The Effect of Implementing Green Accounting on Annual Earnings and Stock Prices in Mining Companies on the Indonesian Stock Exchange In 2021-2023

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Abstract. The awareness of mining companies implementing green accounting motivates this research. For mining companies, green accounting has a strategic role in attracting investors to buy their shares. This research aims to find out the partial effect of the implementation of green accounting on annual earnings. This study aims to assess the partial effect of green accounting on stock prices, as well as to examine its combined impact on both annual earnings and stock prices. This research is persuasive and quantitative, with data sources in the form of annual data registered on the Indonesia Stock Exchange for 2021-2023, which will be analysed statistically using SPSS version 25. The study's findings reveal a significant difference between green accounting and subsequent yearly revenues. The impact of green accounting on stock prices is substantial, and both annual earnings and stock prices are significantly impacted by green accounting. And the results of this research show that even though mining companies have implemented green accounting, investors are still not very interested but are still focused on interest in share prices and the prospects for mining itself in the future.

Keywords: Green Accounting, Earnings, Stock Price, Mining Company

1. Introduction

Today's increasingly advanced technological developments result in problems related to environmental damage. Damage, one of which is caused by company activities. Contemporary economic practices have severely harmed ecosystems, driving climate change and escalating industrial pollution. Many companies prioritize profit over ecological stewardship, intensifying environmental degradation. As corporate activities increasingly impact the environment, the accounting sector can help address these challenges by disclosing environmental costs in financial reports. By adopting green accounting practices and enhancing environmental performance, accounting professionals support effective environmental conservation [1], [2].

Sustainable industrial operations are achieved by integrating eco-efficiency into management strategies or by utilizing green accounting within financial reporting. Green accounting

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constitutes a specific domain within the accounting field. It empowers organizations to incorporate expenses related to environmental protection and the health of the surrounding ecosystem into their financial disclosures. Such expenditures are typically designated as environmental costs and are accounted for as part of a company's total operational expenditures. With the growing public consciousness regarding environmental conservation, the adoption of green accounting methodologies by various sectors can augment market attractiveness. Consequently, consumers are showing a greater inclination towards products offered by enterprises that adhere to green industrial principles or have adopted green accounting practices. This trend can yield positive company outcomes, including increased sales, higher profits, improved business sustainability, and enhanced perceived value among investors. In addition to green accounting, environmental performance has a positive effect on a company. It involves the actions a company takes to support a sustainable environment, resulting in overall business benefits [3], [4].

Corporate leadership is tasked with executing and reporting on vital functions demanded by stakeholders within specified timeframes. The exhibition of robust environmental management practices unequivocally illustrates a firm's dedication to broader societal welfare, an element of paramount importance for the extractive sector. This analysis focuses on five entities within the mining industry: PT Aneka Tambang Tbk (ANTM), PT Timah Tbk (TINS), PT Vale Indonesia Tbk (INCO), PT Adaro Energy Tbk (ADRO), and PT Bukit Asam Tbk (PTBA). The documentation of environmental initiatives in annual statements furnishes stakeholders, such as investors, executives, and lenders, with pertinent data. This data facilitates informed judgments regarding a company's environmental strategies. Open communication regarding commendable environmental performance enhances public receptiveness to corporate operations. Furthermore, it has the potential to yield improved financial outcomes [5], [6].

Based on 2023 Environmental Performance Index (EPI) data, Indonesia is ranked 164th out of 180 countries studied, related to climate change performance, health, the environment, and ecosystem vitality. Indonesia received a score of 28.20 points out of 100 points, with details of an ecosystem vitality score of 34.1, an environmental health score of 25.3, and a climate change mitigation policy score of 23.2. In terms of overcoming environmental problems, the government also takes part in providing policies regulated in Law Number 32 of 2009 concerning Environmental Protection and Management in Article 1 paragraph (2). The government evaluates the effectiveness of corporate environmental management through the Company Performance Rating Assessment Program in Environmental Management (PROPER). This program was developed by the Ministry of Environment and Forestry (KLHK). This program is used to evaluate environmental management performance in companies, one of which is waste management (Bella, 2020) [3], [8].

As time goes by, along with public awareness of the importance of preserving the environment, industry is now required to run an environmentally friendly businessThe increasing frequency of natural disasters and resource depletion threatens the long-term sustainability of human life.

