

The Implications of Green Accounting on Profitability: A Study of Mining Companies in Indonesia

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ABSTRACT

Objective: This study aims to determine the effect of Green Accounting, Environmental Dimensions, and Intellectual Capital on Profitability (ROA). **Method:** This study employs quantitative methods and secondary data sources, focusing on mining companies listed on the Indonesia Stock Exchange (IDX) for the period 2021–2023. The sampling technique used was purposive sampling, which is a technique of sampling based on specific criteria, resulting in 20 companies with a total of 60 sample data. Data analysis was performed using the SPSS 25 software for multiple linear regression. **Results:** The results of the study indicate that: (1) Green Accounting does not affect Profitability, (2) Environmental Dimension does not affect Profitability, and (3) Intellectual Capital has a positive effect on Profitability in mining companies listed on the Indonesia Stock Exchange (IDX) for the period 2021–2023. **Novelty:** The novelty of this study lies in its examination of Green Accounting, Environmental Dimensions, and Intellectual Capital simultaneously in relation to Profitability (ROA) within mining companies listed on the Indonesia Stock Exchange (IDX) for the 2021–2023 period.

INTRODUCTION

Public attention to environmental issues has increased along with growing awareness among the public and government of the importance of sustainable industrial development. The mining industry in Indonesia is one of the key sectors and pillars that significantly contribute to the national economy [1]. The contribution of the mining industry's growth in Indonesia to the country's economy is significant; however, mining activities also cause various severe environmental impacts, including contamination of air, water, and soil due to the industrial waste produced [2]. One example is the ecological violation by PT Freeport Indonesia in 2017, which resulted in the state suffering losses of up to Rp. 185.58 trillion due to the disposal of mining operational waste (tailings) in rivers, forests, and even the sea [3]. This has destroyed ecosystems and caused environmental pollution due to the disposal of various toxic chemical wastes that have the potential to cause multiple health problems for the local community [2]. Not only that, the recent conflict between PT Vale Indonesia and the Loeha Raya Luwu Timur community in 2024 reinforces the urgency of this issue. Nickel mining exploration activities in the Lumereo-Lengkona mountain forest area pose a threat to the livelihoods of local communities, particularly farmers and agricultural workers. Nickel mining exploration activities are also said to destroy the rainforest and biodiversity in the mountainous region.

The growing problems eventually led to social conflicts between the community and mining companies. In line with this, conflicts over environmental damage and pollution can be controlled through prevention, mitigation, and restoration. The community and government are increasingly demanding that companies report on the impact of their business activities so that they are not only focused on financial profits but also pay attention to environmental and social aspects by implementing sustainable business practices [4]. High profitability cannot be separated from good environmental performance, as investors and the community increasingly consider sustainability in their decision-making [4]. Green Accounting practices, Environmental Dimensions, and Intellectual Capital are essential indicators for measuring the extent to which companies carry out their environmental responsibilities in an accountable manner, thereby increasing company profitability.

Profitability refers to the net profit or gain earned by an entity. One factor in successfully managing the efficiency and effectiveness of an entity's assets is the company's profitability [5]. In line with this, profitability can be monitored by comparing the profit ratio for a specific period with the company's total assets or capital [6]. Investors will consider the profit level of an entity in making their investment decisions. The company's ability to set strategic policies can be measured through the level of return generated, whether high or low [4]. High profitability indicates positive financial performance, which ultimately impacts the prosperity of company owners and strengthens the company's image in the eyes of the public [7]. In addition to financial aspects, companies are now required to pay attention to environmental performance due to increasing environmental issues in society [4]. In this study, the indicator used to measure profitability is the Return on Assets (ROA).

Many mining companies have begun to address these concerns by implementing business practices that prioritize environmental and sustainability issues [8]. One such solution is the implementation of the concept of green accounting. Green accounting is considered a solution to global concerns and can be seen as the first step towards implementing sustainable business practices within an entity [8]. Green accounting is an approach to accounting that aims to incorporate environmental aspects into financial reporting and managerial decision-making [9]. This concept includes recording, measuring, and reporting all costs and activities of companies related to the environment [4]. In green accounting, the cost components taken into account include the costs of waste management and disposal, installation of disposal systems, costs incurred due to the involvement of third parties, and the costs of obtaining permits related to environmental aspects [10]. Environmental costs refer to a systematic approach in cost accounting that not only focuses on environmental expenditures but also considers the environmental impact of material use, energy consumption, and waste generation [11]. Environmental costs are measured by comparing the costs incurred by a company to fulfill its environmental responsibilities with the company's net profit. Companies that implement Green Accounting will allocate funds to support its implementation. The allocation of environmental costs is highly beneficial for companies, as it enables them to

