Unlocking Sustainable Firm Performance: The Influence of Sustainability Reporting, Green Accounting, and Intellectual Capital

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Abstract

Companies play an important role in driving national economic growth, however, their operational activities may also pose environmental risks. This study aims to examine the influence of sustainability reporting, green accounting, and intellectual capital on the performance of basic materials companies listed on the IDX during 2021–2024. A quantitative approach was employed using secondary data obtained from annual and sustainability reports. From a population of 110 companies, 16 firms were selected through purposive sampling. The data were analyzed using multiple linear regression with IBM SPSS 31. The results show that sustainability reporting, Value Added Capital Employed (VACA), and Value Added Human Capital (VAHU) exert a positive and significant influence on firm performance, while green accounting and Structural Capital Value Added (STVA) have no significant influence. Furthermore, the three independent variables simultaneously have a positive and significant effect on firm performance. These findings suggest that enhancing the quality of sustainability disclosures and optimizing intellectual capital, particularly financial and human resources, may strengthen firm performance.

INTRODUCTION

The rapid advancement of globalization has significantly influenced economic conditions at both the global and national levels (Prasetyowati & Marsono, 2024). Increasing competition requires firms not only to pursue growth but also to achieve optimal performance in order to survive and grow within a dynamic and competitive business environment. Firms aim to maximize profits to ensure business continuity and create value for their stakeholders (Hutabarat, 2021). To support the effective development of operational activities and strengthen stakeholder confidence, firms must demonstrate high performance. This is reflected in their ability to generate profits, manage operations efficiently, and achieve sustainable growth, indicating the effective utilization of organizational resources. However, firms in the Basic Materials Sector often experience significant performance fluctuations. Figure 1 illustrates the changes in Return on Assets among several firms in this sector between 2021 and 2024. This phenomenon underscores the instability and unsustainability of performance in the sector, highlighting the need for a comprehensive evaluation of management strategies to ensure stability, efficiency, and competitiveness amid evolving economic conditions.
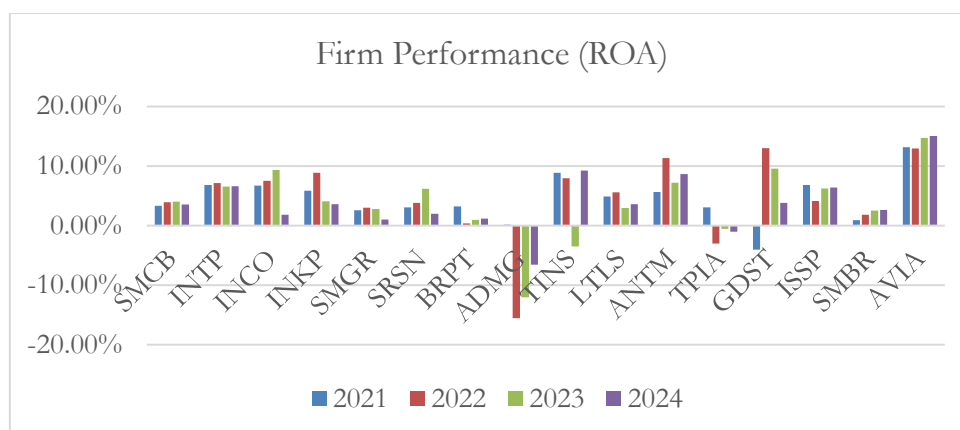
Figure 1. Calculation of Return on Assets (ROA)
Source: processed data, 2025

The Global Risks Report (2024) reveals that in the next ten years, potential global environmental issues include biodiversity loss, ecosystem degradation, and depletion of natural resources. According to the report Industrial Decarbonization: The Catalyst Towards Net Zero Indonesia, emissions from the industrial sector were estimated to account for approximately 75% of Indonesia's total emissions in 2019, and this amount could double by 2030, highlighting the significant role of industry in national efforts to reduce emissions. The Basic Materials Sector is one of the sectors contributing to these issues. Therefore, in addition to focusing on maximizing profits, companies also need to demonstrate their social responsibility toward the environment (Madona & Khafid, 2020).

