the percentage of the total variance in the dependent variable that can be explained by the independent variables in the model.

Green Accounting

Green Accounting (X) is defined as the identification, measurement, and allocation of environmental costs integrated into business decision-making and stakeholder communication (Bahri & Cahyani, 2016) It serves as a strategic extension of conventional accounting that incorporates environmental externalities into the firm's financial framework. In this study, green accounting is operationalized through Environmental Performance, as companies that effectively implement green accounting practices are expected to demonstrate superior ecological outcomes. This variable is measured using the PROPER rating system, which evaluates corporate compliance and excellence in environmental management across five categories:

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Level	Information	Score
Gold	Excellent	5
Green	Better	4
Blue	Good	3
Red	Pretty Good	2
Black	Bad	1

Financial Performance

Financial Performance (Z) serves as the mediating variable in this study, defined as an evaluation of a company's ability to execute financial management rules correctly and effectively (Dura & Suharsono, 2022). In this research, financial performance is measured using the Return on Assets (ROA) ratio. ROA is selected because it reflects the company's efficiency in utilizing its total assets to generate net income after tax. According to Wahlen et al., (2018), as cited in the reference journal, a higher ROA indicates superior management performance in converting investments into profits. The formula used to calculate this variable is:

$$ROA = \frac{Laba\ Bersih\ Setelah\ Pajak}{Total\ Aset} \times 100\% \quad (1)$$

Sustainable Development

According to Elkington, (1997) Triple Bottom Line (TBL) framework, corporate sustainability is achieved by balancing profit (economic), people (social), and planet (environmental) dimensions. In accounting and business, sustainable growth transcends financial gain to include contributions to social welfare and environmental preservation. Consequently, the integration of green accounting and enhanced financial performance is essential for realizing sustainable development, as it enables firms to align economic objectives with ecosystem conservation and social equity. Sustainable development is the dependent variable, defined as the integration of economic, social, environmental, and technology dimensions to ensure long-term business viability (Marota, 2017).

It is measured by:

Economy	Sales, net income, and investment
Environment	Costs of waste treatment, K3, and other utility
Social	Costs of salaries, benefits, and post-retirement benefits (pension)
Technology	Costs of supplies, research and development

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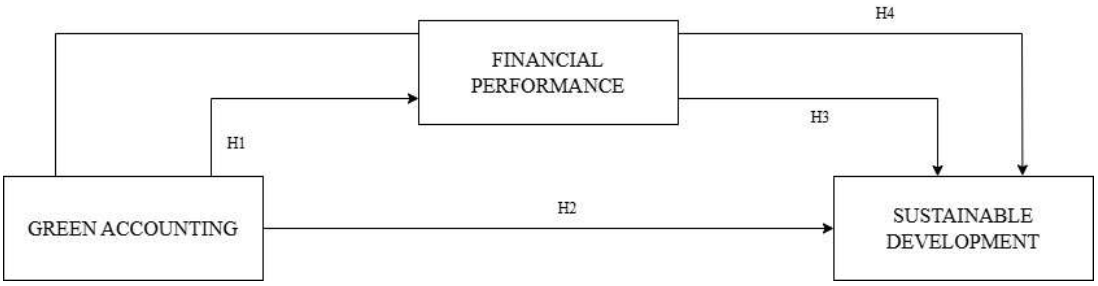
Hypotheses Development



Following the conceptual framework, this study tests four primary hypotheses: (H1) green accounting positively affects financial performance; (H2) green accounting positively affects sustainable development; (H3) financial performance positively affects sustainable development; and (H4) green accounting influences sustainable development indirectly through the mediation of financial performance.

