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## The Effect Of Green Accounting Implementation, Environmental Performance, and Firm Size On The Profitability Of Mining Companies Listed On The Indonesian Stock Exchange (IDX) 2020 - 2022


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**ABSTRACT**

This study aims to examine and analyze the influence of green accounting, environmental performance, and firm size on the profitability of mining companies listed on the Indonesia Stock Exchange during the period 2020-2022. The research variables include green accounting, measured by environmental costs; environmental performance, proxied using the PROPER ranking indicator; firm size, calculated using the natural logarithm of total assets; and profitability, proxied by the Return on Assets (ROA) ratio. This is a quantitative study with a sample size of 32 companies that met the criteria, with a significance level of 5%. This study was conducted using secondary data with the data analysis technique employed being multiple linear regression. The results of this study indicate that environmental performance has a positive and significant effect on the profitability of mining companies listed on the Indonesia Stock Exchange during the 2020-2022 period. Meanwhile, green accounting and firm size do not affect the profitability of mining companies listed on the Indonesia Stock Exchange during the 2020-2022 period.



***Keywords:* : *Environmental Performance; Firm Size; Green Accounting; Profitability***.


## 1. INTRODUCTION

Indonesia is facing a serious and frightening ecological crisis. This crisis has caused various ecological and social disasters that are extremely damaging and threaten the survival of humanity. Climate change, global warming, and environmental degradation have led to serious natural disasters, social disasters, and economic disasters (Lako 2016). Many mining companies operate in ways that directly impact the environment. The operational activities carried out by companies often result in environmental damage and harm to communities (Zalukhu et al. 2022). For example, a large amount of company waste is not managed properly, leading to environmental pollution. The impact of environmental pollution includes a decline

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in public trust and stakeholder confidence in companies, as they are perceived as unable to manage their waste properly (Wiranti 2023). The decline in public trust has an impact on the decline in company profitability (Noegroho & Susilowati 2023).

According to BBC.com (2024), China continues to expand its investments in various mines around the world, including in Indonesia, Argentina, and Congo. In Indonesia, specifically on Obi Island, a Chinese company (Lygend Resources and Technology) in collaboration with Indonesia's Harta Group has rapidly transformed the forest around Kawasi village into a mining site. Local residents are under pressure to relocate and accept compensation from the government. According to the Mining Advocacy Network (JATAM), forests have been cleared, and rivers and seas have been polluted by sediment. The Indonesian military has been deployed to protect the mine, and JATAM claims that military personnel are being used to intimidate and attack those opposing the mine. The production processes of both industries directly impact workers, communities, and the surrounding environment due to the extraction of raw materials from nature. As a result, environmental damage occurs, and companies must undertake environmental conservation efforts. There are five key aspects of sustainable development: people, prosperity, planet, partnership, and peace, also known as the 5P (Correa-Mejía et al., 2024). The renewed focus on the 5P is highly relevant as it demonstrates a clear and deliberate alignment with all goals (Prakash & Kaur 2024). By applying the 5P principles, companies can operate in a way that is not only economically profitable but also socially and environmentally responsible, thereby supporting sustainable development as a whole.

The profitability index is a measure used to evaluate a company's ability to generate profits (Amalia et al. 2024). Profitability indicates how effective a company is in running its operations, thereby providing profits for the company (Saqina et al. 2021). The proxy used to measure the profitability index in this study is return on assets (ROA). Mining companies that strive to increase profitability often result in the continuous use of natural resources. However, the available natural resources are very limited to meet human needs and require a long time to recover. Environmental performance is the industry's effort to preserve and contribute to the natural environment around the mining area to create a healthy environment.

In Indonesia, environmental performance is measured by the Ministry of Environment (KLH) through the PROPER program, which uses a color-coded rating system, ranging from gold as the best, green, blue, red, to black as the worst (Amalia et al. 2024). The aim is to encourage

companies to manage the environment using information tools, with the goal of ensuring companies comply with regulations through incentives and reputational disincentives (Asjuwita & Agustin 2020). According to Hadi (2018), the Green Accounting variable is measured using the environmental cost formula. Research conducted by Chasbiandani et al. (2019),

Dwi Cahyanti & Priono (2021), and Meiriani et al. (2022) found that green accounting and environmental performance significantly impact company profitability. As green accounting disclosure improves, investors will increase their capital investment, thereby enhancing profitability (Meiriani et al., 2022). Additionally, better environmental performance leads to higher PROPER rankings, which can boost company profitability (Putri et al., 2019). However, studies by Rosaline & Wuryani (2020), Angelina & Nursasi (2021), Sapulette & Limba (2021), and A. Damayanti & Astuti (2022) state that green accounting and environmental performance variables do not affect a company's financial performance. This suggests that companies whose sole objective is to increase profits will consider every cost incurred, including environmental costs that reduce the company's profits (Angelina & Nursasi, 2021).

