

Analysis of The Application of Green Accounting to Financial Performance in Mining Companies

Sri Liniarti¹, Rizky Surya Andhayani Nasution², Shafawaty Mohamad Shabri³
Rafiqa Humaira⁴, Yunanada Eka Putra⁵

Accounting, Universitas Al Azhar, Medan, Sumatera Utara, Indonesia^{1,2,4}

Accounting, Universiti Malaysia Perlis, 01000 Kangar, Perlis, Malaysia³

Management, Universitas Al Azhar, Medan, Sumatera Utara, Indonesia⁵

Article Info

Article history:

Received : 25 May 2025

Revised : 17 June 2025

Accepted : 11 Juli 2025

Available online : 29 July 2025

Keywords:

Green Accounting; Financial performance; Proper; ROA, Mining Industry

ABSTRACT

Mining Companies are companies that mine, manage, transport and sell natural resources from Upstream to Downstream. The high level of natural damage caused by mining companies makes researchers want to know the influence of *green accounting* on the company's financial performance. This study analyzes mining companies listed on the Indonesia Stock Exchange in 2017-2023. This study uses a quantitative method. The data used is secondary data from the company's annual report. The research sample is 42 mining companies listed on the Indonesia Stock Exchange for the 2017-2023 period. Samples are determined by purposive sampling. The analysis technique used is Multiple Linear Regression. The results of the study show that green accounting has a positive effect on financial performance. Based on the results of the study, it is known that green accounting has an influence on financial performance.



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

Corresponding Author:

Sri Liniarti

Accounting, Universitas Al Azhar, Medan, Sumatera Utara, Indonesia

Email: srie.liniarty8877@gmail.com

INTRODUCTION

"Mining, according to Law No. 4 of 2009 concerning Mineral and Coal Mining ([The Republic of Indonesia, 2009](#)) is part or all of the stages of activities in the context of research, management and exploitation of minerals or coal which includes general investigation, exploration, feasibility study, construction, mining, processing and refining, transportation and sales, and post-mining activities. Mining companies are companies that are directly related to the environment and nature." Companies that are environmentally conscious tend to make reasonable use of resources through environmental conservation and management well. However, in contrast to those who do not have awareness of environmental sustainability, they tend to exploit excessively to get optimal profits ([Meiyana & Aisyah, 2019](#)). Continuous exploitation causes environmental damage. One of these efforts can be made through the allocation of environmental costs as a form of corporate accountability. Usually, the

allocation of environmental costs is disclosed through voluntary disclosure in annual reports and sustainability reports (Riyadh et al., 2020).

According to (Fana & Prena, 2021) the concept of green accounting is considered to be able to provide a company image in front of stakeholders because it helps management in seeing whether or not it is correct to fulfill a company's environmental obligations.

The concept of green accounting through the allocation of corporate environmental costs is closely related to the company's performance. The financial performance that has been analyzed can be used as a decision-making tool (Sarahwati & Setiadi, 2022). The Ministry of Environment has created a Company Performance Rating Assessment Program or called PROPER. This program is expected to encourage company compliance in environmental management through information instruments carried out through various activities directed to: (1) encourage companies to comply with laws and regulations through incentives and reputation intensification, and (2) encourage companies that have good environmental performance to implement *clean production*) (menlh.go.id). This program also aims to spur other companies to know about the impact of the company's operational activities on the environment. Environmental consulting services have been established that help direct companies in an environmentally friendly direction so that environmental pollution does not occur around the company. Waste transport services have also been established that will later collect waste from the company and then dispose of it to other companies that have permits to reprocess the waste that has been disposed of. The assessment aspect in PROPER is focused on assessing the company's compliance in water pollution control, air pollution control, management of hazardous and toxic material waste (B3), other obligations related to environmental impact analysis (EIA), determination of Environmental Management System (SML), conservation and resource utilization, and corporate social activities.

The implementation of PROPER aims to:

1. Improving corporate structuring towards environmental management
2. Increasing the commitment of *stakeholders* in environmental conservation efforts
3. Improve environmental management performance in a sustainable manner
4. Increase the awareness of business actors to comply with laws and regulations in the environmental sector

Proper Rating Indicator Table

Rank	Information
Gold	For businesses and/or activities that have consistently demonstrated environmental <i>excellence</i> in the production and/or service process, carrying out ethical and responsible business to the community.