RESULTS AND DISCUSSION

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Green Accounting	64	3	4	3.05	0.213
Financial Performance	64	-11.31%	125.47%	9.3391%	16.35679%
Sustainable Development	64	4,164,556	134,318,744	31096206.83	33436650.51

The first variable, PROPER Score, shows a relatively narrow range of environmental compliance among the 64 observed companies, with a minimum score of 3.00 (representing the Blue rating) and a maximum of 4.00 (representing the Green rating). The mean score stands at 3.05 with a very low standard deviation of 0.213. This indicates that while the sampled companies have successfully met the government's basic environmental requirements, the vast majority are still positioned at the Blue level, reflecting a high degree of uniformity and a lack of progression toward the higher "Green" or "Gold" excellence categories.

In contrast, the Return on Assets (ROA) displays significant volatility, ranging from a minimum of -11.31% to an exceptional maximum of 125.47%. The mean ROA is recorded at 9.3391%, but the standard deviation is notably high at 16.35679%, which exceeds the average value itself. This suggests a substantial disparity in financial performance within the sample, where some firms are facing notable losses while others achieve extraordinary profitability, resulting in a highly skewed data distribution for this variable.

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Lastly, Sustainable Development exhibits the widest absolute range, with a minimum value of 4,164,556 and a maximum of 134,318,744. The average index is 31,096,206.83, accompanied by a standard deviation of 33,436,650.51. Similar to the ROA results, the fact that the standard deviation is larger than the mean signifies that the scale of sustainability initiatives or disclosure practices is extremely varied among the companies. This high level of dispersion suggests that the companies' commitment to sustainability goals is not standardized and may be heavily influenced by the size or specific sector of each individual firm.

Normality Test Result

The normality test aims to determine whether the residual values in the regression model follow a normal distribution. In this study, the normality of the data was assessed using the One-Sample Kolmogorov-Smirnov test. Due to the significant variance in the original scale of the Sustainable Development Index (Y), the variable was transformed into its Natural Logarithm (Ln) form to achieve a more stable data distribution and meet the required statistical assumptions.

The results of the normality test after the transformation are presented in the table below:

Description	Unstandardized Residual
N	64
Test Statistic	0.094
Asymp. Sig. (2-tailed)	0.200

Based on the One-Sample Kolmogorov-Smirnov test results for 64 observations, the Unstandardized Residual shows an Asymptotic Significance (2-tailed) value of 0.200. Since this value is considerably higher than the 0.05 threshold (0.200 > 0.05), the null hypothesis is accepted, confirming that the residuals of the regression model are normally distributed. Consequently, the model is statistically valid and satisfies the classical assumption of normality, allowing for further hypothesis testing and path analysis.

Multicollinearity Test Result

The multicollinearity test is conducted to ensure that there is no high correlation between the independent variables in the regression model. A good regression model should not have a correlation between its independent variables. The presence of multicollinearity is determined by looking at the Tolerance and Variance Inflation Factor (VIF) values. The criteria for a model to be free from multicollinearity are a Tolerance value > 0.10 and a VIF value < 10.

The results of the multicollinearity test for this study are as follows:

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Variable	Tolerance	VIF	Conclusion
Green Accounting	0.999	1.001	No Multicollinearity
Financial Performance	0.999	1.001	No Multicollinearity

Based on the table above, the VIF value for both Green Accounting and Financial Performance is 1.001, which is significantly lower than 10. Additionally, the Tolerance value for both variables is 0.999, which is much higher than 0.10. Therefore, it can be concluded that the regression model is free from multicollinearity issues, and the independent variables are suitable for further analysis.

Autocorrelation Test Analysis

The autocorrelation test is performed to ensure that there is no correlation between the residuals of the current period and those of previous periods, a condition that is essential for maintaining the efficiency and unbiasedness of the regression coefficients. In the initial diagnostic stage, the Durbin-Watson (DW) test yielded a value of 0.617. When compared against the critical value table for n=64 and k=2 at a 5% significance level, where the lower bound (dL) is 1.5032 and the upper bound (dU) is 1.6310, it was found that the observed value fell significantly below the lower bound. This condition indicates the presence of a strong positive autocorrelation, meaning the original model did not satisfy the classical assumption of independence of residuals.