By applying Elkington's (1997) Triple Bottom Line (3P) framework, which encompasses the dimensions of people, planet, and profit, the framework emphasizes that companies should prioritize social welfare and environmental sustainability, not merely financial performance. The environmental impact has encouraged society companies to carry out social and environmental responsibility for their activities, and therefore, they need to provide transparent information through sustainability reports (SR) so that stakeholders are aware of the impacts caused (Madona & Khafid, 2020). A sustainability report is an official document that provides comprehensive information regarding the economic, environmental, and social impacts generated by a company's operational activities (Putra & Subroto, 2022). Sustainability reports create added value by providing transparency on environmental and social activities and serve as a source of competitive advantage for the company (Kustinah, 2022). One of the regulations supporting the implementation of sustainability reporting in Indonesia is POJK No. 51/POJK.03/2017 concerning the implementation of sustainable finance. Research by (Almashhadani & Almashhadani, 2023) and (Shaban & Barakat, 2023) indicates that sustainability reporting significantly influences firm performance. In contrast, the findings of (Triwacananingrum & Silphianie, 2023) demonstrate that firm performance is not significantly impacted by the disclosure of sustainability reports.

In addition to sustainability reporting, green accounting is also considered a factor that can influence firm performance. It provides information regarding the extent to which a company's operational activities affect the environment and human welfare, both positively and negatively (Endiana, Dicriyani, Adiyadnya, & Putra, 2020). Its implementation can enhance public and stakeholder trust, which in turn encourages greater investor interest and investment once trust is established, ultimately contributing to increased profitability and financial performance. In this

context, the Ministry of Environment and Forestry carries out a program called PROPER to assess the environmental management performance of companies. The program applies a rating system with five levels, where Gold represents the highest score of 5, followed by Green with 4, Blue with 3, Red with 2, and Black as the lowest score of 1. Every year, participants in the PROPER program have shown improvement in their performance. However, the majority of them have only managed to achieve a Blue rating. This indicates gradual progress, yet highlights that most companies are still facing challenges in reaching higher levels such as Green or Gold. The study by (Endiana et al., 2020) shows the effect of green accounting on firm performance, whereas the research by (Putri, Miqdad, & Sulistiyo, 2020) indicates that green accounting does not significantly influence firm performance.

Conversely, to apply sustainable business practices effectively, companies must be capable of managing and optimizing all available resources and assets. These resources consist of both tangible and intangible assets that are essential in supporting business operations and enhancing competitive advantage (Widyastuti, Parianom, & Permana, 2021). Therefore, companies are encouraged to continuously enhance innovation, information systems, organizational management, and resource empowerment, particularly intellectual capital (Putri, Maryani, & Damayanti, 2023). Intellectual capital enables companies to use their resources more efficiently and economically (Putri & Rahmah, 2025). Intellectual capital refers to intangible assets that consist of a combination of human, process, and consumer elements, which can provide a competitive advantage within an organization (Putri et al., 2023). Pulic (1998) proposed the Value Added Intellectual Coefficient (VAIC™), which comprised three elements, namely Value Added Capital Employed, Value Added Human Capital, and Structural Capital Value Added. Research conducted by (Amalia, Windiarti, & Kustinah, 2025) found that VACA, VAHU, and STVA each significantly and positively impact firm performance, while VAIC™ shows a significant negative effect.

Based on this phenomenon, there remains an inconsistency regarding the relationship between sustainability reporting, green accounting, and intellectual capital with firm performance. In addition, discrepancies are found in empirical results, which indicate that improvements in sustainability reporting practices, green accounting, and intellectual capital management do not always align with increases in firm performance (ROA). This inconsistency suggests that the implementation of sustainability principles and resource efficiency has not yet contributed optimally to corporate profitability, particularly within the basic materials sector. This empirical gap provides a basis for the need for further research to examine the extent to which the implementation of these three factors truly influences a company's financial performance.

The impetus for this study arises from the importance of addressing global environmental challenges that threaten natural sustainability due to corporate operational activities, alongside the growing need for sustainable business practices. This research examines the influence of Sustainability Report disclosures, evaluated using the 2021 GRI standards, Green Accounting as represented by PROPER, and Intellectual Capital measured through VACA, VAHU, and STVA, on firm performance, conceptualized through Return on Assets (ROA). The purpose of this research is to generate new theoretical and empirical insights regarding the effects of sustainability reporting, green accounting implementation, and optimized intellectual capital management on firm performance. The study's outcomes are expected to advance current academic discourse on these areas and deliver strategic implications for firms seeking to enhance profitability through responsible and sustainable business conduct.

