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THE EFFECT OF GREEN ACCOUNTING, COMPANY SIZE, AND LEVERAGE ON FINANCIAL PERFORMANCE IN MINING COMPANIES LISTED ON THE INDONESIAN STOCK EXCHANGE FROM 2021-2024

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ABSTRACT

This study aims to examine the effect of green accounting, company size, and leverage on financial performance in mining companies listed on the Indonesia Stock Exchange (IDX) from 2021 to 2024. This study is quantitative in nature. Green accounting is measured using environmental costs, company size is measured using firm size, leverage is measured using debt-to-asset ratio (DAR), and financial performance is measured using return on assets (ROA). The sampling technique used is purposive sampling with a total of 27 mining companies for the period 2021-2024. The data analysis technique uses panel data regression. The results of this study conclude that green accounting, company size, and leverage, both partially and simultaneously, do not have a significant effect on the financial performance of mining companies listed on the IDX for the period 2021-2024. Partially, all variables have a probability value above 0.05. Meanwhile, simultaneously, the Prob(F-statistic) value of 0.284242 (> 0.05) indicates that the three variables together are also unable to explain the variation in financial performance, which is supported by a low R-squared value (0.0356).

Keywords: Green Accounting¹, Firm Size², Leverage³, Financial Performance⁴.

INTRODUCTION

In this era of globalization and increasing awareness of environmental and sustainability issues, business practices are not only required to generate economic profits, but also to pay attention to the social and environmental impacts of their operational activities. Particularly in the mining sector, companies face enormous pressure related to environmental sustainability because their operations are prone to causing land degradation, water and air pollution, and potential social conflicts. In recent years, the issue of sustainability has become a major concern for the global business world as awareness of social and environmental responsibility has increased. Companies no longer focus solely on achieving economic profits, but are also required to operate in a manner that is responsible towards the environment and society. This paradigm is particularly relevant to the mining sector, which has a high potential for environmental damage such as land degradation, water pollution, and air pollution. Therefore, the application of sustainability principles in financial management and reporting is an important strategy for maintaining the legitimacy and public trust of mining companies in Indonesia.

One approach used to realize environmental responsibility is the implementation of green accounting. Green accounting is an accounting system that integrates environmental costs and benefits into a company's financial statements, so that activities that impact the environment can be measured and reported transparently. *The Accountable Journal* found that the implementation of green accounting has a positive effect on the profitability of mining companies listed on the Indonesia Stock Exchange Efek Indonesia (BEI) because improving resource efficiency and strengthening the company's image in the eyes of investors. However, different results were presented by [1] in *the Owner Journal*, which stated that green accounting had not had a significant effect on the financial performance of mining companies in Indonesia in the 2018–2022 period. These differing results indicate that the relationship between green accounting and financial performance is still inconsistent, requiring further research. One such mechanism is the implementation of Green Accounting, which is the integration of environmental factors into the accounting and financial reporting systems. According to [2] in *the Owner Journal*, which stated that green accounting had not had a significant effect on the financial performance of mining companies in Indonesia in the 2018–2022 period.

These differing results indicate that the relationship between green accounting and financial performance is still inconsistent, requiring further research. One such mechanism is the implementation of Green Accounting, which is the integration of environmental factors into the accounting and financial reporting systems. According to [3] company size has a negative impact on financial performance in the context of green accounting and financial performance, indicating the need for further research in the mining sector. Company size is also an important aspect that can affect sustainable financial performance. Larger companies generally have stronger financial and managerial resources to implement sustainability policies and receive greater attention from the public and regulators. Mabruroh and Saiful Anwar (2024) in *the Journal of Costing* state that company size has a positive effect on financial performance because large companies are better able to allocate resources for social responsibility and environmental management. Conversely, [4] in *the Journal of Dynamics* found that company size does not always have a significant effect on financial performance in the manufacturing sector, so this relationship still needs to be tested further in the context of the mining sector.

The leverage factor also plays an important role in determining sustainable financial performance. Leverage reflects the extent to which a company uses borrowed funds to finance its operational activities. A high level of leverage can increase financial risk due to large interest expenses, but it can also be a source of strategic funding for environmentally friendly investments if managed effectively. [5] in *the Diponegoro University Accounting Journal* found that capital structure (leverage) has a significant effect on financial performance and strengthens the effectiveness of green accounting implementation in energy and mining companies. Similar results were reported by [6] in *the Journal of Accounting and Finance Perspectives (JAKP)* shows that leverage can increase a company's profitability when balanced with good corporate governance practices and compliance with environmental aspects.

