




Green Accounting Disclosure and Financial Performance: Evidence from the Mining Sector

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Abstract. This research aimed to assess the impact of green accounting, represented by environmental performance (measured by the PROPER indicator), environmental costs, and environmental disclosure (measured by the Global Reporting Initiative indicator), on financial performance (return on assets). The research employed a quantitative approach involving classical assumption testing and analysis of multiple linear regression data for LQ45 mining sector companies listed on the Indonesia Stock Exchange during 2018-2021. The findings of the study revealed that environmental performance, environmental costs, and environmental disclosures did not exert any influence on financial performance.

Keywords: Green Accounting, Environmental Performance, Environmental Costs, Environmental Disclosure, Financial Performance

1 Introduction

Companies that adhere to green accounting in accordance with governmental regulations and effectively manage environmental concerns have the potential to enhance their environmental performance, ultimately leading to an improvement in the company's financial performance. Presently, companies in Indonesia are perceived to be inadequately implementing green accounting due to a suboptimal emphasis on environmental considerations and their associated impacts [6]. As time progresses, a variety of environmental issues have emerged as a consequence of business activities. Communities and non-governmental organizations are encouraging business operators to prioritize their roles and responsibilities toward the environment, rather than solely concentrating on financial aspects. In practical terms, green accounting encompasses a company's business activities and processes related to environmental matters, which are identified, evaluated, quantified, and disclosed within accounting reports, enabling the reporting of incurred costs [13].

This research was not the first of its kind; there have been numerous previous studies conducted on similar themes. Earlier research, including studies by [8], [3], [10], and [11], has demonstrated that the implementation of green accounting influences a company's financial performance, specifically its profitability. In contrast, research findings by [1] and [5] indicate that green accounting and environmental performance do not

impact a company's financial performance. In the study by [14], the results revealed a negative relationship between green accounting and financial performance.

The research findings of [4] indicated that financial performance did not influence environmental disclosure. Similarly, in the study by [16], it was asserted that variables related to environmental performance and environmental costs did not have a significant impact on profitability. Additionally, as mentioned by [13], environmental performance is recognized as a factor that can indeed influence company profitability.

Environmental issues remain a prominent topic of discussion today, particularly in connection with company performance. Investors perceive companies that prioritize environmental concerns as entities engaged in sustainable development. Furthermore, this research was founded upon several prior studies that have revealed disparities in research outcomes (research gaps) across different studies. This research presented a novel approach to the implementation of green accounting within publicly listed mining companies on the Indonesia Stock Exchange LQ45 index. Unlike previous studies that relied on a single reference, this study employed a diverse set of indicators for each variable, yielding a more comprehensive insight into the ideal conditions. The chosen indicators were PROPER for environmental performance assessment and GRI for environmental disclosure evaluation.

2 Literature Review and Hypothesis Development

In accordance with legitimacy theory, an organization must consider the societal social norms, as these norms are perceived by the community as integral to the organization. This leads to companies being regarded as legitimate when they exhibit concern for these social norms. Stakeholders consider companies that are perceived as responsible and high-performing to be legitimate, prompting these companies to disclose their annual reports to the public [13]. Stakeholder theory asserts that a company's operations extend beyond mere profit generation; it is imperative that these operations also yield benefits for its stakeholders. This highlights the existence of a reciprocal and advantageous relationship between the company and its stakeholders. The interactions between the two entities are characterized by interdependence and a connection rooted in principles of responsibility and accountability [13].

Drawing from prior studies, specifically the research conducted by [8], it is evident that the implementation of green accounting impacts the level of company profitability. According to [3] both green accounting and environmental performance exert a positive influence on company profitability. Similarly, the study conducted by [10] also affirmed that the adoption of green accounting contributes positively to the company's financial performance. In the findings of [11], it was indicated that in accordance with PSAK number 57, the implementation of green accounting and environmental performance significantly impact company profitability. Furthermore, as highlighted by [13], environmental performance stands as a factor capable of influencing company profitability. However, the research conducted by [1] demonstrates that neither green accounting nor environmental performance affects the financial performance of a company.