Green	For businesses and/or activities that have carried out environmental management more than required in the regulations (<i>beyond compliance</i>) through the implementation of an environmental management system and they have utilized resources efficiently and carried out responsibilities social answer well.
Blue	For businesses and/or activities that have made environmental management efforts, which are required in accordance with the provisions or applicable laws and regulations.
Red	For those who have made environmental management efforts but have not complied with the requirements as stipulated in laws and regulations.
Black	Awarded to those who, in carrying out their business and/or activities, have deliberately committed acts or negligence so as to result in pollution or environmental damage, as well as violating applicable laws and regulations and/or not implementing administrative sanctions.

Source: Ministry of Environment (KLH)

The PROPER performance rating system is divided into 5 (five) colors, namely:

1. Gold : very very good Score = 5
2. Green :Excellent score = 4
3. Blue :good score = 3
4. Red :bad score = 2
5. Black : very bad score = 1

According to [\(Purba & Situmorang, 2021\)](#), the company's financial performance is one of the assessments of the company's financial condition which is carried out based on an analysis of the company's financial ratio. As explained by Sucipto in [\(Supit et al., 2019\)](#), financial performance is the determination of certain measures that can measure the success of an organization or company in generating profits. In other words, financial performance can be seen from the level of profitability of the company. According to [\(Mulyana et al., 2019\)](#), financial performance proxied by return on assets (ROA) can interpret the level of profitability of the company or can measure how much the company's ability to obtain profits based on all the wealth owned by the company (total assets). The following is a formula formulated to calculate financial performance through the profitability ratio proxied by return on assets:

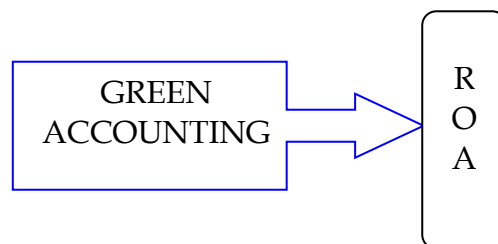
$$\text{Length} = \frac{\text{Net Profit}}{\text{Total Assets}}$$

Research on the relationship between green accounting and financial performance was conducted by [\(YOLA, 2024\)](#) who revealed that green accounting has a positive effect on financial performance. However, in contrast to research conducted by [\(Herawati & Putra, 2018\)](#), [\(Rosaline et al., 2020\)](#) and [\(Rahmadhani, 2021\)](#).

Based on the phenomenon that has been described, the mining sector is able to provide economic development in a country. But on the other hand, the sector has a negative impact in the form of environmental damage. Accountability is needed for the company in the form of allocating funds for the sustainability of the company and the environment in the long term so that it can improve the company's financial performance. Thus, Green accounting is a form of corporate responsibility for the environment.

METHODS

Conceptual Framework



Based on the image above, it can be seen that the X variable in this study is Green accounting and the Y variable is ROA

Time and Place

This research was conducted from January 2025 to June 2025. The research was conducted on mining companies listed on the Indonesia Stock Exchange.

Types of research

This study uses a type of quantitative research. The goal is to test the hypothesis that has been determined [\(Sugiyono, 2019\)](#). This study was conducted to determine the influence of green accounting on financial performance in mining companies listed on the IDX in 2017-2023.

Population, Sample and Sampling Techniques

Population

Objects or subjects that are generalized objects and have certain characteristics and numbers with a general area, are then studied by researchers and concluded are

called populations ([Sugiyono, 2019](#)). The population in this study consists of 64 mining companies listed on the IDX in 2017-2023.

The research uses mining companies because mining companies are directly related to the environment in carrying out the company's operations or production processes. With this, this research is expected to be able to get accurate results.