Company size is a crucial element that affects a company's financial performance. To measure firm size, this study uses the natural logarithm of total assets. Companies with larger firm sizes have an impact on company profitability (Azzahra & Wibowo 2019). According to Law Number 20 of 2008 of the Republic of Indonesia, firm size is a measure that indicates how large or small a company is based on the amount of assets it possesses. According to research by Azzahra & Wibowo (2019); S. E. Damayanti (2020) and Saqina et al. (2021), firm size has a significant effect on profitability (ROA). The high value of assets owned by a company can be seen from the number of investors who invest their capital and the amount of profits or dividends distributed to investors. This directly indicates a much better value and reputation among the public. However, research by Wikardi & Wiyani (2017) and Nurdiana (2018) proves that firm size does not affect profitability. The average increase in profitability is accompanied by an increase in firm size, but since the change in firm size is not too significant, it does not have a direct impact on company profitability (Nurdiana, 2018).

Previous studies have produced varying findings regarding the influence of green accounting, environmental performance, and firm size on corporate profitability. As a novelty, this study seeks to re-examine the relationship between green accounting, environmental performance,

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and firm size on corporate profitability, but with a different period and research object. The research object used is mining companies listed on the Indonesia Stock Exchange during the period 2020-2022. This is done so that the research results obtained are more specific. Based on the above description, the first hypothesis can be formulated, namely that green accounting affects the profitability of mining companies listed on the Indonesia Stock Exchange during the period 2020-2022. The second hypothesis is that financial performance affects the profitability of mining companies listed on the Indonesia Stock Exchange during the period 2020-2022. The third hypothesis is that firm size affects the profitability of mining companies listed on the Indonesia Stock Exchange during the period 2020-2022. With these hypotheses, the objective of this study is to test and analyze the influence of green accounting, environmental performance, and firm size on the profitability of mining companies listed on the Indonesia Stock Exchange during the period 2020-2022.

## 2. RESEARCH METHOD

This study uses quantitative methods. The research objects used are variables to be studied, including independent variables, namely green accounting, environmental performance, and firm size, as well as dependent variables, namely profitability. This study uses data from mining companies listed on the IDX in 2020-2022. In the context of this study, the population considered is mining companies listed on the Indonesia Stock Exchange (IDX) from 2020 to 2022, totaling 107 companies. The sampling method applied is purposive sampling, which indicates that the sample is selected from the population that meets the criteria desired by the researcher, namely 32 companies consisting of 96 samples from 2020 to 2022. The data analysis technique used in this study was multiple linear regression, with classical assumption tests conducted beforehand as a consideration.

## 3. RESULTS AND DISCUSSION

### *Classical Assumption Test*

To identify whether the residuals are normally distributed, this study uses the Kolmogorov-Smirnov (K-S) test in SPSS software. The data is considered normally distributed if the significance value is > 0.05. The Kolmogorov-Smirnov (K-S) test results yielded an Asymp. Sig. (2-tailed) value of 0.200, where the significance value of the data is > 0.05, meaning that

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the residual data is normally distributed. The Variance Inflation Factor (VIF) value is used to determine whether there is multicollinearity in the linear regression model. The tolerance value for each independent variable is not less than 0.10. The VIF calculation results also show that the VIF values for each variable of green accounting, environmental performance, and firm size are not greater than 10.0. This indicates that there is no multicollinearity between the variables of green accounting, environmental performance, and firm size. The autocorrelation test results show that the Durbin Watson value is 1.806. This value lies between 1.6918 < 1.848 < 2.3082, indicating that there is no autocorrelation in the regression used. The heteroscedasticity test is used to evaluate whether there are different variations in the residuals between this study and other studies. Based on the results of the heteroscedasticity test, which show points above and below the 0 mark on the Y-axis, it can be concluded that there is no heteroscedasticity. Based on the results described above, the regression model is declared to have met the classical assumption test and can proceed to the next stage, which is multiple linear regression analysis.