Several theories have been identified as part of the literature review, including:

1. Stakeholder Theory

    According to Edward Freeman (1984), stakeholder theory states that individuals or groups who influence the achievement of a company's objectives are considered stakeholders. According to this theory, a company's responsibility extends not only to its shareholders but also to all relevant stakeholders in strategic decision-making. Accordingly, the reporting of environmental, social, and economic matters has developed into a contemporary concept applicable across multiple sectors, providing stakeholders with a reference to evaluate a company's performance in line with their expectations (Jayanti, Kustinah, Mulyandini, Winarso, & Nidyanti, 2024). Disseminating this information via annual and sustainability reports is crucial for aiding investment decisions, enhancing accountability, fostering stakeholder trust, and ensuring the long-term sustainability of firm performance (Ramadhana & Setiawan, 2024).

2. Resource-Based Theory

    Penrose (1956) stated that Resource-Based Theory (RBT) views a company's resources as heterogeneous, meaning that each firm possesses unique characteristics based on the productive utilization of its resources. The theory highlights that a company can gain a competitive edge by efficiently managing valuable and unique resources, whether tangible or intangible, that are hard to replicate, transfer, or replace (Ulum, 2017). According to (Putri et al., 2023) RBT explains how a company's performance functions optimally when it possesses strong competitive advantages that generate added value. In summary, RBT highlights the importance of leveraging unique and heterogeneous resources to create distinctive capabilities, enhance long-term performance, and strengthen overall competitiveness.

Based on the previous studies, this research formulates these hypotheses:

H1 : Sustainability reports exert a positive influence on firm performance.

H2 : Green Accounting exert a positive influence on firm performance.

H3a : Value Added Capital Employed exerts a positive influence on firm performance.

H3b: Value Added Human Capital exerts a positive influence on firm performance.

H3c: Structural Capital Value Added exerts a positive influence on firm performance.

H4 : Sustainability reports, Green Accounting, and Intellectual Capital simultaneously influence firm performance.

METHODS

This study employs secondary data with a quantitative approach. This study sourced the required data from sustainability and annual reports publicly available on the IDX website. This study aims to explore how sustainability report, green accounting, and intellectual capital affect firm performance. The population of this study consists of basic materials companies listed on the Indonesia Stock Exchange (IDX) during 2021–2024. The sample was selected using a non-probability purposive sampling technique. The following criteria were used for sample selection: 1) Basic Materials companies listed on the IDX during 2021–2024. 2) Companies that consistently publish sustainability and annual reports during 2021–2024. 3) Companies that consistently apply the GRI index. 4) Companies that participate consecutively in the PROPER program from 2021 to 2024.

Out of 110 Basic Materials Companies listed on the IDX, 16 companies were chosen as the research sample through purposive sampling. With a four-year observation period from 2021 to 2024, the study comprises a total of 64 data points.

Table 1. Indicators Variable

Variable	Indicators	Description
Sustainability report	Index= The total score disclosed/by the total maximum score. (Triwacananingrum & Silphianie, 2023)	Using the 2021 GRI standard
Green Accounting	PROPER Ranking (Endiana et al., 2020)	Gold=5, Green=4, Blue=3, Red=2, Black=1
Intellectual Capital	VACA=VA/CE VAHU=VA/HC STVA=SC/VA (Putri et al., 2023)	VA=Value Added (Output-Input) CE=Capital Employed HC=Human Capital SC=Structural Capital (VA-HC)
Firm Performance	ROA (Putri et al., 2023)	Net income/total assets*100%

The data for this study were analyzed using IBM SPSS version 31. The analysis procedures comprised descriptive statistics, classical assumption, multiple linear regression using the model $Y=a+b1X1+b2X2+b3X3a+b3X3b+b3X3c+\varepsilon$, and the hypotheses were tested through t-tests, F-tests, and by analyzing the coefficient of determination. Because multiple linear regression requires interval or ratio level data, the Method of Successive Intervals (MSI) was employed to convert ordinal data into interval data before conducting the classical assumption tests. (Nurjanah & Mulyandini, 2024).