Sample

The sample from this study is 42 companies on the IDX in 2017-2023 according to the criteria. The purposive sampling technique was used in this study in sampling. Purposive sampling is able to determine the research sample through special considerations in order to obtain representative research ([Sugiyono, 2019](#)). This research has several criteria, including: 1. Mining Companies on the Indonesia Stock Exchange in 2017-2023. 2. Mining companies that report annual reports consecutively in 2017-2023. 3. Mining companies that disclose environmental costs consecutively (Proper) in 2017-2023. 4. Mining companies that have made a profit from 2017-2023.

Data and Data Sources

This study uses secondary data because it is sourced from the annual report of the www.idx.co.id.

Data Collection Techniques

Documentation techniques were used in this study to collect data. The technique was obtained from a collection of several annual reports of companies on the IDX during the research period along with other necessary data. Literature studies through literature, books, and journal articles with relevant discussions are also used in this study.

Data Analysis Techniques

The data analysis in this study uses the SPSS 22 application. The data that has been collected is then processed and analyzed to get answers to the problems that arise in this study. The data analysis technique used to determine the influence of independent variables on dependent variables is by linear regression analysis, then hypothesis tests (f test and t test) and determination coefficients will be carried out to determine the significance of independent variables on dependent variables. The data analysis technique in the research will also be assisted by statistical analysis using SPSS (Statistical Package for Social Science) software.

Descriptive Analysis Techniques

A technique that is useful in describing the entire data to be studied, is called descriptive statistics. The data overview can be seen through minimum, maximum, average, sum, range values ([Sugiyono, 2019](#)). The dependent variable in this study is financial performance, independent variable in the form of green accounting.

Classic Assumption Test

According to (Ghozali, 2018), the classical classification assumption test is the initial stage used before multiple linear regression analysis is carried out to obtain certainty so that the regression coefficient is not biased and consistent and valid. The data used in the study must meet classical assumptions. Some tests in classical assumptions include:

Normality Test

This Normality Test aims to test that independent variables and dependent variables in the regression model have normal distributions or not (Badruzaman et al., 2024). Regression models that have normal distribution values are good regression models. Data normality tests can also be performed not based on graphs, for example with the kolmogrov-Smirnov test with a significance level of $>5\%$ (0.05).

Multicollinearity Test

This multicollinearity test aims to find out whether the regression model finds a correlation between independent variables or dependent variables. The effect of this multicollinearity is that it causes high variables in the sample. To find whether or not there is multicollinearity in the regression model, it can be known from the tolerance value and the value of the variance inflation factor (VIF). A good regression model should not contain multicollinearity (no correlation between independent variables). The cut-off value that is commonly used to indicate the existence of multicollinearity is the tolerance value ≤ 0.10 or equal to the VIF value ≥ 10 . If the tolerance value is > 0.10 and VIF is < 10 , then multicollinearity does not occur (Ghozali, 2018).

Autocorrelation Test

The purpose of this test is to test a linear regression model, to see the existence of a correlation between the interference error in period t and period $t-1$. If there is correlation, then there is a problem called autocorrelation. The data is said to be good if there is no autocorrelation. In this study, the autocorrelation test was carried out with the Durbin Watson test. The Durbin Watson test is used to test whether there is a high correlation between residuals. Detecting autocorrelation with Durbin Watson has criteria (Ghozali, 2018), namely:

1. If $0 < d < dL$ means there is a positive autocorrelation
2. If $4 - dL < d < 4$ means there is a negative autocorrelation
3. If $2 < d < 4 - Du$ or $dU < d < 2$ means there is no positive or negative autocorrelation
4. If $dL < d < Du$ or $4 - Du < d < 4 - dL$, the test is not conclusive for it can be used another test or add data
5. If $2 < d < 4 - du$ then there is no correlation

Heteroscedasticity Test

The Heteroscedasticity test aims to test whether there is an inequality in the regression model variance from residual one observation to another (Ghozali, 2018).

In this study, the Heteroscedasticity test uses scatterplot. If Scatterplot There is no regular pattern, so the regression model is free from heteroscedasticity problems.