Consequently, there is growing recognition of the importance of environmental preservation. Every individual is required to always protect the environment; this also applies to industry, which, in fact, is the group that causes the largest amount of environmental damage.

As stated by Hilton & Platt in Managerial Accounting: Creating Value in a Global Business Environment, the application of eco-efficiency in industry will encourage increased production of goods or services and provide benefits for the company in the form of creating employee satisfaction is crucial for cultivating a positive corporate reputation and can lead to lower capital and insurance expenses. Forms of green accounting practices are (1) use of environmentally friendly raw materials, (2) waste management that does not damage the environment, and (3) CSR (attention to the welfare of the surrounding environment). Corporate Social Responsibility (CSR) in Indonesia is governed by statutory regulations. Law No. 40 of 2007 concerning Limited Liability Companies was enacted by the DPR on July 20, 2007. This legislation marks a significant development in the regulation of CSR in Indonesia. In terms of CSR arrangements, this is regulated in Article 1 number 3 of Law Number 40 of 2007 concerning Limited Liability Companies, which states, "Social and environmental responsibility is the company's commitment to participate in sustainable economic development in order to improve the quality of life and the environment, which is beneficial for the company itself, local communities, and society in general." [9], [10].

From 2010 to 2014, 160 companies were recorded as taking part in the green industry assessment. This is quite encouraging, but when compared to the total number of industries recorded in Indonesia, which is 23,370 (Deperindag.go.id), this figure is still small. In 2021, companies experienced a decline where the number of companies was 152, with energy savings of Rp. 3.2 billion and water savings of Rp. 169 billion. There are still many companies that have not implemented a green industry. It is stated that there are 16,000 industries holding Operational Mobility and Industrial Activity (IOMKI) permits; unfortunately, only 152 companies have just realized green industry. Of the 152 companies, 71 industrial companies have fulfilled all the technical and management requirements of green industry standards and have the right to use the green industry logo [8], [11]. The evaluation results of the green industry certification implementation program in 2022 obtained several benefits that can be felt, namely a reduction in greenhouse gas (GHG) emissions by 37%, Overall Equipment Effectiveness (OEE) by 10%, input material efficiency by 13%, water efficiency by 21%, and energy efficiency of 28%. The government continues to pursue tens of thousands of companies or industries to switch to environmentally friendly industries. The low awareness of the industry in implementing green industry through green accounting is because, as seen in general, it is like two sides of a coin: on one side it will bring profits to the industry, but on the other side it seems as if it will give rise to the potential for increased costs through environmental costs. This is what makes not many companies implement green accounting. In fact, if we analyze more deeply, for a longer period of time, the implementation of green accounting will be very beneficial for all parties, including entrepreneurs, consumers, and other stakeholders (investors and society). Corporate investments in environmental protection can mitigate the risk of

incurring greater future expenses. These expenses include costs associated with public demands for remediation of industrial environmental damage and the potential for business closure resulting from government-imposed sanctions [12]. The reason for taking up the mining industry is because many of these industries are directly related to the environment, so they can cause environmental damage.

Based on the explanation above, our aim in this research is to find out the partial effect of implementing green accounting on annual earnings. Next, we want to know the partial effect of green accounting on stock prices, and finally, together we want to find out the simultaneous effect of green accounting on annual earnings and stock prices.

2. Literature Review

According to the stakeholder theory, a company's primary stakeholders are society and the environment. To ensure their support, organizations are expected to make beneficial contributions through social initiatives and transparent reporting in their annually published reports.

Green Accounting

Green accounting enhances environmental performance and cost control. It allows organisations to invest in environmentally friendly technologies. This approach also advances sustainable product processes. Environmental accounting creates opportunities to minimise energy consumption. It helps conserve resources. It also helps reduce environmental health and safety risks. Additionally, it strengthens competitive advantage [3], [4], [11].

Environmental Performance

Environmental performance means a company is committed to environmental preservation. It also covers efforts to address negative environmental impacts from operations. Reducing environmental damage leads to improved performance. Conversely, the more substantial the environmental repercussions, the more diminished a company's operational outcomes become. An evaluation framework, designated as PROPER, is available for assessing environmental stewardship capacities, serving to quantify the ecological performance of enterprises operating within Indonesia [7].