monitor the progress of business processes and manage the environment efficiently [12]. Companies that allocate and report environmental costs well will increase public trust [6]. The ability of companies to create a positive image in the community by implementing green accounting will increase profitability, as companies are increasingly considered responsible for environmental issues. This aligns with stakeholder theory, which posits that companies are not only accountable to shareholders but also to all stakeholders, including the government, the community, investors, and the environment. The selection of green accounting variables (represented by environmental costs) provides an objective measure of a company's commitment to managing its environmental impact. Additionally, environmental costs serve as a form of transparency. The selection of green accounting variables (presented by environmental costs) provides an objective measure of a company's commitment to managing its environmental impact. Additionally, ecological costs serve as a form of transparency, demonstrating corporate responsibility towards the environment. This makes this variable increasingly interesting to study. Research proves that green accounting indicators have a positive effect [5], [13], [14]. This differs from the results of research, which state that green accounting does not affect profitability [15], [16]. However, the results have a positive effect when tested simultaneously with other indicators [9].

The second factor affecting profitability is environmental disclosure. Environmental disclosure is a form of corporate responsibility. Demands for environmental information disclosure are increasing in line with the growing importance of sustainability and corporate social responsibility, as mandated by OJK Regulation No. 51/2017 on sustainable finance [17]. Through the reporting of results disclosed in annual reports, the general public can access and monitor a company's activities in fulfilling its responsibilities regarding environmental impact and efforts to manage waste from its business practices over a specific period [9]. Many companies have not optimized their disclosure of all environmental aspects, resulting in low public and investor confidence in their environmental commitments. This makes the environmental dimension increasingly worthy of study as it is a tangible manifestation of a company's environmental accountability. This disclosure reflects the extent of a company's commitment and responsibility for the ecological impact of its operations [18]. This theory is supported by legitimacy theory, whereby data from green accounting reports provided by business actors or entities enables the surrounding community to assess a company's success in its sustainability efforts. In this way, a business will gain a positive reputation in the community and potentially attract investor interest [12]. This indicator is crucial for maintaining the company's legitimacy and meeting stakeholder expectations. This is reinforced by research [12], [19] which states that environmental dimensions have a positive effect on profitability. Conversely, [20], [21] states that this indicator does not affect profitability. This study will investigate whether the level of environmental disclosure impacts profitability, thereby providing crucial empirical evidence in the context of green accounting discourse. The indicators in this study use environmental disclosure information based on GRI standards.

The next factor that affects profitability is Intellectual Capital (IC). Intellectual Capital refers to the intangible assets owned by a company, comprising knowledge, innovation, systems, and human resources that can generate added value [22]. Intellectual Capital (IC) is a company asset comprising employees, customers, and technology that can be leveraged to generate revenue or achieve other objectives, thereby increasing a company's competitive advantage [23]. The components of intellectual capital consist of the added value of capital employed (VACA), the added value of human capital (VAHU), and the added value of structural capital (STVA). VAIC is the total of VACA, VAHU, and STVA. VACA reflects the extent to which a company can manage resources in the form of capital assets, which, if managed effectively, will increase the company's financial performance. VACA indicates the amount of added value a unit can generate from the capital employed (CE). VAHU covers human capital, which refers to individuals who personally contribute to the company with their capacity, commitment, knowledge, and experience. VAHU describes how much added value can be created by investing in labor. The relationship between added value and human capital shows the potential of human capital to create value within a company. STVA describes an organization's capacity to carry out daily business processes and its structure that supports employees in achieving maximum intellectual performance and overall company performance. STVA shows the role of structural capital (SC) in creating value. STVA measures the amount of structural capital required to generate added value for the company. According to the Resource-Based View (RBV), IC is a valuable, rare, complex to imitate, and irreplaceable strategic resource, so it can become a competitive advantage that increases company profitability [24]. Previous studies have demonstrated a positive relationship between IC and financial performance, as well as its impact on profitability. The high value of intellectual capital reflects the optimization of a company's managerial performance, which has the potential to be the basis for investors' consideration in determining a higher market valuation for the company [25]. Previous research findings show that intellectual capital has a positive effect on return on assets (ROA)[22]. This is because organizations strive to optimize their human resources to improve employee quality, which ultimately increases productivity and, in turn, affects profitability. Meanwhile, other studies suggest that intellectual capital does not have a direct impact on profitability [26]. Intellectual capital in this study is measured using the Value Added Intellectual Coefficient (VAIC) method developed by Pulic (1998). VAIC provides an overview of how efficiently a company manages its human capital, structural capital, and capital employed to increase the company's profitability.