Multiple Linear Regression Analysis

Regression analysis is used to measure the strength of the relationship between two or more variables. This analysis can also show the direction of the relationship between dependent variables and independent variables ([Ghozali, 2018](#)). The statistical model used to analyze the influence of Net Working Capital, Firm Size and Leverage on Cash Holding is a multiple linear regression. The similarities are as follows:

$$Y = a + b_1 X_1 + \varepsilon$$

Information:

a	= Constant
b ₁	= Regression Coefficient
X ₁	= Green Accounting
ε	= Error

Simultaneous Test (F Test)

This test was used to determine the effect of independent variables together (simultaneously) on bound variables at a significant level of 0.05 (5%). "The statistical test F basically shows whether all the independent or independent variables included in the model have a cohesive influence on the dependent or bound variables".

Partial Test (T Test)

According to ([Ghozali, 2018](#)) Statistical tests are used to show how far an explanatory or independent variable individually influences in explaining the variation of dependent variables. The t-test was also performed to test whether each independent variable had a significant influence on the bound variable

Coefficient of Determination Test (R²)

A small R² value means that the ability of independent variables to explain dependent variables is very limited. A value close to 1 means that independent variables provide almost all the information needed to predict the variation of independent variables ([Ghozali, 2018](#)).

RESULTS AND DISCUSSION

Descriptive Statistics

This analysis is useful for determining the variables to be studied from the data of the research sample. The following is a table related to the results of descriptive statistics:

Table 1. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	42	.022	.341	.17010	.087349
Green Accounting	42	3	26	7.52	6.798
Valid N (listwise)	42				

Source: SPSS Research Results, 2025

In table 1, there are 2 variables consisting of 1 independent variable (green accounting), 1 dependent variable (financial performance) with a total of 42 observations. The results of the descriptive statistical test showed that the minimum value of the Y variable (financial performance) of ROA was 0.022, the average value was 0.17010 with a standard deviation of 0.087349. The financial performance variable is homogeneous because the standard deviation value is smaller than the average value, so the data is evenly distributed.

Classic Assumption Test Normality Test

Table 2. One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		42
Normal Parameters, b	Mean	.0000000
	Std. Deviation	.08210012
Most Extreme Differences	Absolute	.122
	Positive	.102
	Negative	-.122
Test Statistic		.122
Asymp. Sig. (2-tailed)		.118c

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

Source: SPSS Research Results, 2025

From Table 2 with N =42 and the asymp value of Sig(2 tailed) 0.118 which means that the significance value of the Smirnov kolmogorov is normal with a value above 0.05.

Multicollegiate Test

Table 3. Coefficient

		Collinearity Statistics	
		Toleran	
Type		ce	VIVID
1	Green accountin g	1.000	1.000

a. Dependent Variable: TWO

Source : SPSS research results, 2025

Based on table 3, it shows that the tolerance value is equal to one and VIF is equal to one. Thus, the independent variable in this study did not occur multicollariarity.

Heterokedasticity Test

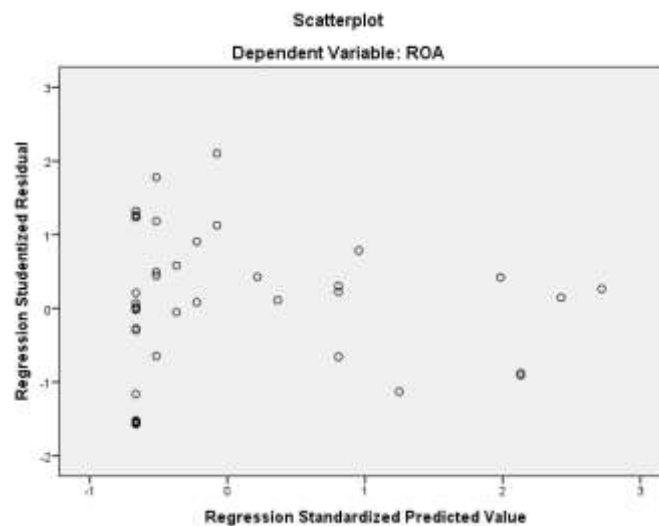


Figure 1. Scatterplot
Source : SPSS research results, 2025

In the scatterplot image above, you can see a scattered pattern or points that do not gather on a certain pattern. Therefore, it can be concluded that the regression model is free from the problem of heterokedasticity.