To address this violation, the researchers implemented the Cochrane-Orcutt transformation procedure as a formal remediation step. This process began by regressing the unstandardized residuals against their lagged values to determine the autocorrelation coefficient, which resulted in a Rho (p) value of 0.691 with a significance level of 0.000. Using this coefficient, all research variables—specifically Green Accounting, Financial Performance, and Sustainable Development—were transformed through a generalized difference equation. This transformation was specifically designed to neutralize the serial correlation identified in the original data set, thereby allowing for a more accurate estimation of the relationship between variables.

Following the transformation procedure, the regression model was re-estimated using the adjusted data to verify the effectiveness of the remediation. The final analysis yielded a significantly improved Durbin-Watson value of 1.585, which represents a substantial increase from the initial result. This final value is positioned very close to the upper threshold (dU), confirming that the autocorrelation issue has been adequately resolved and that the residuals are now independent. Consequently, the model is now statistically robust, meeting the requirements of the Gauss-Markov theorem, and is suitable for reliable hypothesis testing and path analysis.

Test Stage	Durbin-Watson Value
Initial Model	0.617
Post-Transformation	1.585

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Heteroscedasticity Test

To conclude the classical assumption testing, the heteroscedasticity test was conducted using the Glejser method to ensure that the variance of the residuals remains constant across all observations. Based on the regression of the absolute residuals, the significance values for Green Accounting (Trans_X) and Financial Performance (Trans_Z) were found to be 0.647 and 0.087, respectively. Since both values are well above the 0.05 threshold, it is statistically confirmed that the model is free from heteroscedasticity, indicating that the residuals are homoscedastic. This fulfillment of the constant variance assumption, coupled with the previously resolved autocorrelation, ensures that the regression coefficients are efficient and the overall model is highly reliable for interpreting the relationship between environmental practices, financial performance, and sustainable development.

Variable	Significance (Sig.)
Green Accounting	0.647
Financial Performance	0.087

Path Analysis: Model I Results

The first stage of the path analysis was conducted to examine the direct influence of Green Accounting on Financial Performance, utilizing the variables previously adjusted through the Cochrane-Orcutt transformation. This step is crucial to establish the first link in the mediation model (X to Z) while ensuring the results are not biased by the autocorrelation identified in the initial diagnostic tests. By regressing the transformed Green Accounting variable against the transformed Financial Performance (ROA), the model evaluates how environmental responsibility affects corporate profitability within a statistically robust framework.

The regression analysis for Model I reveals that Green Accounting has a path coefficient (beta) of 0.002 with a significance value of 0.986. Since the significance value is much higher than the standard 0.05 threshold (0.986 > 0.05), the null hypothesis is accepted, indicating that Green Accounting does not have a significant effect on Financial Performance. This suggests that the implementation of environmental accounting practices and PROPER ratings does not directly translate into immediate changes in the company's Return on Assets (ROA) for the observed period.

The absence of a significant relationship in Model I has a direct implication for the overall mediation framework. Because the first path (X to Z) is statistically insignificant, the requirement for a mediation effect is not met, regardless of the results in the second model. This finding implies that for the companies in this study, the drive toward sustainable development is not financially intermediated; rather, environmental commitments stand as an independent initiative that does not rely on, nor necessarily improve, short-term financial profitability.

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Variable	Unstandarized B	Std. Error	Beta (Path Coeff.)	t	Sig.
Green Accounting	0.191	10.722	0.002	0.018	0.986

Path Analysis: Model II Results

The second stage of the path analysis was conducted to evaluate the simultaneous influence of Green Accounting and Financial Performance on Sustainable Development using the variables adjusted through the Cochrane-Orcutt transformation. This model is essential for determining the direct effect of environmental practices on the sustainability index while controlling for the company's financial condition. By utilizing the transformed data, the regression estimates are protected from the bias of serial correlation, ensuring that the resulting coefficients provide a reliable basis for hypothesis testing and structural modeling.