Based on previous research findings, inconsistencies persist regarding the environmental factors that impact company profitability. Therefore, this study focuses on three main dimensions of sustainability practices: green accounting, environmental dimensions, and intellectual capital. All three are considered tangible indicators of a company's commitment to responsible environmental management. Together, these three aspects represent a company's sustainability strategy that not only has a positive impact on the environment but also has the potential to support profitability. Companies

that sustainably conduct their business activities tend to gain stronger social legitimacy, better access to funding, and an improved long-term reputation, all of which contribute to increased profitability.

This study builds upon the research in [5]. In the current study, the researcher added the variable of intellectual capital (IC) as an independent variable. The reason for adding this variable is that it is considered crucial for a company's sustainability. This indicator can significantly affect the level of profitability. The Intellectual Capital indicators in this study can provide a practical overview to companies that invest in intellectual capital (human resources, systems, innovation), not only enhancing their image but also optimizing environmental benefits into profitability. In addition, the objects used in previous studies were financial reports and annual reports of companies listed on the Indonesia Stock Exchange (IDX) from 2017 to 2019. In contrast, this study utilizes financial reports and annual reports of companies listed on the Indonesia Stock Exchange (IDX) from 2020 to 2023. Furthermore, the green accounting measurement indicator used in previous studies was the PROPER score, whereas this study employs environmental cost. This study aims to examine the implications of green accounting on profitability, focusing on mining companies in Indonesia.

Hypothesis Development

The Effect of Green Accounting on Profitability (H1)

Green Accounting can be viewed as a strategic resource for companies. Green Accounting, which includes recording, measuring, and reporting environmental costs, can increase corporate transparency and accountability. The implementation of Green Accounting is also an effort by companies to meet stakeholder expectations regarding environmental responsibility [2]. Stakeholder Theory supports this relationship by stating that companies that meet stakeholder expectations tend to obtain higher social legitimacy and continued support from relevant parties such as investors and regulatory authorities. Thus, companies that implement Green Accounting tend to have better financial performance. This is reinforced by previous research, which states that the better the environmental cost information reported by a company, the easier it will be for management to make more efficient decisions and the better the public perception of the company's social responsibility, which can have an impact on increased market confidence and profitability [27]. Based on these considerations, the hypothesis in this study is formulated as follows:

H1: Green Accounting affects Profitability.

The Effect of Environmental Dimensions on Profitability (H2)

Environmental dimensions are the second variable in this study. Environmental dimensions are a form of transparency in the information provided by companies regarding their efforts, policies, activities, impacts, and ecological performance in annual reports and sustainability reports, which is a good first step. Good environmental information disclosure can increase stakeholder trust because it is considered a form of corporate responsibility and accountability for environmental issues [9]. Legitimacy Theory supports this relationship; companies need to demonstrate that their operations

align with prevailing social values and expectations. Previous research perspectives suggest that adequate environmental disclosure enables companies to establish a positive image, enhance their legitimacy, and secure long-term support from the public and stakeholders, ultimately leading to improved financial performance, including profitability[28]. Hypotheses can be formulated based on the above explanation as follows:

H2: Environmental dimension affects Profitability.