**Table 1 Multiple Linear Regression Analysis**

| Variabel | *Unstandarized Coefficients* | | *Standarized Coefficients* |
|---|---|---|---|
| | ***B*** | ***Std.Error*** | ***Beta*** |
| *(Constant)* | -11.462 | 18.116 | |
| *Green accounting* | .486 | .612 | .097 |
| Kinerja Lingkungan | 5.673 | 1.731 | .422 |
| *Firm size* | -.051 | .653 | -.010 |

Source: Data processed by SPSS, 2025

Based on the results of multiple linear regression analysis, it can be formulated in a multiple linear analysis model as follows:

$$PROF = -11{,}462 + 0{,}486GA + 5{,}673KL - 0{,}051FS + 18{,}116$$

The equation can be interpreted as follows:

1. The constant value is -11.462, which means that if green accounting, environmental performance, and firm size are assumed to be zero, then profitability, proxied by ROA, is -11.5%.
2. The regression coefficient of the green accounting variable, proxied by environmental costs, is 0.486. This means that if the green accounting variable increases by 1%, the profitability proxied by ROA will increase by 0.486.

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3. The regression coefficient for the environmental performance variable, proxied by PROPER, is 5.673. This indicates that if environmental performance increases by 1%, profitability proxied by ROA will increase by 5.673.
4. The regression coefficient for the firm size variable, proxied by Ln total assets, is -0.051. This indicates that if firm size increases by 1%, profitability proxied by ROA will decrease by 0.051.

**Table 2 Coefficient of Determination Test (R2)**

| Model | R | *R Square* | *Adjusted R Square* |
|---|---|---|---|
| 1 | ,456[a] | ,208 | ,167 |

Source: Data processed by SPSS, 2025

The coefficient of determination can be expressed as a percentage, ranging from 0 to 1. The higher the Adjusted R2 value, the better the regression model is at explaining the variation in the dependent variable, approaching a value of 1. From the data above, the coefficient of determination in the Adjusted R Square (R2) column is 0.167, which is equivalent to 16.7%. This indicates that the contribution of the variables green accounting, environmental performance, and firm size to profitability is only 0.167 or 16.7%. The remaining 83.3% is explained by other variables not included in the model.

**Table 3 Model Feasibility Test**

| Model | | *Sum of Squares* | Df | *Mean Square* | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 1023.921 | 3 | 341.307 | 5.069 | .003[b] |
| | Residual | 3905.286 | 58 | 67.333 | | |
| | Total | 4929.208 | 61 | | | |

Source: Data processed by SPSS, 2025

The F test result shows that the significance value of 0.003 is lower than 0.05 (0.003 < 0.05), indicating that the research model is appropriate or feasible to be tested.

**Table 4 Hypothesis Test Results (t-test)**

| Variabel | T | Sig. | Keterangan |
|---|---|---|---|
| (Constant) | -.633 | .529 | |
| *Green accounting* | .795 | .430 | Tidak Berpengaruh |
| Kinerja Lingkungan | 3,277 | .002 | Berpengaruh |
| *Firm size* | -.080 | .937 | Tidak Berpengaruh |

Source: Data processed by SPSS, 2025

This test was conducted to measure the extent of the influence of each independent variable individually on the dependent variable tested at a significance level of 0.05.

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The t-test results show that:

1. The results of the first hypothesis test (H1), namely green accounting with a significance value of 0.430, exceed 0.05 (0.430 > 0.05), so this hypothesis is rejected. Therefore, green accounting has no impact on profitability.
2. The results of the second hypothesis test (H2) on environmental performance, with a significance level of 0.002, are less than 0.05 (0.002 < 0.05), so this hypothesis is accepted. Therefore, environmental performance has an impact on profitability.
3. The results of the third hypothesis test (H3) on firm size show a significance value of 0.937, which is greater than 0.05 (0.937 > 0.05), so this hypothesis is rejected. Therefore, firm size has no impact on profitability.