Based on the regression output for Model II, Green Accounting (Trans_X) demonstrates a significant positive influence on Sustainable Development, with a path coefficient (Beta) of 0.249 and a significance value of 0.045. Since the p-value is below the 0.05 threshold, the hypothesis that Green Accounting directly enhances sustainable development is accepted. On the other hand, Financial Performance (Trans_Z) shows a significance value of 0.068, which exceeds the 0.05 alpha level. This indicates that, for this specific sample, financial profitability does not have a significant partial effect on the company’s sustainable development achievement.

The combination of these results confirms that Sustainable Development is primarily driven by direct environmental commitment rather than financial intermediation. Because Financial Performance failed to show a significant impact in this model—and previously showed an insignificant relationship with Green Accounting in Model I—it is statistically evident that no mediation occurs. These findings highlight that the implementation of Green Accounting provides a robust, direct contribution to a company's sustainability standing, independent of its fluctuating financial performance or the influence of previous years' data trends.

Variable	Unstandardized B	Beta (Path Coeff.)	t	Sig.
Green Accounting	0.641	0.249	2.048	0.045
Financial Performance	-0.007	-0.226	-1.859	0.068

The comprehensive path analysis confirms that the structural relationship within this study follows a direct effect model, wherein Green Accounting is empirically proven to be the primary driver of Sustainable Development without relying on the company's financial condition. The lack of statistical significance in the relationship between Green Accounting and Financial Performance (Sig. 0.986), as well as between Financial Performance and Sustainable Development (Sig. 0.068),

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demonstrates that Financial Performance fails to function as a mediating variable. Consequently, it can be concluded that a company's commitment to environmental transparency and PROPER ratings yields a tangible positive impact on sustainability independently, reinforcing the premise that financial profitability is neither a prerequisite nor an intermediary for the effective implementation of green accounting practices in achieving long-term sustainable development goals.

Hypothesis Testing

Hypothesis	Variable Relationship	Sig.	Result
H1	Green Accounting → Financial Performance	0.986	Rejected
H2	Green Accounting → Sustainable Development	0.045	Accepted
H3	Financial Performance → Sustainable Development	0.068	Rejected

The first hypothesis (H1) examines the direct effect of Green Accounting on Financial Performance. Based on the regression results from Model I, it is found that Green Accounting has a significance value of 0.986, which is substantially higher than the 0.05 alpha level. This indicates that Green Accounting does not exert a significant influence on Financial Performance in the observed sample. Consequently, H1 is rejected, suggesting that the implementation of environmental accounting and PROPER ratings does not directly correlate with an immediate increase or change in the company's financial profitability (ROA).

The second hypothesis (H2) evaluates the direct impact of Green Accounting on Sustainable Development. The statistical analysis in Model II reveals a t-value of 2.048 with a significance level of 0.045. Since the p-value is below the 0.05 threshold, the results demonstrate that Green Accounting has a significant positive effect on Sustainable Development. Therefore, H2 is accepted, proving that companies with better environmental transparency and accountability are more likely to achieve higher sustainability standards, regardless of other intervening factors.

The third hypothesis (H3) analyzes the influence of Financial Performance on Sustainable Development. The results from Model II show that Financial Performance yields a significance value of 0.068. Although this value is close to the threshold, it still exceeds the 0.05 level of significance, meaning the relationship is not statistically significant. As a result, H3 is rejected, indicating that a company's financial profit level does not necessarily dictate or drive its sustainable development achievements within this research context.

Sobel Test

Hypothesis	p-value
Green Accounting → Financial Performance → Sustainable Development	0.985

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The fourth hypothesis (H4) posits that Financial Performance mediates the relationship between Green Accounting and Sustainable Development. To test this indirect effect, a Sobel Test was performed using the unstandardized coefficients and standard errors from both regression models (a = 0.003, s_a = 0.163 and b = -0.005, s_b = 0.003). The calculation resulted in a Sobel test statistic of -0.0184 with a corresponding p-value of 0.9853.