The Influence of Intellectual Capital on Profitability (H3)

The mining industry not only depends on natural resources, but is also greatly influenced by the quality of human resources.. Optimizing intellectual capital management in this case can create a sustainable competitive advantage for organizations [29] Through the application of Intellectual Capital, companies that are aware of the importance of creating value in managing the environment using intellectual capital (IC) strive to transform it into a business strategy that increases efficiency, reputation, and ultimately profitability [30]. This is reinforced by the Resource-Based View (RBV) theory, which posits that an IC that is valuable, rare, difficult to imitate, and irreplaceable becomes a source of competitive advantage, thereby increasing company profitability. Previous research has found that Intellectual Capital (VAIC) affects profitability [31]. This shows that the higher the IC, the greater its contribution to the company's financial performance, thereby increasing profitability. The hypothesis in this study is stated as follows:

H3: Intellectual Capital affects Profitability

Conceptual Framework

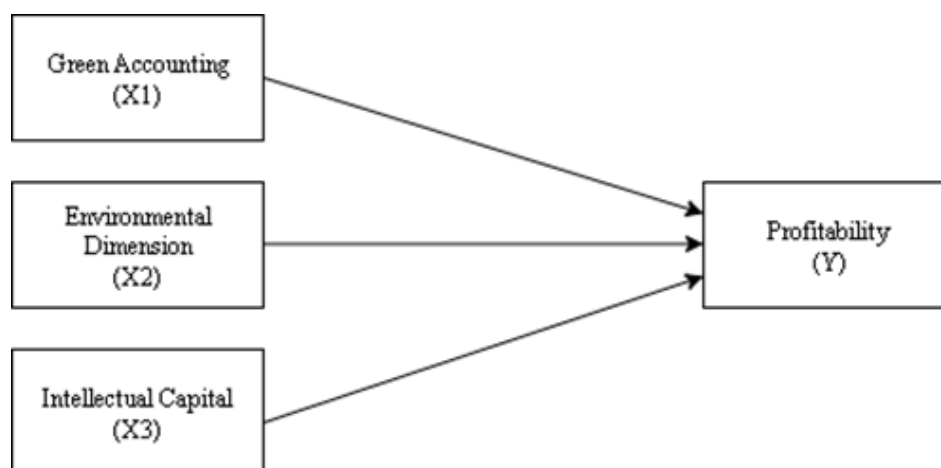


Figure 1. Conceptual Framework.

RESEARCH METHOD

Type, Data Sources, and Research Objects

The type of research used is a quantitative method. This is a research method that uses many numbers. The kind of data used in this study is secondary data in the form of annual reports and sustainability reports of companies listed on the Indonesia Stock Exchange (IDX) obtained through the website (www.idx.co.id).

Population and Sample

The population and sample of this study are mining and manufacturing companies listed on the Indonesia Stock Exchange (IDX) during the 2021-2023 period. The population used in this study consisted of 59 mining companies engaged in steel, gold, oil, tin, and similar mining activities listed in 2021-2023. The sample selection method employed was purposive sampling, a method of sampling based on specific considerations and criteria, which was tailored to address the study's issues and objectives. Several criteria used in sample selection are as follows:

Table 1. Sample Criteria.

Research Sample Criteria	Total
Population Mining companies listed on the Indonesia Stock Exchange (IDX) in 2021-2023	59
Mining companies that did not publish annual reports and sustainability reports consecutively in 2021-2023	34
Mining companies that did not report environmental costs consecutively from 2021 to 2023	5
Research Sample	20
Observation Period	X3
Number of Observation Data	60
Abnormal Data	16
Total of samples	44

Source: Determined by a researcher

Table 2. Operational Variables.

Variabel	Definition	Indicator	Scale
Green Accounting (X1)	An accounting approach that integrates environmental costs into a company's financial statements as a form of environmental responsibility [32].	Environmental Cost $\frac{\text{costs}}{\text{profit}}$ [4]	Ratio
Environmental Disclosure Dimension (X2)	The degree of transparency of companies in disclosing information related to performance and	$EDI_{it} = \frac{\sum X_{it}}{N_i}$ Description: EDI_{it} : Environmental Disclosure Index company i in year t	Ratio

	environmental impact [33]	ΣX_{it} : dummy variable, 1 = indicator disclosed ; 0 = not disclosed N_i : total number of environmental indicators for company i , $N_i \leq 30$ [33]	
Intellectual Capital (X3)	Intangible assets of a company that include knowledge, skills, innovation, systems, and relationships that can create added value and improve financial performance. Measured using the Value Added Intellectual Coefficient (VAIC) method [34]	1. VACA (Value Added Capital Employed) $\frac{VA}{CA}$ Description: VA : Value Added CA : Capital Employe Calculating VA VA = OUT-IN Description : OUT : Revenue IN : Total expenses, excluding employee expenses Calculating CA CA = Total Assets-Current Liabilities 2. VAHU (Value Added Human Capital) $\frac{VA}{HC}$ Description : HC : Employee Expenses 3. STVA (Structural Capital Value Added) $\frac{SC}{VA}$ Description : SC : Structural Capital Calculating SC SC = VA-HC 4. VAIC = VACA + VAHU + STVA [25]	Ratio
Profitability (Y)	The company's ability to generate profits from its assets [35]	$ROA = \frac{\text{Profit}}{\text{Total Assets}} \times 100\%$ [36]	Ratio