RESULTS AND DISCUSSION
Descriptive Statistical Test

Table 2. Descriptive Statistics

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
SR (X1)	64	.01	1.00	.5975	.24838
GA (X2)	64	3	5.16	3.9055	.89613
VACA (X3a)	64	-.13	.64	.2034	.12856
VAHU (X3b)	64	-2.61	12.58	3.0635	2.517
STVA (X3c)	64	-.63	7.64	.7752	1.01447
Firm Performance (Y)	64	-15.55	15.04	4.1683	5.43325
Valid N (listwise)	64				

Source: Data processed by researchers with SPSS 31, 2025

The descriptive statistics reveal that the sustainability report variable has values ranging from 0.01 to 1.00. Green accounting ranges from 3.00 to 5.16. Value Added Capital Employed (VACA) ranges from -0.13 to 0.64. Value Added Human Capital (VAHU) ranges from -2.61 to 12.58. Structural Capital Value Added (STVA) ranges from -0.63 to 7.64. Meanwhile, firm performance ranges from -15.55 to 15.04.

Classical Assumption Test
Normality Test

The Kolmogorov–Smirnov test was used to examine the normality of the data in the regression model. The data are considered normally distributed if the Asymp. Sig value is greater than 0.05.

Table 3. Normality Test Results Kolmogorov-Smirnov
One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			64
Normal Parameters[a,b]	Mean		.0000000
	Std. Deviation		3.31148445
Most Extreme Differences	Absolute		.104
	Positive		.104
	Negative		-.068
Test Statistic			.104
Asymp. Sig. (2-tailed)[c]			.085
Monte Carlo Sig. (2-tailed)[d]	Sig.		.085
	99% Confidence Interval	Lower Bound	.077
		Upper Bound	.092

Source: Data processed by researchers with SPSS 31, 2025

Based on the results presented in Table 3, the Asymp. Sig value of 0.085>0.05. This indicates that the research model contains data that are normally distributed.

Multicollinearity Test

Mutlicollinearity test is used to asses the potential correlation among independent variables within the regression model. A tolerance value >0.10 or a VIF <10 indicates the absence of multicollinearity.

Table 4. Multicollinearity Test
Coefficients[a]

		Collinearity Statistics	
Model		Tolerance	VIF
1	SR	.900	1.112
	GA	.885	1.130
	VACA	.847	1.181
	VAHU	.891	1.122
	STVA	.875	1.142

Source: Data processed by researchers with SPSS 31, 2025

Table 4 shows that all variables have tolerance values above 0.10 and VIF values below 10, confirming that no strong correlation exists among the independent variables and that the research model is free from multicollinearity.

Heteroscedasticity Test

The purpose of conducting a heteroscedasticity test is to evaluate whether there is inequality of variance within the regression model. In the present study, the scatterplot method is utilized as a tool to identify the presence of heteroscedasticity. The data are considered free from heteroscedasticity when no systematic or noticeable pattern appears, and the points are randomly dispersed above and below the value of 0 on the Y-axis.
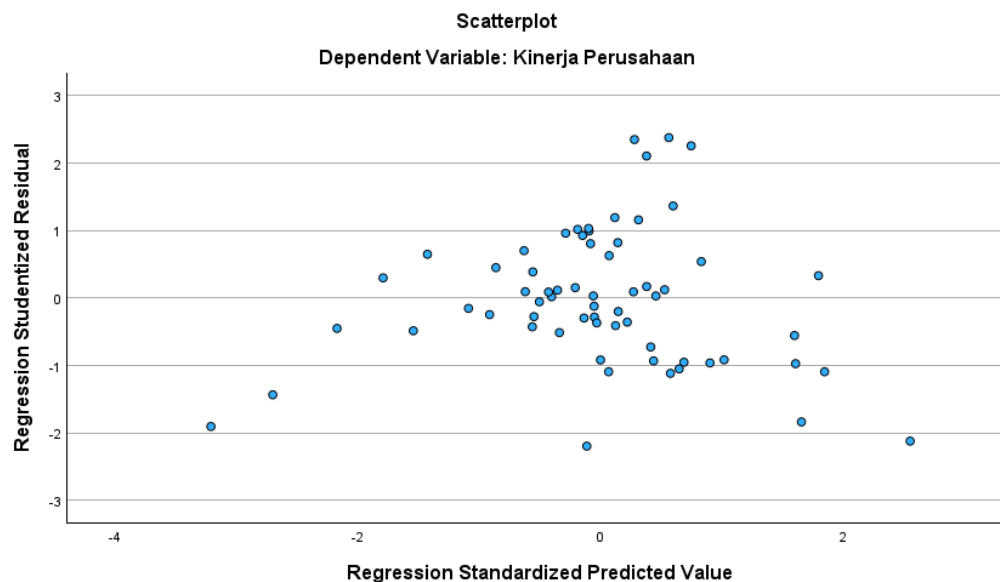
Figure 2. Heteroscedasticity Test
Source: Data processed by researchers with SPSS 31, 2025