In [14] study, the findings revealed a negative correlation between green accounting and financial performance. The outcomes of [4] research indicate that financial performance does not influence environmental disclosure. The [5] study, asserts that green accounting has no impact on financial performance, as represented by the Net Profit Margin (NPM) ratio. Additionally, in the research by [16], it was also noted that variables related to environmental performance and environmental costs had no effect on profitability, measured by Return on Assets (ROA).

Green accounting disclosure, represented by environmental performance, and its impact on financial performance (ROA).

In the contemporary landscape, investors are no longer solely concerned with a company's financial aspects; they also evaluate it based on social responsibility, encompassing both community and environmental dimensions. This aligns with legitimacy and stakeholder theories, which posit that the assessment of environmental performance is a determinant of investment decisions. This theoretical premise is corroborated by earlier studies conducted by [3], [10], [11], [13], [4], and [8]. These studies underscore that green accounting, as gauged through environmental performance, does influence financial performance. Thus, the researcher puts forth the following hypothesis:

H1: Green accounting disclosure, proxied by environmental performance, has an impact on financial performance (ROA)

Green accounting disclosure, represented by environmental costs, and its impact on financial performance (ROA)

Environmental issues pose a concern for all companies. Investors seek corporate accountability towards society, the environment, and social welfare. The environmental costs that companies incur for their environmental endeavors are encompassed within the framework of corporate social responsibility costs. In the realms of legitimacy theory and stakeholder investment, investors pay heed to the social and environmental aspects of a company's impact. This theoretical standpoint aligns with the findings of previous research, specifically studies by [3] and [10], which assert that green accounting, as evaluated through environmental costs, influences financial performance. Consequently, the researcher presents the following hypothesis:

H2: Green accounting disclosure, proxied by environmental costs, has an impact on financial performance (ROA).

Green accounting disclosure, represented by environmental disclosure, and its impact on financial performance (ROA)

As a manifestation of corporate social responsibility, companies are obliged to furnish an annual report, often referred to as a sustainability report. This report encompasses the company's environmental undertakings and performance. The purpose of this practice is to showcase the company's dedication to sustainability concerns and its commitment to enhancement and future implementation. In the context of legitimacy and

stakeholder theory, investors perceive the disclosure of this environmental report as essential information for assessing a company's social responsibility. This theoretical stance finds validation in the findings of earlier studies, such as those by [10], [13], and [4]. These studies assert that green accounting, as measured through environmental disclosure, exerts an influence on financial performance. Thus, the researcher introduces the following hypothesis:

H3: Green accounting disclosure, proxied by environmental disclosure, has an impact on financial performance (ROA).

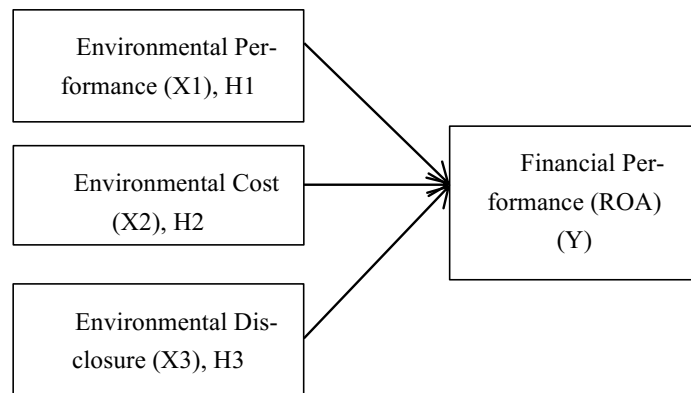


Fig.1. Research Framework

3 Research Method

This study employs a quantitative approach to investigate the relationship between green accounting, encompassing variables of environmental performance, environmental costs, and environmental disclosure, and their impact on financial performance, represented by Return on Assets (ROA). The target population for this study comprises mining sector companies listed on the Indonesia Stock Exchange (IDX) under the LQ45 index, spanning from the year 2018 to 2021. The overall population encompasses 10 companies. The selection of samples was conducted using a purposive sampling technique, involving the selection of participants based on specific criteria.