Since the p-value is significantly greater than the 0.05 significance level (0.9853 > 0.05), the null hypothesis cannot be rejected. This statistical evidence confirms that the indirect effect of Green Accounting on Sustainable Development through Financial Performance is not significant. Consequently, H4 is rejected, indicating that Financial Performance does not serve as a mediating variable in this study. This result implies that the contribution of Green Accounting to Sustainable Development is purely direct and is not channeled through the company's financial performance.

Coefficient of Determination (R^2) Analysis

Model	R Square	Adjusted R Square	Error (e)	Contribution
Model II	0.113	0.083	0.941	8.3%

The coefficient of determination (R^2) is used to evaluate the ability of the independent variables—Green Accounting and Financial Performance—to explain the variance in Sustainable Development. Based on the Model Summary for the structural model, the Adjusted R Square value is 0.083. This indicates that Green Accounting and Financial Performance simultaneously contribute 8.3% to the changes in Sustainable Development. The remaining 91.7% is influenced by other factors outside of this research model, such as corporate governance, environmental management systems, or external socio-economic variables.

Furthermore, the path analysis requires the calculation of the residual impact or structural error (e), which represents the influence of variables not captured in the model. Using the formula $\sqrt{1 - R^2}$, with an R Square of 0.113, the error for this model is calculated as $\sqrt{1} - 0.113 = 0.941$. This value completes the structural equation and will be incorporated into the final path diagram to provide a comprehensive visualization of the relationship between the variables.

Discussion of Research Findings

The Effect of Green Accounting on Financial Performance (H1)

The statistical analysis for the first hypothesis (H1) reveals that Green Accounting has no significant impact on Financial Performance (p = 0.986), a finding that directly contributes to the ongoing debate within sustainable accounting literature. While the theoretical assertion under Stakeholder Theory suggests that environmental accountability should enhance corporate reputation and operational

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efficiency, this study aligns with the empirical evidence provided by Faizah, (2020), which posits that the relationship is not always positive or significant. This lack of significance suggests that for the firms in this sample, environmental expenditures—such as waste management costs and green certifications—are still perceived as mandatory compliance burdens rather than strategic investments that generate immediate profitability. This result supports the "negative" or "neutral" perspective held by Riyadh et al., (2020) and Pratiwi & Suripto, (2022), indicating that the high initial costs associated with green accounting may offset any potential gains in Return on Assets (ROA) in the short term. Furthermore, the findings imply a "decoupling" between environmental reporting and financial success, where the market or investors may not yet provide tangible financial rewards for green initiatives. Consequently, while these companies fulfill their environmental responsibilities, these actions do not serve as a catalyst for superior financial performance, highlighting that in the current industrial context, green accounting is driven by regulatory necessity and the pursuit of social legitimacy rather than direct economic incentives.

The Effect of Green Accounting on Sustainable Development (H2)

The acceptance of the second hypothesis (H2), which demonstrates that Green Accounting has a significant positive effect on Sustainable Development ($p = 0.045$), strongly reinforces the core tenets of Stakeholder Theory. This theory asserts that a firm's success and longevity depend on its ability to address the needs of various groups, including employees, the government, and the community, rather than focusing solely on shareholders. The results of this study are consistent with the findings of Loen, (2018) and Abdullah & Amiruddin, (2017), which both emphasize that implementing green accounting practices is a key driver for achieving long-term sustainability. Furthermore, this research aligns with the study by Selpiyanti & Fakhroni (2020) on the palm oil sector, confirming that environmental accountability significantly strengthens a company's sustainable profile. By identifying and managing environmental costs, the firms in this study successfully demonstrate their commitment to the "Planet" and "People" dimensions of the Triple Bottom Line (Elkington, 1997). This significant relationship implies that green accounting serves as a vital strategic tool for gaining public trust and meeting regulatory expectations, proving that environmental transparency is a fundamental prerequisite for corporate survival and sustainable growth in the modern industrial era.