The concept of sustainable financial performance emphasizes a company's ability to generate profits sustainably by considering the balance between economic, social, and environmental aspects. In the context of mining companies in Indonesia, this concept is increasingly important as investors pay more attention to Environmental, Social, and Governance (ESG) factors. Research [7] in *The Indonesian Journal of Technology, Management, and Policy (TPM)* shows that green accounting and ESG disclosure have a positive effect on financial performance, and that Good Corporate Governance (GCG) can strengthen this relationship (tpmajournal.id). This shows that

sustainable practices and good governance can strengthen a company's competitiveness and long-term value.

Although a number of studies have examined the influence of green accounting, company size, and leverage on financial performance, most still focus on the manufacturing sector and use periods prior to 2020. In fact, since the COVID-19 pandemic, attention to sustainability and environmental responsibility has increased significantly from both investors and regulators. Furthermore, many previous studies only measured conventional financial performance (such as ROA, ROE, and profitability), rather than sustainable financial performance that integrates economic, social, and environmental aspects.

Based on this background, this study aims to analyze the effect of green accounting, company size, and leverage on the sustainable financial performance of mining companies listed on the IDX for the period 2020–2024. The results of this study are expected to contribute theoretically to the development of sustainable accounting science in Indonesia and provide practical implications for company management, investors, and policymakers in promoting responsible and sustainable business practices in the mining sector.

METHOD

1. Theory Legitimasi

Legitimacy Theory is one of the important theories in the field of environmental social accounting that explains the relationship between companies and society. This theory emphasizes the need for businesses to ensure that their operations are in line with social norms. This theory is based on the belief that businesses will continue to exist if their values are in line with the values of society at large [8]. According to [9] Legitimacy Theory states that a company must continuously convince society that its activities are in accordance with the values and norms that apply in the social environment in which the company operates.

Legitimacy theory can explain the relationship between company size and the level of environmental disclosure. Large companies have greater public exposure and are under higher social pressure than small companies. Therefore, they are more inclined to implement green accounting and report on environmental activities as a form of social responsibility. In addition, companies with high leverage also seek to maintain legitimacy in the eyes of creditors and investors through adequate environmental information transparency [10].

Thus, legitimacy theory provides a strong conceptual basis for understanding corporate behavior in maintaining long-term sustainability through the implementation of green accounting, environmental disclosure, and sustainability-oriented social responsibility practices.

2. Theory Stakholder

Stakeholder Theory was introduced by Freeman (1984) [11], who stated that companies are not only responsible to shareholders, but also to all parties who have an interest in the company's activities, such as the community, government, employees, customers, and the environment. Stakeholder theory provides a conceptual basis for understanding that the application of green accounting, company size, and leverage are managerial strategies to respond to stakeholder expectations in order to improve sustainable financial performance.

3. Financial Performance

Performance can be a measure of a company's ability to manage and allocate all of its resources. Companies must continue to improve the quality and performance of the company in order to achieve their goals. The financial performance used in this study is profitability, which will be measured by return on equity [12]. Companies that are able to generate solid financial performance while maintaining environmental social responsibility will have a competitive advantage and receive legitimacy from stakeholders.

measured using the formula:

$$\text{Return On Assets (ROA)} = \frac{\text{Earnings After Tax}}{\text{Total Assets}}$$

4. Green Accounting

Green Accounting is a method of recording that incorporates environmental aspects into financial reports [6]. According to [13], green accounting refers to corporate practices that take environmental aspects into account in the accounting process, measuring environmental costs and benefits in the accounting process accounting, measuring environmental costs and benefits, and reporting. Green accounting can be positioned as a mechanism for companies to meet stakeholder expectations and gain social legitimacy through environmental disclosure, which can ultimately affect sustainable financial performance. It is measured using the following formula:

$$\text{Green Accounting: } \frac{\text{CSR Cost}}{\text{Profit after tax}}$$

5. Ukuran Perusahaan

Firm size is a measure of the total assets of a company or organization that combines and organizes various resources with the aim of producing goods or services for sale[14]. Firm size is divided into three categories, namely large firms, medium-sized firms, and small firms. Large firms receive more attention because they are subject to closer scrutiny from the public and government Firm size can be seen from the total assets owned. Large firms have stronger stakeholder pressure, wider public exposure, and greater resource capacity to implement sustainability practices, so their influence on green accounting or leverage may differ from that of small firms.