The researchers employed a purposive sampling technique to select the sample, wherein data was collected based on specific criteria. The criteria included companies within the mining sector under the LQ45 index, which have been listed on the Indonesia Stock Exchange from 2018 to 2021, possess annual and sustainability reports for the same period, and use the rupiah currency. Secondary data obtained from the research were processed using Microsoft Office Excel 2010. The research data was further analyzed utilizing the SPSS 20 application. The data underwent descriptive statistical analysis and was subjected to classic assumption tests, which encompassed normality, multicollinearity, heteroscedasticity, and autocorrelation tests. Subsequently, the

hypotheses were tested through multiple linear regression, t-tests, and the calculation of the coefficient of determination.

Measurement of Operational Variable

The dependent variable in this study is financial performance (Y), which is assessed through Return on Assets (ROA), a specific metric utilized to gauge a company's efficacy in generating net profit [1]. The primary independent variable is environmental performance (X1), proxied by PROPER, an evaluation of a company's environmental management performance that relies on quantifiable indicators. The second independent variable involves the computation of environmental costs (X2), determined by aggregating the expenses incurred by the company with its net income. This calculation is formulated as follows [8]:

$$\text{Environmental Cost} = \text{Cost/Profit} \quad (1)$$

The third independent variable is environmental disclosure (X3), which is measured using the Global Report Initiative (GRI) indicator. These guidelines are used by companies to guide environmental disclosures and require information based on their adoption in 2002.

4 Result and Discussion

Descriptive statistics

This study collected data from 10 mining companies listed on the Indonesia Stock Exchange over a span of 4 years. The cumulative sample comprised 40 data points obtained from these 10 companies over the specified 4-year duration. The descriptive statistical outcomes are presented in Table 1 below:

Table 1: Descriptive Statistical Test

	N	Min	Max	Means	Std Deviation
ROA (Y)	40	0.20	29.00	6.75	6.58
Environmental Performance (X1)	40	3.00	5.00	4.25	0.70
Environmental Costs (X2)	40	- 12.04	0.74	-0.26	1.91
Environmental Disclosure (X3)	40	0.00	65.00	29.05	15.51

The variable representing financial performance, indicated by the Return on Assets (ROA) ratio, exhibits a range from a minimum of 0.20 to a maximum of 29.00, with an average of 6.75. This signifies that the average performance of mining sector companies

results in a Return on Assets (ROA) of 6.75. Among the 10 companies sampled in this study, merely two possess ROA values surpassing the average ROA from 2018 to 2021, namely Bukit Asam Tbk and Pertamina Gas Negara Tbk. Environmental performance variables are assessed through the utilization of PROPER, revealing a range from a minimum of 3.00 to a maximum of 5.00, with an average score of 4.25. Within the 10 companies under study, only one consistently secured a gold award from 2018 to 2021, namely Bukit Asam Tbk.

The cost variable, calculated by dividing the managed environmental expenses by the company's net income, demonstrates a range from a minimum of 0.12 to a maximum of 0.74, with an average value of 0.26. Regarding the environmental disclosure variable, gauged using GRI indicators, the range spans from a minimum of 0.00 to a maximum of 65.00, with an average of 29.05. This variance stems from variations in the extent to which companies report and implement all the indicators within the GRI framework.

Classic Assumption Test

To ensure the appropriateness, impartiality, and validity of the data, the researcher conducted classical assumption tests. This step was taken to ascertain that the data employed in this study were suitable for analysis.

Table 2: Classical Assumption Test

No	Test	Tools	Sig.	Explanation
1	Normality	Kolmogorov-Smirnov	0.119	The data follows a normal distribution
2	Multicollinearity	Tolerance/VIF	>0.1/>10	There is no evidence of multicollinearity
3	Heteroscedasticity	Scatter Plots	Spread	Heteroscedasticity is not observed
4	Auto Correlation	Durbin-Watsons	DW>DU and DW<4-DU	Autocorrelation is absent