Previous Research

Kotango, Jeandry, and Ali (2024) conducted research suggesting that green accounting practices do not exert an influence on profitability. Nevertheless, environmental performance is shown to affect profitability, and environmental costs are found to have a beneficial impact on financial returns [4]. In contrast, Zuhrohtun's (2023) study observed that green accounting has no

discernible effect on financial performance, nor does environmental performance impact itself. Furthermore, environmental costs were found to negatively affect financial performance [5]. Subsequently, Hayaah (2023) discovered through their investigation that while green accounting and environmental performance individually did not demonstrate a substantial positive effect, their combined application yielded a significant positive effect on the firm's financial performance [6].

Concurrently, empirical evidence presented by Maryanti and Hariyono (2020) indicates that the adoption of green accounting practices does not influence Earnings Per Share (EPS) or Return on Assets (ROA) [7]. In a related study, Khusnah and Kirana (2023) concluded that while corporate social responsibility (CSR) demonstrated a favorable impact on financial performance, company size exerted a detrimental effect. Furthermore, their findings suggest that green accounting does not significantly affect financial performance [8].

3. Research Method

This investigation employs a descriptive quantitative methodology. The research framework commences with the planning stages, encompassing problem determination, selection, articulation, and the formation of hypotheses, all grounded in pertinent theoretical frameworks and scholarly works. The execution phase encompasses all operational aspects of the research from initiation to completion.

Secondary time series data spanning the period from 2011 to 2023 was procured from the official OJK website (http://www.bei.go.id). The primary research tool utilized is a compilation of financial ratios pertaining to mining enterprises, which was acquired from BEI publications. This compilation served as the basis for data acquisition essential to the investigation (as referenced by Azwar, 2016, in Latief et al., 2024). The impact of Return on Assets (ROA), Net Interest Margin (NIM), and Loan to Deposit Ratio (LDR) on Capital Adequacy Ratio (CAR) is scrutinized through multiple regression analysis, executed with SPSS version 25 software.

4. Result and Discussion

In this research, the effect of implementing green accounting on company performance was tested. Company performance is represented by annual earnings and growth in share prices listed on the IDX for 2021-2023. The following is data on earnings and share price growth for each test sample.

Table 1. Earnings Data for Companies in the Research Sample (In Millions of Rupiah)

No	Issuer	2021	2022	2023
1.	PT. Aneka Tambang Tbk	1.862	3.821	3.078
2.	PT. Timah Tbk	1.303	1.042	450
3.	PT. Vale Indonesia Tbk	2.366	3.153	4.263
4.	PT. Adaro Energy Tbk	14.678	44.536	28.556
5.	PT. Bukit Asam Tbk	8.037	12.779	6.293

Table 2. Data on Share Prices of Sample Companies

No	Issuer	2021	2022	2023
1.	PT. Aneka Tambang Tbk	2.300	2.020	1.785
2.	PT. Timah Tbk	1.490	1.185	665
3.	PT. Vale Indonesia Tbk	4.700	7.200	4.370
4.	PT. Adaro Energy Tbk	2.270	3.870	2.430
5.	PT. Bukit Asam Tbk	2.760	3.700	2.470

Table 3. Average Earnings and Total Earnings Data for 3 (Three) Years in Green Accounting

No	Issuer	Average Earning in Green Accounting	Amount of Earnings for 3 years in Green Accounting
1.	PT. Aneka Tambang Tbk	2920,33	8.761
2.	PT. Timah Tbk	1931,33	2.795
3.	PT. Vale Indonesia Tbk	3260,67	9.782
4.	PT. Adaro Energy Tbk	29266,67	87.770
5.	PT. Bukit Asam Tbk	9036,33	2.7109

Table 4. Average Share Price and Total Share Price Data for 3 (Three) Years in Green Accounting

No	Issuer	Average Stock Price in Green Accounting	Amount of Stock Price Data for 3 years in Green Accounting
1.	PT. Aneka Tambang Tbk	2.035	6.105
2.	PT. Timah Tbk	1113,33	3.340
3.	PT. Vale Indonesia Tbk	5423,33	16.270
4.	PT. Adaro Energy Tbk	2856,66	8.570
5.	PT. Bukit Asam Tbk	2976,66	8.930

After obtaining the average calculation and amount of data in the application of green accounting, the normality test, partial t-test, coefficient of determination, and F-test (simultaneous) were calculated to determine whether the research data was normally distributed or not. Testing uses SPSS ver. 25. The following are the results of data normality testing for earnings.