Figure 2 above illustrates that there is no heteroscedasticity because there is no discernible pattern in the heteroscedasticity test findings and the dots are dispersed randomly.

Autocorrelation Test

To examine whether the residuals from one time period are related to those from the previous period in a regression model, an autocorrelation test is required. A Durbin-Watson statistic between dU and 4-dU shows that the data do not exhibit autocorrelation.

Table 5. Autocorrelation Test

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.870[a]	.757	.736	2.40393	1.994

Source: Data processed by researchers with SPSS 31, 2025

As shown in Table 5 above, the Durbin-Watson value at a significance level of 0.05, with n = 64 and k = 5, indicates that dL = 1.4322, dU = 1.7672, and 4 − dU = 2.2328. This second test satisfies the criterion since dU < dW < 4 − dU or 1.7672 < 1.994 < 2.2328, which when viewed in the table shows that there is no autocorrelation in this study.

Multiple Linear Regression Analysis Test

Table 6. Multiple Linear Regression Test Results

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.644	.606		-2.712	.009
	SR	3.413	1.481	.160	2.305	.025
	GA	.006	.379	.001	.016	.987
	VACA	29.073	3.162	.702	9.195	<.001
	VAHU	.685	.175	.302	3.917	<.001
	STVA	.088	.262	.023	.337	.737

Source: Data processed by researchers with SPSS 31, 2025

As shown in Table 6 above, the regression equation model produced from the SPSS 31 output is as follows:

$$Y = -1.644 + 3.413X_1 + 0.006X_2 + 29.073X_{3a} + 0.685X_{3b} + 0.088X_{3c}$$

The constant of –1.644 represents the initial firm performance value for basic materials companies on the IDX in the 2021–2024 period, influenced by sustainability reporting (X_1), green accounting (X_2), value added capital employed (VACA) (X_{3a}), value added human capital (VAHU) (X_{3b}), and structural capital value added (STVA) (X_{3c}).

The regression coefficient for the sustainability report of 3.413 shows that a one-percent increase in the sustainability report will increase firm performance by 3.413. Meanwhile, green accounting, with a coefficient of 0.006, likewise exerts a positive influence on firm performance. Furthermore, VACA has the greatest influence, with a coefficient of 29.073, followed by VAHU at 0.685, and STVA at 0.088, all of which show a positive impact on improving firm performance, assuming other variables in this study remain constant.

Determination Coefficient Test

Table 7. Results of the Determination Coefficient Test (R^2)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.870[a]	.757	.736	2.40393

Source: Data processed by researchers with SPSS 31, 2025

The result shows the R-Squared value is 0.757 or 75.7%. This value indicates that the contribution of the independent variables and their interactions explains 75.7% of the variation in the dependent variable, while the remaining 24.3% is accounted for by other variables beyond the scope of this study.

Partial Test (t-Test)

Whether each independent variable has a significant effect on the dependent variable is determined through a t-test, which compares the calculated t-value with the t-table value (df = n–k–1) at a significance level of 0.05.