measured using the formula: $\text{LN} (\text{Total Assets})$

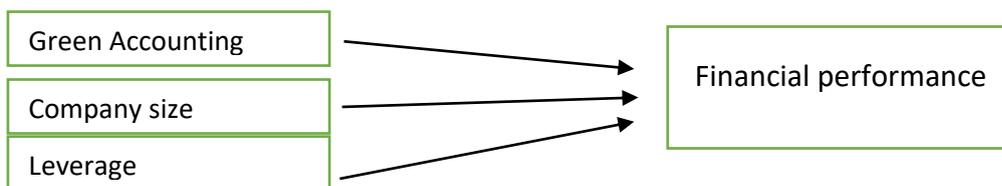
6. Leverage

Leverage measures the extent to which debt is used in a company's capital structure. High leverage can increase financial risk and pressure from creditors or investors [15]. Leverage shows how much equity is available to secure debt. Debt here includes current debt and long-term debt. Companies with low leverage ratios have a lower risk of loss when economic conditions are declining, but also have lower returns when economic conditions improve.

Conversely, companies with high leverage ratios will have a greater risk of loss, but also have the opportunity to earn high profits [16]. Leverage is the use of high debt, which creates expectations from creditors and investors that the company will be responsible and transparent (including in environmental aspects), thereby influencing the application of green accounting and sustainable financial performance.

Measured using the formula: $Debt\ to\ asset\ ratio\ (DAR) = \frac{Total\ Debt}{Total\ Assets}$

METODE RISET



The Effect of Green Accounting on Financial Performance

Green accounting or environmental accounting is the process of recording, measuring, and disclosing costs incurred as a result of a company's activities on the environment, such as pollution prevention costs, reclamation costs, and waste management costs [8]. By managing environmental costs properly, companies can improve their environmental performance. Environmental performance that

This will enhance the company's reputation and stakeholder trust. Thus, the more companies implement green accounting, as reflected in the amount of disclosure related to environmental accounting, the more it will spur improvements in the company's environmental performance, which in turn will have a positive impact on the company's financial performance [17]. This is also in line with the legitimacy theory, which states that a company must continuously convince the public that its activities are in accordance with the values and norms that apply in the social environment where the company operates. It is also in line with stakeholder theory, which states that a company is not an entity that only operates for its own interests but must also provide benefits to its stakeholders [9]. This is also evidenced by research conducted [8] that green accounting has a positive and significant effect on a company's financial performance.

H1: Green accounting affects company financial performance

The Effect of Company Size on Financial Performance

Company size reflects the scale of a company, which is usually proxied by total assets. Large companies have greater resources, stronger financing capabilities, and better managerial experience. Based on Stakeholder Theory, large companies face higher external pressure because their activities have a broad impact. Meanwhile, Legitimacy Theory states that large companies are more vulnerable to legitimacy demands because they are under greater public scrutiny. Large companies maintain legitimacy by improving operational

efficiency and profitability in order to maintain their reputation and public trust. This is in line with research conducted by [8] which states that company size has a significant positive effect on financial performance. Research from [6] also states that company size has a positive effect on company size.

H2: Company size affects financial performance

The Effect of Leverage on Financial Performance

Leverage is the amount of debt used to finance the Company's assets. Leverage is used in this case in relation to the relationship between the company and creditors as third parties providing funds for company activities. Companies with higher debt have greater demands from creditors to disclose information. Operational financing from debt results in reduced tax payments due to debt interest costs. The Company will maximize the use of debt in its debt management so as not to cause the Company to go bankrupt. If the company succeeds in good debt management, high leverage will attract investors to channel their funds, causing demand for the company's shares to soar and affecting the company's value and financial performance [18]. This is in line with research [16] which states that leverage has a negative effect on financial performance.