Autocorrelation Test

Table 4. Model Summaryb

Type	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.341a	.117	.094	.083120	.488

a. Predictors: (Constant), Green Accounting

b. Dependent Variable: ROA
 Source : SPSS research results, 2025

Based on table 4. above, there is a durbin watson value above 0.05, which is 0.488, so it can be interpreted as free from autocorrelation.

Partial Test (T Test)

Table 5. Coefficient

Type		Unstandardized		Standardize	t	Sig.
		B	Std. Error	d		
		Coefficients		Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.137	.019		7.118	.000
	Green Accounti ng	.004	.002	.341	2.297	.027

a. Dependent Variable: TWO
 Source : SPSS research results, 2025

Based on table 5 above, it shows that the significant value of variable X (Green Accounting) of 0.027 is smaller than 0.05, so it can be said that partially green accounting affects financial performance (ROA).

Simultaneous Test (F Test)

Table 6. NEW ERA

Type		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.036	1	.036	5.278	.027b
	Residual	.276	40	.007		
	Total	.313	41			

a. Dependent Variable: TWO
 b. Predictors: (Constant), Green Accounting
 Source: SPSS Research Results, 2025

Based on table 6 above, it shows that the significant value in variable X (Green Accounting) of 0.027 is smaller than 0.05, so it can be said that green accounting partially affects financial performance (ROA).

Cosmic Equation (R Square)

Table 7. Model Summary b

Type	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.341a	.117	.094	.083120

a. Predictors: (Constant), Green Accounting

b. Dependent Variable: ROA

Source : SPSS research results, 2025

Based on table 7 above, the R Square is 11.7% and the rest is 88.3% influenced by other variables outside of green accounting.

Discussion of Data Analysis Results

The Influence of Green Accounting on Financial Performance

Based on table 5, it shows that the green accounting variable (X) is obtained by 0.004 and the probability value of 0.027 is less than 0.05. So it can be concluded that the green accounting variable has a positive effect on financial performance (ROA), which means that the first hypothesis (H1) is supported. This indicates that the high and low allocation of environmental costs incurred by companies has an effect on financial performance. The results of this study support the stakeholder theory that green accounting allocation can be used as one of the ways companies are responsible for managing the relationship between the company and stakeholders. Green accounting allocation is considered a positive thing for the environment, because it can reduce potential liabilities in the future ([Rosaline et al., 2020](#)). The results of the study are in line with the research conducted by ([Lisiantara et al., 2023](#)) who have conducted research with results showing that environmental accounting and environmental performance have a significant effect on the profitability of ROA and is contrary to ([Rosaline et al., 2020](#)), ([Ramadhan & Asih, 2021](#)), ([Herawati & Putra, 2018](#)) who revealed that green accounting is not able to influence financial performance.

CONCLUSION

The purpose of this study is to determine the influence of green accounting on financial performance in mining companies listed on the Indonesia Stock Exchange in 2017-2023. From the hypothesis test, the results were obtained that Green accounting has an effect on the financial performance of mining companies listed on the IDX in 2017-2023. This research has limitations that may be considered for future researchers. The limitation of this research is that in data collection there are several companies that do not present complete annual reports, which suffer losses and especially in the aspect of environmental cost reporting so that the sample obtained is relatively small. Some suggestions for the next researcher based on the results of the analysis of discussions, conclusions, and limitations in this study, namely the next researcher can increase the year of observation and expand the company's

research object and the next researcher can add other independent variables, such as environmental performance, company size, and other variables that support the research.