The Effect of Financial Performance on Sustainable Development (H3)

The statistical results for the third hypothesis (H3) indicate that Financial Performance does not significantly affect Sustainable Development ($p = 0.068$), a finding that aligns with the empirical evidence provided by Cuadrado-Ballesteros et al., (2014) and Jan et al., (2018). These researchers assert that financial success does not inherently guarantee progress in sustainable development due to the inherent differences between a company's market-oriented growth models and the specific

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sustainability orientations demanded by stakeholders. In the context of the firms observed in this study, the lack of significance suggests that higher profitability (ROA) does not automatically lead to increased investment in environmental or social initiatives. This discrepancy often arises from the priorities of internal agents and stakeholders who may focus on immediate market development and capital allocation rather than long-term sustainability goals. Consequently, the findings imply that sustainable development is not a direct byproduct of financial surplus but is instead driven by deliberate organizational strategies and external pressures that are independent of a firm's current financial strength.

The Mediating Role of Financial Performance (H4)

The results of the Sobel Test indicate that Financial Performance does not mediate the relationship between Green Accounting and Sustainable Development (p = 0.985), thus H4 is rejected. This finding differs from the reference study, which reported a successful mediation. However, this discrepancy can be scientifically justified by the results of the previous hypotheses in this specific research context. In a path analysis model, a mediation effect can only occur if the independent variable significantly influences the mediator (H1) and the mediator significantly influences the dependent variable (H3). Since this study found that Green Accounting does not drive Financial Performance and Financial Performance does not drive Sustainable Development, the "indirect path" is logically and statistically broken.This rejection implies that for the firms in this sample, the transition to sustainable development is not a wealth-driven process. Instead of following a "profit-first" sequence where green accounting must first increase earnings before contributing to sustainability, the relationship is purely direct. This suggests that companies are committing to sustainable development as a primary strategic goal—likely driven by regulatory mandates and the need for social legitimacy—rather than as a secondary result of financial success. Therefore, the failure of the mediation effect in this study highlights that sustainability and profitability operate on independent tracks, reinforcing the idea that a company's environmental responsibility is not contingent upon its current financial strength.

CONCLUSION AND SUGGESTIONS

The results of this research provide several critical insights into the relationship between Green Accounting, Financial Performance, and Sustainable Development. First, the study concludes that Green Accounting does not significantly affect Financial Performance, suggesting that environmental costs are currently perceived as a mandatory compliance burden rather than a driver for immediate profitability. Conversely, Green Accounting is proven to have a significant positive effect on Sustainable Development, confirming that transparent environmental accountability directly strengthens a company's sustainability profile and social legitimacy.

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Furthermore, the analysis reveals that Financial Performance does not significantly influence Sustainable Development, indicating that high profitability does not automatically guarantee a commitment to environmental or social initiatives. Consequently, the mediation analysis confirms that Financial Performance does not serve as a mediating variable between Green Accounting and Sustainable Development. This implies that the impact of environmental accounting on corporate sustainability is purely direct and does not depend on the company's financial success as an intermediary factor.

Based on the findings of this research, which indicate that financial performance does not play a significant role as a mediating variable, future researchers are encouraged to expand the research model by incorporating moderating variables such as Corporate Governance, Firm Size, or Industry Type to determine whether internal factors or company scale can strengthen the impact of green accounting on profitability. Furthermore, since the effects of environmental investments on financial performance are often long-term and may not manifest instantly, future studies should consider extending the observation period (e.g., to 5 or 10 years) to capture the time-lag effect of environmental costs on corporate earnings. Utilizing alternative proxies for financial performance, such as market-based measures like Tobin's Q, and more comprehensive sustainable development indicators like Environmental, Social, and Governance (ESG) scores, is also highly recommended to provide a broader perspective. Finally, future research should conduct comparative studies across different industrial sectors to examine how varying environmental regulations across industries influence the effectiveness of green accounting implementation in supporting sustainable development goals.

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