Hypothesis Testing

The outcomes of the partial hypothesis testing reveal that for the first hypothesis, the significance value is 0.898, which is greater than 0.05. This indicates that environmental performance (X1) does not exert a significant impact on Return on Assets (Y). Consequently, the first hypothesis of this study was rejected. Moving on to the second hypothesis, the significance value is 0.471, which is also higher than 0.05. This statistical analysis indicates that the variable of environmental costs (X2) does not have a significant influence on Return on Assets (Y). Based on this analysis, the second hypothesis in this study was rejected. For the third hypothesis, the significance value stands at 0.372, surpassing the 0.05 threshold. This suggests that the proxy for environmental

disclosure (X3) does not yield a notable effect on Return on Assets (Y). Consequently, the third hypothesis in this study was rejected.

Table 3: Hypothesis Test Results (T-Test)

Model	t	Sig.
(Constant)	0.875	0.387
Environmental Performance (X1)	-0.129	0.898
Environmental Costs (X2)	0.728	0.471
Environmental Disclosure (X3)	0.904	0.372

Dependent Variable: Financial Performance

Green accounting disclosure, proxied by environmental performance, has an effect on Return on Assets.

The statistical findings derived from hypothesis testing indicate that the proxy for environmental performance (X1) does not exert an impact on the proxy for Return on Assets (ROA). This is substantiated by a significance value of 0.898, surpassing the 0.05 threshold. Therefore, it can be concluded that within LQ45 mining companies, environmental performance does not influence the level of financial performance.

Based on the outcomes of this study's tests, it can be asserted that the government, particularly the Ministry of Environment, plays a role in disseminating guidelines for environmental performance. However, these guidelines have not directly affected the financial performance of companies. Furthermore, it becomes evident that environmental performance is not the primary factor influencing financial performance. This observation aligns with the research findings of [1], which demonstrate that despite a company's efforts to manage its environmental impact using the PROPER indicator, such efforts have not impacted the company's financial performance.

As stated by [9], the achievement of strong financial performance does not solely stem from managed environmental performance. This observation is further reinforced by [17], who also emphasize that favorable financial performance is not exclusively attributed to well-managed environmental initiatives. Additionally, this perspective is shared by [1], [16], [9], and [17], all of whom found that environmental performance does not exert an impact on a company's financial performance. However, the conclusions of this study diverge from the findings of research conducted by [13], [8], [3], [15], [12], and [7]. These studies assert that environmental performance does indeed influence a company's financial performance.

Green accounting disclosure, proxied by environmental costs has an effect on Return on Assets.

The significance value obtained from the second hypothesis test is 0.471, exceeding the threshold of 0.05. This leads to the conclusion that proxies for environmental costs do not have a significant impact on Return on Assets (ROA). Considering the research data spanning from 2018 to 2022 for LQ45 mining companies, it is evident that the incurred environmental costs do not wield influence over the financial performance of these companies.

To reinforce the research findings, the study identified instances of mining companies incurring losses, including Aneka Tambang Tbk, Indika Energy Tbk, Medco Energi Internasional Tbk, and Timah Tbk. This factor, alongside the broader impact of the COVID-19 pandemic, which led to profit declines for several companies in 2019 and 2020, could potentially influence the research results. As noted by [13], any escalation in environmental costs translates to recorded expenses, thereby contributing to the allocation of the burden onto product pricing. Consequently, an increase in environmental costs results in an upsurge in product prices. Additionally, [9] assert that the incorporation of environmental costs signifies an elevation in overall company expenses.

The outcomes of this study are consistent with the conclusions drawn by [7] and [9], which indicate that environmental costs do not impact environmental performance. Furthermore, [13] finds that environmental costs do not constitute the primary determinant of a company's profitability level. However, these findings are at odds with the research conducted by [16], who assert that environmental costs indeed influence profitability (ROA).

Green accounting disclosure, which is proxied by environmental disclosure, has an effect on Return on Assets.

Statistical analysis of the hypothesis testing results reveals a significance value of 0.372, surpassing the 0.05 threshold. Consequently, it can be concluded that within LQ45 mining companies, the proxy for environmental disclosure does not have a significant impact on the Return on Assets variable. Upon scrutinizing the research data, it becomes evident that a majority of companies do not comprehensively report the GRI index within their sustainability reports. Additionally, many companies do not cover all the indexes encompassed by the GRI framework. This observation is corroborated by the findings of [8], who uncovered that numerous companies had yet to provide detailed environmental disclosures.