Table 8. t-Test Result

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-1.644	.606		-2.712	.009
	SR	3.413	1.481	.160	2.305	.025
	GA	.006	.379	.001	.016	.987
	VACA	29.073	3.162	.702	9.195	<.001
	VAHU	.685	.175	.302	3.917	<.001
	STVA	.088	.262	.023	.337	.737

Source: Data processed by researchers with SPSS 31, 2025

A hypothesis is considered supported if the partial test produces a significance value (Sig) below 0.05 and the t-statistic exceeds the t-table reference value of 2.00172.

The Sustainability Reporting variable (X_1) records a t-statistic of 2.305, which exceeds the t-table value of 2.00172, with a significance level of 0.025. The results indicate a rejection of H0 and confirmation of H1, indicating that sustainability reporting exerts a positive and statistically significant influence on firm performance.

The Green Accounting variable (X_2) yields a t-statistic of 0.016, which is below the t-table value of 2.00172, with a significance level of 0.987. The results indicate a rejection of H2 and confirmation of H0, signifying that green accounting does not have a statistically significant influence on firm performance.

The Value Added Capital Employed variable (X_{3a}) shows a t-statistic of 9.195, exceeding the t-table value of 2.00172, and a significance level of <0.001. The results indicate a rejection of H0 and confirmation of H3a, confirming that VACA has a positive and statistically significant impact on firm performance.

The Value Added Human Capital variable (X_{3b}) presents a t-statistic of 3.917, higher than the t-table value of 2.00172, with a significance level of <0.001. The results indicate a rejection of H0 and confirmation of H3b, indicating that VAHU positively and significantly influences firm performance.

Conversely, the Structural Capital Value Added variable (X_{3c}) produces a t-statistic of 0.337, which is lower than the t-table value of 2.00172, accompanied by a significance level of 0.737. The results indicate a rejection of H3a and confirmation of H0, implying that STVA does not significantly influence firm performance.

Simultaneous Test (F-Test)

To evaluate the simultaneous influence of the independent variables on the dependent variable, an F-test is conducted by comparing the calculated F-statistic with the corresponding F-table value (df = n–k) at a 0.05 significance level.

Table 9. f-Test Result

ANOVAᵃ

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1025.947	5	205.189	35.507	<.001ᵇ
	Residual	329.397	57	5.779		
	Total	1355.345	62			

Source: Data processed by researchers with SPSS 31, 2025

Based on the results, the F-statistic, which exceeds the F-table value of 2.377, along with a significance level of <0.001 that is lower than 0.05, indicates that the null hypothesis is rejected and the alternative hypothesis is accepted. The findings demonstrate that sustainability reporting, green accounting, and intellectual capital, when tested simultaneously, significantly influence firm performance.

DISCUSSION

The Influence of Sustainability Reporting on Firm Performance

The study's findings reveal that sustainability reporting positively and significantly influences firm performance. Linear regression analysis shows that every increase in sustainability reporting is associated with an increase in firm performance. The results indicate a rejection of H0 and confirmation of H1. The positive regression results indicate that increased disclosure of a firm's sustainability efforts can enhance its performance. This finding aligns with stakeholder theory, which highlights the need for organizations to consider stakeholder interests by delivering information that is relevant, transparent, and beneficial. Such disclosure has been shown to affect performance measured by Return on Assets (ROA), as it helps build investor confidence and encourages greater investment in the firm. This finding has the same results as research by (Almashhadani & Almashhadani, 2023), which finds that sustainability reporting significantly affects firm performance. Thus, sustainability reporting functions not only as a means of fulfilling social and environmental responsibility but also as a strategic instrument that enhances firm performance by building stronger stakeholder trust and loyalty.

The Influence of Green Accounting on Firm Performance

The study indicates that green accounting does not exert a significant influence on firm performance. Linear regression analysis shows that changes in green accounting are not associated with changes in firm performance. Therefore, H0 is accepted and H2 is rejected. These findings suggest that green accounting, measured via the PROPER rating, has little impact on firm performance. Although stakeholder theory emphasizes the role of transparent and relevant information in building trust and guiding investment decisions, the current implementation of green accounting has not effectively enhanced investor interest or firm performance. The limited effect may be due to PROPER not being the sole measure of green accounting, the substantial time and cost required to obtain a PROPER rating, and the absence of mandatory environmental standards in Indonesian regulations (Dewi, 2025). This finding has the same results as research by

(Putri et al., 2020) which similarly concluded that green accounting does not influence firm performance.