Data Analysis Techniques

This study applies an analysis method designed to test previously established hypotheses. The analysis technique employed is multiple linear regression, supported by Statistical Package for the Social Sciences (SPSS) software version 25. The analysis model used can be described as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Explanation:

Y = Profitability

X1 = Green Accounting

X2 = Environmental Dimension

X3 = Intellectual Capital

α = Constant

$\beta_1, \beta_2, \beta_3$ = Regression coefficients

ε = Error term

T-test

The T-test is used to determine the partial effect of each independent variable on the dependent variable and to assess its significance in the research model.

RESULTS AND DISCUSSION

Results

Descriptive Statistics Test

Table 3. Descriptive Statistics Profitability(Y).

	N	Minimum	Maximum	Mean	Std. Deviation
Ln_Green Accounting(X1)	60	-11.55	4.10	-3.5223	3.90034
Ln_Dimensi Lingkungan (X2)	60	-.22	.00	-.0324	.06471
Ln_Intellectual Capital (X3)	53	-2.03	9.94	1.9085	1.62251
Ln_Profitabilitas (Y)	60	-6.78	-.03	-2.2806	1.26040
Valid N (listwise)	44				

Source: Output SPSS

Based on the descriptive analysis results in Table 3, the initial sample size for the study consisted of 60 companies. However, after natural logarithm transformation and outlier removal, the complete data that could be used for all research variables were 44 observations. Profitability (Y), measured using Return on Assets (ROA), consisted of 60 data points with a minimum value of -6.78 and a maximum value of -0.03, yielding a mean value of -2.2806 and a standard deviation of 1.26040. The Green Accounting variable (X1), measured by Environmental Costs, has a sample size of 60, with a minimum value of -11.55, a maximum value of 4.10, a mean of -3.5223, and a standard deviation of 3.90034. For the Environmental Dimension (X2), there are 60 data points with the data results

showing a minimum value of -0.22 and a maximum of 0.00. The average is -0.0324, and the standard deviation is 0.06471. Meanwhile, Intellectual Capital (X3) has 53 data points, with a minimum value of -2.03 and a maximum value of 9.94. Intellectual Capital has a mean of 1.9085 with a standard deviation of 1.62251.

Normality Test

Table 4. Normal Probability Plot Test Profitability (Y).
One-Sample Kolmogorov-Smirnov Test.

		Unstandardized Residual
N		44
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	.90823469
Most Extreme Differences	Abosulte	.080
	Positive	.065
	Negative	-.080
Test Statistic		.080
Asymp. Sig. (2-tailed)		.200

Normality testing was conducted to determine whether the residuals in the regression model were normally distributed. The normality test in this study used the Kolmogorov-Smirnov (K-S) test. Based on the test results, the Asymp. Sig value was > 0.05. Based on Table 4 of the Normality Test results, the significance value was 0.200, which is greater than 0.05. Thus, it can be concluded that the residual data is usually distributed.

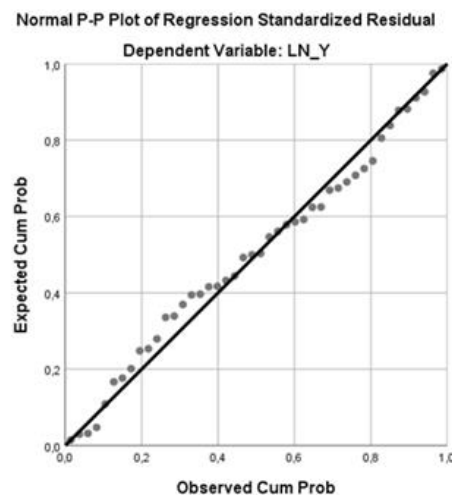


Figure 2. Normal Probability Plot Test Profitability (Y).