Furthermore, as indicated by [16], the volume of information presented in environmental disclosures holds no bearing on the magnitude of a company's profitability. The outcomes of this study align with prior research, including [7], [8], [16] and [15], all of which indicate that environmental disclosure does not influence financial performance (environmental performance). However, the findings of this study stand in contrast to the outcomes of research conducted by [17], which assert that environmental disclosure does indeed impact a company's financial performance.

Table 4: Coefficient Determination Results

Model	R	R Square	Adjusted R Square	std. Error of the Estimate	Durbin-Watson
1	0.212a	0.045	-0.034	6.698	2.202

In this study, the researchers employed the R square test to assess the extent of influence exerted by the independent variables on the dependent variable. The analysis outcomes indicate that a mere 45% of these variables possess influence, implying that the remaining 55% is potentially impacted by other variables.

Table 5: Summary of Results

No	Hypothesis	Sig.	Results
1	Effect of environmental performance on Return on Assets	0.898	No influence
2	Effect of environmental costs on Return on Assets	0.471	No influence
3	Effect of environmental disclosure on Return on Assets	0.372	No influence

5 Conclusion

The outcomes of the conducted hypothesis testing lead to the conclusion that the green accounting disclosures, represented by the environmental performance variables, environmental costs, and environmental disclosures, do not exert an influence on Return on Assets. As indicated by the researchers, the implementation of green accounting has not manifested any impact on the level of financial performance. This is evident in the observation that the company's management of environmental concerns has not guaranteed an upturn in its financial performance. Moreover, the ramifications of the COVID-19 pandemic led to a decline in profits for numerous companies during 2019 and 2020, thereby impacting the research results. Furthermore, most companies did not provide comprehensive reporting of the GRI index in their sustainability reports, and they did not incorporate all the indexes encompassed within the GRI framework.

In the course of this research, certain limitations are acknowledged, which encompass the research method that remains rudimentary and employs solely three variables. The dataset employed in the study is confined to four years and comprises a total population of 10 mining sector companies. To enhance and augment the findings within the context of similar research themes, the researcher recommends that future studies adopt a more intricate hypothesis testing methodology, capable of providing a comprehensive depiction of research outcomes. Furthermore, it is advised that the research dataset extend beyond a five-year span, encompassing a more expansive sample of

companies compared to this present study. Moreover, there exists a necessity to incorporate additional variables to broaden the scope of research outcomes.