***The Effect of Green Accounting on Profitability***

The results of the T-test hypothesis testing show that green accounting measured using environmental costs has no effect on profitability as proxied by ROA. This is because the significance value of the variable exceeds the specified probability, so it can be concluded that the first hypothesis is rejected. Several companies have included and reported environmental cost components in their sustainability reports with the aim of providing information needed by stakeholders and shareholders. The disclosure of environmental cost components can be an added value for companies because it shows the extent of their responsibility in relation to environmental aspects. However, this does not directly increase the company's profitability. Environmental cost expenditures, such as for environmentally-based production tools, conservation, and environmental maintenance, can reduce the company's profits or earnings, thereby lowering ROA (Dita & Ervina 2021). The environmental costs incurred by companies have not been able to build consumer trust, so they do not impact company profits and their effects may not be immediately felt during that period (Rosaline & Wuryani 2020). Therefore, green accounting is still not a top priority for some companies. The implementation and reporting of environmental costs by companies have not yet succeeded in convincing investors or consumers in evaluating a company, thus having no significant impact on sales or company profits (Sapulette & Limba 2021). These findings do not align with stakeholder theory, which states that an organization or company with a positive public image can directly enhance its sustainability report, thereby attracting investors to invest in the company, which in turn impacts the company's profit growth. These findings align with research conducted by Rosaline

& Wuryani (2020), Angelina & Nursasi (2021), Sapulette & Limba (2021), and A. Damayanti & Astuti (2022), which revealed that green accounting does not influence company profitability.

***The Effect of Environmental Performance on Profitability***

The results of the T-test hypothesis testing show that environmental performance measured using PROPER has an effect on profitability, which is proxied by ROA. This is because the significance value of the variable is less than the specified probability, so it can be concluded that the hypothesis is accepted. These findings indicate that the public, as part of the stakeholders, respond positively to information related to environmental performance assessments (Cahyani & Puspitasari 2023). This also shows that companies have successfully communicated their environmental results and activities well, reflecting solid financial performance. This provides confidence to investors through the PROPER rating published by the Ministry of Environment and Forestry (LHK) and can improve the company's financial position. This supports stakeholder theory, which implies that the better the PROPER rating a company obtains, the more interested investors (stakeholders) will be in investing in that company, thereby increasing the company's profitability. This study supports the findings presented in the research by Putri et al. (2019), Chasbiandani et al. (2019), Dwicahyanti & Priono (2021), Meiriani et al. (2022), and Cahyani & Puspitasari (2023), which reveal that environmental performance impacts company profitability, as proxied by ROA. The higher the optimal environmental performance of a company, the more positively investors will respond to good environmental performance.

***The Effect of Firm Size on Profitability***

The results of the T-test hypothesis testing show that firm size, measured using Ln total assets, has no effect on profitability, which is proxied by ROA. This is because the significance value of the variable exceeds the specified probability, so it can be concluded that the hypothesis is rejected. Firm size reflects the extent to which a company is large or small. Company size is calculated using the natural logarithm of the company's total assets as recorded in the end-of-period financial statements. The average increase in profitability is accompanied by an increase in firm size, but because the change in firm size is not too large, it does not have a direct impact on company profitability (Nurdiana 2018). This is also inconsistent with stakeholder theory, which states that companies with large assets will also have more stakeholders, which will

contribute to an increase in company profitability. This study supports the findings of Nurdiana (2018), which revealed that firm size does not influence profitability. Although large companies have large assets, they are not always more efficient in managing their assets, which indirectly affects the profits generated. However, this study contradicts the research conducted by S. E. Damayanti (2020) and Saqina et al. (2021), which revealed that there is an influence between company size and profitability.

## 4. CONCLUSION

Based on the information that has been collected and presented, the following are the conclusions from the test results:

1. Green accounting, measured by the disclosure of environmental costs through CSR activities, has no effect on the profitability of mining companies listed on the IDX for the period 2020 to 2022. This is because the environmental costs incurred by the companies have not yet been able to instill consumer confidence, thus not impacting company profits and may not have been directly felt during that period.
2. Environmental performance measured through PROPER has an impact on the profitability of mining companies listed on the Indonesia Stock Exchange (BEI) from 2020 to 2022. This indicates that companies have successfully communicated their environmental results and activities effectively, reflecting solid financial performance. This instills confidence in investors through the PROPER rankings published by the Ministry of Environment and Forestry (LHK) and can enhance the profitability of these companies. This supports stakeholder theory, which implies that the better the PROPER rating a company receives, the more interested investors (stakeholders) will be in investing in that company, thereby increasing its profitability.
3. Firm size, measured through the natural log of total assets, does not affect the profitability of mining companies listed on the IDX from 2020 to 2022. This is because the average increase in profitability is accompanied by an increase in firm size, but since the increase in firm size is not significant, it does not directly impact the company's profitability. This also contradicts stakeholder theory, which states that companies with larger assets will have more stakeholders, thereby contributing to increased company profitability.

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