According to the Normal P-P Plot graph above, normality testing can be explained as follows [37]:

- If the data points are scattered around the diagonal line and follow the pattern of that line, then the residuals are considered to be normally distributed. This indicates that the regression model has met the normality assumption of normality.

- b. If the data points are scattered far from the diagonal line and do not follow its direction, then the residuals are not normally distributed, so the regression model does not meet the normality assumption.

Based on the results of the Normality Test graph in Figure 1, it can be seen that the Profitability (Y) variable data is scattered around the diagonal line and follows the direction of the line. This indicates that the residuals from the regression model are typically distributed, thereby satisfying the normality assumption..

Heteroscedasticity Test

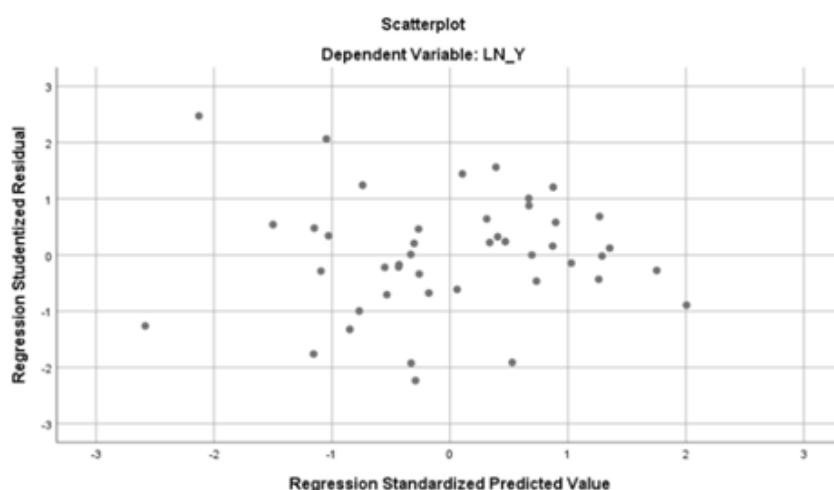


Figure 3. Heteroscedasticity Test Profitability (Y).

The heteroscedasticity test in this study was conducted using a scatterplot graph to observe the distribution pattern of the residuals. If the points on the scatterplot are not evenly distributed and instead form a specific pattern, this indicates the presence of heteroscedasticity. Conversely, if the points are scattered randomly and thoroughly above and below the zero axis without creating a particular pattern, then the regression model can be declared free of heteroscedasticity [35]. Based on this explanation, Figure 3 can be used as a guide. The results of the heteroscedasticity test indicate that the scatterplot is spread evenly and does not form a discernible pattern, suggesting that heteroscedasticity is not present in this study.

Multicollinearity Test

Table 5. Multicollinearity Test.

Coefficients ^a		Collinearity Statistics	
Model		Tolerance	VIF
1	Ln_Green Accounting (X1)	.947	1.056
	Ln_Dimensi Lingkungan (X2)	1.000	1.000
	Ln_Intellectual Capital (X3)	.947	1.056

a. Dependent Variable : Profitabilitas

Source: Output SPSS

The multicollinearity test results show that the Green Accounting variable (X1) has a VIF value of 1.056 with a tolerance value of 0.947. The Environmental Dimension (X2) has a value of 1.000 with a tolerance value of 1.000, and Intellectual Capital (X3) has a VIF value of 1.056 with a tolerance value of 0.947, which means that all independent variable values are < 10 . Therefore, it can be concluded that there is no correlation between independent variables in the regression model, thus, the regression model used in this study is free from multicollinearity.

Autocorrelation Test

The autocorrelation test is performed as part of the classical assumptions. The purpose of the autocorrelation test is to check whether the residuals in period t are correlated with the residuals in period $t-1$. The test is performed using Durbin-Watson, then compared with the applicable criteria to determine the presence or absence of autocorrelation [29]:

- A DW value below -2 indicates positive autocorrelation.
- A DW value between -2 and +2 indicates no autocorrelation.
- A DW value above +2 indicates negative autocorrelation.

The following are the results of the autocorrelation test:

Table 6. Autocorrelation Test Profitability (Y).

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.543 ^a	.294	.241	.94168	1.361
a. Predictors : (Costant), Intellectual Capital (X3), Dimensi Lingkungan (X2), Green Accounting (X1)					
b. Dependent Variable: Profitabilitas (Y)					

Source: Output SPSS

According to the test results in Table 6, the Durbin-Watson value is 1.361. Based on these results, it can be concluded that there is no autocorrelation, as the Durbin-Watson value falls within the specified criteria of -2 to +2 [29].