References

1. Angelina, M., & Nursasi, E. Pengaruh Penerapan Green Accounting dan Kinerja Lingkungan Terhadap Kinerja Keuangan Perusahaan. *Jurnal Manajemen Dirgantara*, 14(2), 211 (2021).
2. Anggraina Ayu Ningtyas, & Triyanto, D. N. Pengaruh Kinerja Lingkungan Dan Pengungkapan Lingkungan Terhadap Profitabilitas Perusahaan (Studi Empiris Pada Perusahaan Pertambangan yang Terdaftar di BEI Tahun 2015-2017). 3(1), 1–23 (2019).
3. Chasbiandani, T., Rizal, N., & Indra Satria, I. Penerapan Green Accounting Terhadap Profitabilitas Perusahaan Di Indonesia. *AFRE (Accounting and Financial Review)*, 2(2), 126–132. <https://doi.org/10.26905/afr.v2i2.3722> (2019).
4. Deswanto, R. B., & Siregar, S. V. The associations between environmental disclosures with financial performance, environmental performance, and firm value. *Social Responsibility Journal*, 14(1), 180–193. <https://doi.org/10.1108/SRJ-01-2017-0005>. (2018).
5. Faizah, B. S. Q. Penerapan Green Accounting Terhadap Kinerja Keuangan. *Jurnal Riset Akuntansi Kontemporer*, 12(2), 94–99. <https://doi.org/10.23969/jrak.v12i2.2779>. (2020).
6. Hamidi. (Analisis Penerapan Green Accounting Terhadap Kinerja Keuangan Perusahaan. *Equilibria*, 6(2), 23–36. (2019).
<https://www.journal.unrika.ac.id/index.php/equi/article/view/2253>
7. Lestari, R., Aisyah Nadira, F., Ekonomi dan Bisnis, F., & Islam Bandung, U. Pengaruh Penerapan Green Accounting Terhadap Tingkat Profitabilitas Perusahaan (Pada Perusahaan Manufaktur Sektor Industri Barang Konsumsi di BEI Tahun 2015-2017) *Application of Green Accounting Influence on the Level of Profitability of the Company (On M. Jurnal Kajian Akuntansi*, 20(2), 124–131 (2019).
8. Lestari, R., Aisyah Nadira, F., Nurleli, N., & Helliana, H. Pengaruh Penerapan Green Accounting Terhadap Tingkat Profitabilitas Perusahaan. *Kajian Akuntansi*, 20(2), 124–131. <https://doi.org/10.29313/ka.v20i2.5990> (2020).
9. Meiyana, A., & Aisyah, M. N. 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. <https://doi.org/10.21831/nominal.v8i1.24495> (2019).
10. Ningsih, W. F., & Rachmawati, R. Implementasi Green Accounting dalam Meningkatkan Kinerja Perusahaan. *JABE (Journal of Applied Business and Economic)*, 4(2), 149 (2017). <https://doi.org/10.30998/jabe.v4i2.2142>
11. Nisa, A. C., Malikhah, A., & Anwar, S. A. Analisis Penerapan Green Accounting Sesuai PSAK 57 dan Kinerja Lingkungan Terhadap Profitabilitas Perusahaan Pertambangan. *Jurnal Ilmiah Riset Akuntansi*, 09(03), 15–26 (2020).
12. Ramadhani, K., Saputra, M. S., & Wahyuni, L. Pengaruh Penerapan Green Accounting Dan Kinerja Lingkungan Terhadap Kinerja Keuangan Dengan Tata Kelola Perusahaan Perusahaan Sebagai Variabel Moderasi. *Jurnal Akuntansi Trisakti*, 9(2), 229–244. <https://doi.org/10.25105/jat.v9i2.14559> (2022).
13. Ratusasi, M. L. Pengaruh Penerapan Green Accounting Terhadap Kinerja Perusahaan Sektor Pertambangan Dan Industri Semen Yang Terdaftar Di Bei Pada Tahun 2015-2018. *Jurnal Ilmiah Mahasiswa FEB* 9.2, 5(1), 1–19. <https://jimfeb.ub.ac.id/index.php/jimfeb/article/view/7183> (2021).
14. Riyadh, H. A., Al-Shmam, M. A., Huang, H. H., Gunawan, B., & Alfaiza, S. A. The Analysis Of Green Accounting Cost Impact On Corporations Financial Performance.

- International Journal of Energy Economics and Policy, 10(6), 421–426.
[https://doi.org/10.32479/ijeep.9238\(2020\)](https://doi.org/10.32479/ijeep.9238(2020)).
15. Wati, L., Kusumawati, N., A, E. T., & N, A. T. Pengaruh Penerapan Green Accounting Terhadap Profitabilitas Pada Perusahaan Sub Sektor Industri Kimia. National Conference on Applied Business, Education, & Technology. (2021).
 16. Widyowati; Damayanti. (2022). Dampak Penerapan Faktor Green Accounting Terhadap Profitabilitas Perusahaan Manufaktur Peserta Proper Yang Listing Di Bursa Efek Indonesia Tahun 2017-2019. Jurnal Akuntansi Dan Bisnis Krisnadwipayana, 9.
 17. Ningtyas, A. A., & Triyanto, D. N. Pengaruh Kinerja Lingkungan dan Pengungkapan Lingkungan Terhadap Profitabilitas Perusahaan. JASa (Jurnal Akuntansi, Audit Dan Sistem Informasi Akuntansi), 3(1), 14-26 (2019).

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