H3: Leverage has a negative effect on financial performance

RESEARCH METHOD

This study uses quantitative data with a purposive sampling method. The population used is mining company data listed on the Indonesia Stock Exchange from 2021 to 2024. Quantitative data is a type of data that can be measured or calculated directly in the form of information or explanations expressed in numbers or figures, while the purposive sampling method is a method of selecting criteria based on predetermined criteria. The predetermined criteria are as follows:

1. Mining companies listed on the Indonesia Stock Exchange from 2021 to 2024.
2. Mining companies whose annual reports are accessible through both the IDX and the company' official website for 2021-2024
3. Companies that generated profits consecutively during 2021-2024

4. Mining companies that have the complete data components required for this study. Based on the criteria established by the researcher, the companies that meet the above criteria are:

ABM Investama Tbk, Alamatri Resources Indonesia Tbk, Atlas Resources Tbk, Baramulti Suksessarana Tbk, Bumi Resources Tbk, Bayan Resources Tbk, Dian Swastatika Sentosa Tbk, Energi Mega Persada Tbk, Golden Energy Mines Tbk, Harum Energy Tbk, MNC Energy Investments Tbk, Indika Energy Tbk, Sumber Energy Andalan Tbk, Indo Tmabangraya Megah Tbk, Resource Alam Indonesia Tbk, Mitrabara Adiperdana Tbk Medco Energi Internasional Tbk, Samindo Resource Tbk, Bukit Asam Tbk, Petrosea Tbk, Golden Eagle Energy Tbk, TBS Energi Utama Tbk, Dwi Guna Laksana Tbk, Sumber Global Energy Tbk, Prima Andalan Mandiri Tbk, RMK Energy Tbk, Alamtri Minerals Indonesia Tbk.

RESULTS AND DISCUSSION

Results

This study aims to examine and analyze the effect of Green Accounting, company size, and Leverage on the financial performance of mining companies listed on the Indonesia Stock Exchange from 2021 to 2024.

Panel data is a combination of time series and cross-section data that has been formulated.

Chow Test

Redundant Fixed Effects Tests

Equation: Untitled

Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	9.042920	(26,78)	0.0000
Cross-section Chi-square	150.105380	26	0.0000

Tabel 1. Chow Test Result

Source: Processed secondary data, 2024

Based on the results in Table 1, the Chi-square P-value is 0.0000, indicating a probability of less than 5%/0.05. Therefore, the appropriate model to use is FEM. The next step is to perform the Hausman Test, which is used to distinguish between FEM and REM.

Hausman Test

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.587264	3	0.8993

Source: Processed secondary data, 2024

Based on the results in Table 2, the Hausman test shows a P value >0.05, indicating that the selected model is REM.

LM Test

Lagrange Multiplier Tests for Random Effects

Null hypotheses: No effects

Alternative hypotheses: Two-sided (Breusch-Pagan) and one-sided (all others) alternatives

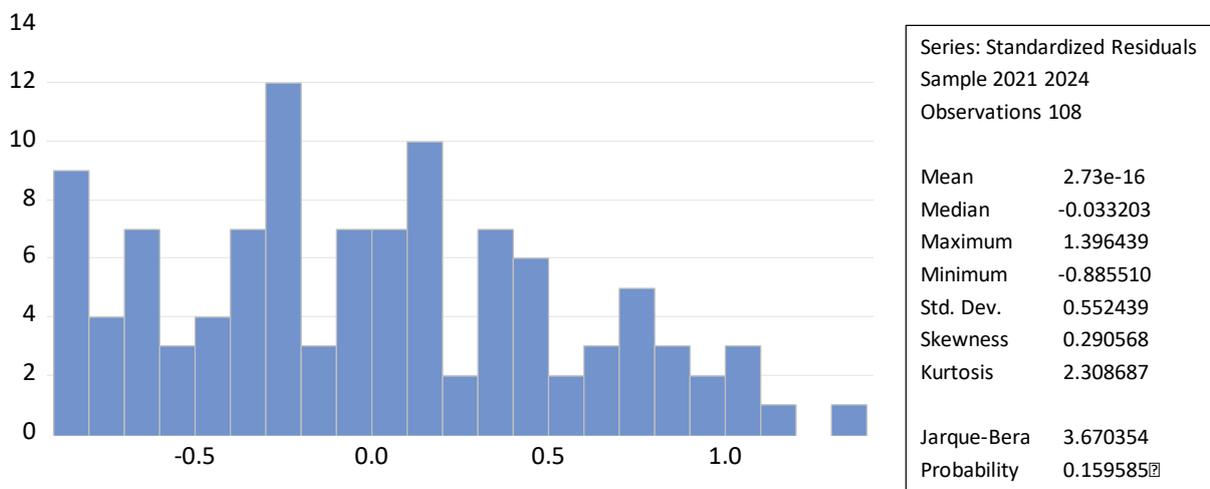
	Test Hypothesis		
	Cross-section	Time	Both
Breusch-Pagan	71.06569 (0.0000)	7.283791 (0.0070)	78.34948 (0.0000)