Determination Coefficient Test

The Determination Coefficient Test is used to see the value of the influence between dependent and independent variables, which is indicated by the adjusted R-square presented in the research in the table below:

Table 7. Profitability Determination Coefficient Value (Y).

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.543 ^a	.294	.241	.94168	1.361

- a. Predictors : (Costant), Intellectual Capital (X3), Dimensi Lingkungan (X2), Green Accounting (X1)
- b. Dependent Variable: Profitabilitas (Y)

Source: Output SPSS

Based on the regression analysis results in Table 7, the R-Squared value obtained was 0.294 with an Adjusted R-Squared of 0.241. This means that the independent variables consisting of Green Accounting (X1), Environmental Dimension (X2), and Intellectual Capital (X3) have an effect of 24.1% on the dependent variable Profitability (Y), while the remaining 75.9% is explained by other factors not included in this research model.

Hypothesis Testing (T-test)

The T-test was conducted to determine whether there was a partial influence between the independent variables and the dependent variables. The results of the t-test calculations are shown in the table below.

Table 8. Hypothesis Testing (T-Test) of Profitability (Y).
Coefficients a

Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Cosntant)	-2.989	.312		-9.571	.000
	Ln_Green Accounting (X1)	-.045	.037	-.164	-1.201	.237
	Ln_Dimensi Lingkungan (X2)	5.113	2.886	.235	1.772	.084
	Ln_Intellectual Capital (X3)	.423	.137	.420	3.076	.004
a. Dependent Variable : Profitability						

Source: Output SPSS

The t-test results from Table 8 show that the significance value for Intellectual Capital (X3) is $0.004 < 0.05$, indicating that this variable has a positive and significant effect on Profitability (Y), while the significance value for Green Accounting (X1) is 0.237 (> 0.05). The Environmental Dimension (X2) is 0.084 (> 0.05), indicating that these variables do not significantly affect Profitability (Y).

Multiple Linear Regression Test

$$P = -2.989 - 0.045 \text{ GA} + 5.113 \text{ DL} + 0.423 \text{ IC}$$

Based on the t-test results in Table 8, the Green Accounting variable (X1) has a negative regression coefficient of -0.045, with a t-value of -1.201 and a p-value of 0.237, indicating that it has no significant effect on Profitability. The Environmental Dimension variable (X2) exhibits a positive regression coefficient of 5.113, with a t-value of 1.772 and a significance level of 0.084. These results indicate that Environmental Dimension does not have a significant effect on Profitability. Meanwhile, the Intellectual Capital variable (X3) has a positive regression coefficient of 0.423 with a t-value of 3.076 and a significance of 0.004, indicating that Intellectual Capital has a significant positive effect on Profitability. Thus, of the three independent variables tested, only Intellectual Capital (X3) has a strongly significant effect on Profitability, while Environmental Dimension (X2) and Green Accounting (X1) do not have a substantial impact on Profitability.

Discussion

The Effect of Green Accounting on Profitability

Based on the t-test results in Table 8, it can be seen that the GA variable, measured using environmental costs, shows a significance value of 0.237. Since this value is greater than 0.05, it does not have a significant effect on Profitability (ROA). The regression coefficient value of -0.045 also shows a negative relationship, so hypothesis 1 (H1), which states that Green Accounting affects Profitability (ROA), is rejected. Based on Stakeholder Theory, a company's success is not only measured by profitability but also by its ability to meet the expectations of its stakeholders. The implementation of Green Accounting in the sample companies still tends to be administrative or limited to compliance. As a result, it has not been able to provide direct economic benefits. The application of green accounting and environmental costs has not been a factor in increasing company profitability, as ecological costs are often considered expenses that merely add to the burden of expenses without any effect on expanding the company's profits or profitability. This is in line with research findings that companies report green accounting and environmental costs as a form of responsibility to stakeholders, but cannot yet provide direct financial benefits [38][39] [40]. This confirms that green accounting practices in Indonesia are primarily aimed at fulfilling social legitimacy and regulatory requirements, rather than serving as a key strategy for increasing profitability. However, this differs from research findings, which indicate that green accounting has a positive impact on profitability [5], [41], [42].