The Influence of Value Added Capital Employed (VACA) on Firm Performance

The results of the study indicate that VACA positively and significantly influences firm performance. Linear regression analysis shows that every increase in VACA is associated with an increase in firm performance. The results indicate a rejection of H0 and confirmation of H3a. This finding is in line with the resource-based theory, which emphasizes that effective management of capital resources is key to achieving sustainable competitive advantage, as well as stakeholder theory, which states that good capital management enhances stakeholder trust through the company's profitability (Kumala, Hariyanti, & Siddiq, 2023). Thus, a firm's performance will improve if its capital is utilized more efficiently to generate revenue. This finding has the same results as research by (Amalia et al., 2025) and (Saraswati & Hartoko, 2022), which determined that VACA positively and significantly influences firm performance.

The Influence of Value Added Human Capital (VAHU) on Firm Performance

The study shows that VAHU positively and significantly influences firm performance. Linear regression analysis shows that every increase in VAHU is associated with an increase in firm performance. The results indicate a rejection of H0 and confirmation of H3b. These findings suggest that companies with effective human resource management have more competent employees in meeting customer needs, thereby increasing revenue and service quality. According to resource-based theory, improvements in productivity, creativity, and service quality are considered to have a direct impact on a firm's performance (Nurseha, Afif, & Anwar, 2024). Efficient management of intellectual capital through optimal utilization of capital creates value added that enhances financial performance and strengthens long-term competitiveness. This finding has the same results as research by (Saraswati & Hartoko, 2022) which determined that VAHU positively and significantly influences firm performance.

The Influence of Structural Capital Value Added (STVA) on Firm Performance

Findings from the study show that STVA does not have a significant influence on firm performance. Linear regression analysis shows that changes in STVA are not associated with changes in firm performance. The results indicate a rejection of H3c and confirmation of H0. Although structural capital, such as systems, procedures, and technology, supports the company's operations, its suboptimal use or misalignment with strategic objectives makes its impact on financial performance not directly noticeable. Furthermore, in sectors that heavily rely on employee skills and creativity, structural capital plays more of an administrative support role, so improvements in structural capital efficiency do not always translate into higher profitability or Return on Assets (ROA). This finding has the same results as research by (Kumala et al., 2023), who also concluded that STVA does not influence firm performance.

CONCLUSION

The findings reveal that sustainability Reporting exerts a positive and significant influence on firm performance, suggesting that companies that disclose their sustainability efforts more transparently tend to achieve better performance. Green Accounting does not significantly influence firm performance, suggesting that the current implementation of green accounting, as measured by the PROPER rating, has not substantially influenced firm performance. VACA exerts a significant positive influence on firm performance, as the efficient use of capital resources enables companies to generate greater revenue and improve profitability. Similarly, VAHU likewise

demonstrates a significant positive impact on firm performance, indicating that effective human resource management enhances employee competence, service quality, and productivity, thereby directly contributing to improved firm performance. However, STVA does not significantly influence firm performance, suggesting that although structural capital supports operational activities, its impact on financial performance remains limited when its utilization is suboptimal or not aligned with the company's strategic objectives.

This research provides theoretical and practical contributions to the disciplines of management and accounting by highlighting the importance of sustainability reporting, green accounting, and intellectual capital in improving corporate performance. Nevertheless, several limitations should be acknowledged. First, the research period of 2021–2024 is relatively short, which may not sufficiently illustrate the long-term impact of sustainability reporting, green accounting practices, and intellectual capital utilization on firm performance. Second, the assessment of green accounting is based exclusively on the PROPER indicator, which does not fully represent the economic costs or benefits associated with environmentally responsible initiatives.

For future research, it is recommended to use alternative indicators to measure green accounting, such as environmental costs, energy savings, or resource-use efficiency, to capture its effect on firm performance more comprehensively. Additionally, future studies could consider incorporating mediating or moderating variables. This approach could also be expanded by conducting comparative analyses across different industrial sectors.

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