Table 3. LM Test

Source: Processed secondary data, 2024

The LM test shows a P value > 0.05, so it is concluded that the REM model is the model selected for the best results in this study.

Normality Test



The Jarque-Bere probability value of 0.159585 (>) is greater than 0.05, meaning that the data is normally distributed or the normality test has been satisfied.

Hypothesis Test

Dependent Variable: Y

Method: Panel EGLS (Cross-section random effects)

Date: 11/15/25 Time: 20:12

Sample: 2021 2024

Periods included: 4

Cross-sections included: 27

Total panel (balanced) observations: 108

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	29.61782	10.18154	2.908974	0.0044
X1	6.36E-05	4.45E-05	1.429467	0.1559
X2	-0.002285	0.003568	-0.640267	0.5234
X3	0.006087	0.005438	1.119374	0.2656

Effects Specification		S.D.	Rho
Cross-section random		13.31005	0.6959
Idiosyncratic random		8.799053	0.3041

Weighted Statistics			
R-squared	0.035683	Mean dependent var	8.107505
Adjusted R-squared	0.007867	S.D. dependent var	8.730796
S.E. of regression	8.696388	Sum squared resid	7865.224
F-statistic	1.282798	Durbin-Watson stat	1.632593
Prob(F-statistic)	0.284242		

Unweighted Statistics			
R-squared	0.023015	Mean dependent var	25.83315
Sum squared resid	24455.39	Durbin-Watson stat	0.525067

Table 4. Hypothesis Testing

a. First hypothesis test (X1)

The first independent variable, green accounting, has a probability value of 0.1559 (> 0.05), so H1 is rejected because it does not have a significant effect on financial performance. This shows that the environmental activities of mining companies are more about fulfilling obligations than strategies to increase profitability. In Stakeholder and Legitimacy Theory, environmental disclosure should increase stakeholder trust and social legitimacy, but in practice it is not yet strong enough to have a measurable economic impact.

b. Testing the second hypothesis (X2)

The second independent variable, company size, obtained a probability value of 0.5234 (> 0.05), so H2 was rejected because it did not have a significant effect on financial performance. This finding indicates that company size does not determine profitability, because the performance of the mining sector is more influenced by operational factors and market conditions. In Stakeholder and Legitimacy Theory, large companies should have higher public pressure and expectations, but this is not reflected in improved financial performance.

c. Testing of the third hypothesis (X3)

The third independent variable, leverage, shows a probability value of 0.2656 (> 0.05), so H3 is rejected because it does not have a significant effect on financial performance. This means that the level of debt does not have a direct impact on profitability, because debt management efficiency varies between companies. Based on Stakeholder Theory and Legitimacy, creditor pressure and the need to maintain reputation should trigger improved performance, but the results are not apparent in the context of mining companies.

CONCLUSION

Based on the results of testing using the Random Effect Model, this study concludes that green accounting, company size, and leverage, both partially and simultaneously, do not have a significant effect on the financial performance of mining companies listed on the IDX for the period 2021–2024. Partially, all variables have probability values above 0.05. Green accounting (0.1559), company size (0.5234), and leverage (0.2656) are rejected, thus all research hypotheses are rejected. Meanwhile, simultaneously, the Prob(F-statistic) value of 0.284242 (> 0.05) indicates that the three variables together are also unable to explain the variation in financial performance, which is supported by a low R-squared value (0.0356). These findings indicate that environmental practices, company size, and funding structure are not yet factors that influence profitability in the mining sector, as company performance is more determined by external factors such as operational costs, production efficiency, and commodity price fluctuations. Thus, these research variables were not able to significantly explain financial performance during the research period.

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