The Effect of Environmental Dimensions on Profitability

Based on Table 8, the Environmental Dimensions variable (X2) shows a significance value of 0.084 with a positive regression coefficient value of 5.113. This means that Environmental Dimensions do not affect Profitability (ROA). It can be concluded that hypothesis 3 (H3) is rejected. The disclosure of environmental dimension information by mining companies in Indonesia has not had a direct impact on increasing profitability. This result can be explained through Legitimacy Theory, which posits that companies strive to gain legitimacy from the community through activities that align with social values and norms, including environmental management. The better a company is at

managing ecological aspects, the greater the opportunity it has to gain public legitimacy, which ultimately supports its financial performance. However, because the application of environmental dimensions in the sample companies is still limited, their effect on profitability is not yet strong, as the information provided tends to be voluntary disclosure. These findings are in line with previous studies, which state that environmental concerns can improve public image and trust, although they do not have a direct impact on profitability [17], [20], [43]. This contrasts with research findings, which state that environmental dimensions do affect profitability [9], [12].

The Effect of Intellectual Capital on Profitability

Based on Table 8, the Intellectual Capital variable (X3) has a significance value of 0.004 (< 0.05) with a positive regression coefficient of 0.423. These results indicate that Intellectual Capital has a positive and significant effect on Profitability (ROA). Thus, hypothesis 3 (H3), which states that Intellectual Capital affects Profitability, can be accepted. This indicates that the more effectively mining companies manage their intellectual capital, the greater their ability to generate profits. This finding aligns with the Resource-Based View (RBV) framework, which emphasizes that unique and difficult-to-imitate resources, such as knowledge, employee skills, and innovation, are crucial to creating a sustainable competitive advantage. Intellectual Capital, which comprises human capital, structural capital, and capital employed, has been proven to enhance innovation and company productivity. The application of human capital, in the form of skilled labor, in fields such as mining engineering, geology, and environmental management, as well as structural capital, including exploration technology and safety management systems, will increase production efficiency and reduce operational costs. Intellectual capital, as an intangible asset, has been proven to make a significant contribution to improving the efficiency, productivity, and competitiveness of companies, thereby having a direct impact on profitability. The results of this study are in line with previous studies showing that intellectual capital has a positive effect on company profitability [22], [23], [44], [45]. Other studies have found different results, stating that intellectual capital does not affect profitability [25], [46].

CONCLUSION

Fundamental Finding : Based on the results of data analysis and discussion, it can be concluded that the Green Accounting variable, measured by environmental costs, does not affect Profitability (ROA) in Indonesian mining companies for the period 2021–2023. The recording and reporting of ecological costs are primarily used as a form of administrative compliance and, therefore, have not had a direct impact on increasing profitability. The Environmental Dimension does not affect Profitability in Indonesian mining companies for the period 2021–2023. Although companies have disclosed environmental information, the nature of this disclosure is still voluntary, limited, and tends only to present positive information, which is not yet fully considered relevant by investors as a basis for decision-making, so it does not have a direct effect on profitability. Unlike the two variables above, Intellectual Capital has a positive impact on Profitability.

The better a company is at managing its intellectual capital, comprising human capital, structural capital, and capital employed, the greater its ability to create efficiency, innovation, and added value that contribute to increased profitability. **Implication :** The findings imply that environmental-related practices, whether in the form of Green Accounting or Environmental Dimension disclosures, have not yet been integrated effectively into strategic financial decision-making in Indonesian mining companies, thereby limiting their influence on profitability. In contrast, the significant role of Intellectual Capital highlights the necessity for companies to prioritize the development and optimization of human resources, organizational systems, and capital utilization to improve profitability outcomes. **Limitation :** This study has several limitations that may affect the results. Firstly, the research period data analyzed only cover three years (2021–2023), so the results cannot yet describe long-term conditions. The sample size is limited to 20 mining companies listed on the IDX because several companies do not present complete annual reports and sustainability reports. With a total of 44 observations after LN transformation and outlier removal, the results of this study may not be representative of all companies listed on the Indonesia Stock Exchange. **Future Research :** The researcher suggests that future research should expand by adding other factors that can indicate the effect of profitability on a company. Future research should include a broader sample, encompassing multiple company sectors, with a more extended observation period. This will provide a deeper understanding of the factors that affect company profitability.

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