REFERENCES

- Badruzaman, D., Istiarsono, Z., Nurlela, N., Manarfa, L. O. M. R. A. U., Selly, O. A., Annisa, N. N., Mulyadi, A., Sijal, M., Maghfiroh, A. M., & Mutmainna, D. (2024). *Metode Penelitian Kuantitatif*. Yayasan Tri Edukasi Ilmiah. <https://books.google.co.id/books?id=ulw0EQAAQBAJ>
- Fana, A. A. A. A., & Prena, G. Das. (2021). Pengaruh corporate social responsibility, good corporate governance, dan kepemilikan manajerial terhadap nilai perusahaan perbankan yang terdaftar di Bursa Efek Indonesia periode 2018–2020. *Jurnal Ilmiah Akuntansi Dan Bisnis*, 6(2), 17–29.
- Ghozali, I. (2018). *Aplikasi Analisis Multivariate Dengan Program IBM SPSS 25*. Badan Penerbit Universitas Diponegoro.
- Herawati, A., & Putra, A. S. (2018). The influence of fundamental analysis on stock prices: The case of food and beverage industries. *European Research Studies*, 21(3), 316–326.
- Lisiantara, G. A., Jaeni, J., Nugroho, A. H. D., & Hardiningsih, P. (2023). Corporate Characteristics on Firm Values With Moderation of Good Corporate Governance. *Fokus Ekonomi: Jurnal Ilmiah Ekonomi*, 18(2), 209–220. <https://doi.org/10.34152/fe.18.2.209-220>
- Meiyana, A., & Aisyah, M. N. (2019). Pengaruh kinerja lingkungan, biaya lingkungan, dan ukuran perusahaan terhadap kinerja keuangan dengan corporate social responsibility sebagai variabel intervening. *Nominal: Barometer Riset Akuntansi Dan Manajemen*, 8(1), 1–18.
- Mulyana, T., Susilawati, W., Wufron, W., & Mardani, N. (2019). Service quality factors: Web navigation on online transportation in Indonesia. *Journal of Physics: Conference Series*, 1402(7), 77080.
- Purba, D. H. P., & Situmorang, C. V. (2021). *The Influence of Corporate Social Responsibility and Return on Assets against Tax Aggressiveness in Mining Companies Listed on the Indonesia Stock Exchange for the 2014-2017 Period*.
- Rahmadhani, I. W. (2021). *Pengaruh Green Accounting dan Kepemilikan Saham Publik terhadap Kinerja Keuangan dengan Pengungkapan CSR sebagai Variabel Intervening pada Perusahaan Sektor Industri Dasar Dan Kimia yang Terdaftar di BEI Tahun 2015-2019*. UPN Veteran Jatim.
- Ramadhan, M. Z. J., & Asih, V. S. (2021). Studi Komparatif: Kualitas Layanan Mobile Banking BRI Syariah dan Bank Syariah Indonesia. *Indonesian Journal of Economics and Management*, 1(3), 578–583.
- Riyadh, H. A., Al-Shmam, M. A., Huang, H. H., Gunawan, B., & Alfaiza, S. A. (2020). The analysis of green accounting cost impact on corporations financial performance. *International Journal of Energy Economics and Policy*, 10(6), 421–426.
- Rosaline, V. D., Wuryani, E., Ekonomi, F., & Surabaya, K. (2020). Pengaruh

- penerapan green accounting dan environmental performance terhadap economic performance. *Jurnal Riset Akuntansi Dan Keuangan*, 8(3).
- Sarahwati, Y., & Setiadi, I. (2022). Pengaruh ukuran perusahaan, leverage, dan profitabilitas terhadap earnings response coefficient pada perusahaan properti dan real estate yang terdaftar di BEI periode 2014-2018. *Kompartemen: Jurnal Ilmiah Akuntansi*, 19(2), 121-135.
- Sugiyono. (2019). *Metodologi Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Supit, T. S. F., Tampi, J. R. E., & Mangindaan, J. (2019). Analisis Perbandingan Kinerja Keuangan Bank Bumn Dan Bank Swasta Nasional Yang Terdaftar Pada Bursa Efek Indonesia. *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, 7(3).
- The Republic of Indonesia. (2009). *Mineral and Coal Mining*. 4.
- YOLA, I. (2024). *PENGARUH PENERAPAN GREEN ACCOUNTING DAN KINERJA LINGKUNGAN TERHADAP KINERJA KEUANGAN PERUSAHAAN DENGAN TATA KELOLA SEBAGAI VARIABEL MODERASI (Studi pada Perusahaan farmasi yang Terdaftar di Index Saham Syariah Indonesia Periode 2018-2022)*. UIN Raden Intan Lampung.