Earnings Normality Test

Table 5. Calculation Results of Earnings Normality Test

One-Sample Kolmogorov-Smirnov Test

		Test Distribution Earning Under The Implementation of Green Accounting Data	Sarhpted Data Earning in 3 Year Under Implementa of Green Accountng Data
N		5	5
Normal Parameters [a,b]	Mean	9283,0660	27243.4000
	Std. Deviation	11513.11201	35027.52929
Most Extreme Differences	Absolute	.309	.309
	Positive	.309	.302
	Negative	.262	-.243
Test Statistic		.309	.302
Asymp. Sig. (2-tailed)		.135	.155[c]

a. Test distribution is Normal.
b. Calculated from data.

By using the Kolmogorov-Smirnov test, an absolute value of 0.309 was obtained with a significance value of 0.135 for the average earnings data in green accounting. Meanwhile, for earnings data for 3 (three) years, the absolute value was 0.302 with a significance value of 0.155. Provided that if the p-value (significance) is > 0.05, then the data is normally distributed, so parametric statistical testing can be used.

T-Test (Partial) Earnings

Has a significant effect if the significance value is less than 0.05 (α = 5%

In the t-test results table 6, you can see the calculation results based on the t-table numbers with the following conditions:

T table = t (α; n-k)

T= (α; 5-3)

T= (0.05; 2)

T = 2.920

Table 4.6's T-test reveals that the t-table is 2.920 and the t-count is -1.125. This indicates that there is no discernible difference in annual earnings when using green accounting because t-count < t-table, which means that Ho is accepted and H1 is rejected for annual earnings when implementing green accounting.

Table 6. T-Test (Partial) Earnings Data

Model		Unstandardized Beta	Coefficient Std. Error	Standardized Coefficient Beta	t	Sig.
1	(Constant)	-981,319	871,998		-1,125	0,342
	Average of data earning on green accounting	3,040	0,063	0,999	48,341	0,000

Source: Processed Primary Data

Earnings Determination Coefficient

View the R-squared value of the model summary (for simple regression).

Table 7. Earnings Determination Coefficient

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,999	0,999	0,998	1448,24753

Source: Processed Primary Data

F Test (Simultaneous) Earnings

Has a significant effect if the significance value is less than 0.05 (α = 5%)

Table 8. F Test (Simultaneous) Earnings

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4901418970	1	4901418970	2336,879	0,000
	Residual	6292261,765	3	2097420,922		
	Total	490711233	4			

Source: Processed Primary Data

This means that the average earnings in green accounting have a significant effect on the total earnings data for 3 (three) years, amounting to 0.000.

Stock Price Normality Test

Table 9. Stock Price Normality Test

One-Sample Kolmogorov–Smirnov Test

		Average Stock Price under Green Accounting	Average Stock Price over 3 Years under Green Accounting
N		5	5
Normal Parameters[a,b]	Mean	2880.9960	8643.0000
	Std.	1605.73646	4817.21081
Most Extreme Differences		.276	.276
	Positive	.276	.276
Test Statistic		.276	.276
Asymp. Sig. (2-tailed)c, d		.200[c]	.200[d]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

By using the Kolmogorov-Smirnov test, an absolute value of 0.276 was obtained with a significance value of 0.200 for the average share price in green accounting. Meanwhile, for the total share price data for 3 (three) years, the absolute value was 0.276 with a significance value of 0.200. Provided that if the p-value (significance) is > 0.05, then the data is normally distributed, it can be concluded that the average share price data in the application of green accounting and the data on the number of share prices in the application of green accounting are stated to be normally distributed so that parametric statistical testing can be used.

T Test (Partial) Stock Prices

In the t-test results table, you can see the calculation results based on the t-table numbers with the following conditions:

T table = t (α; n-k)

T= (α; 5-3)

T= (0.05;2)

T = 2,920

Table 4.10's T-test reveals that the t-table is 2.920 and the t-count is 0.989. It may be determined that there is no discernible change in stock prices when using green accounting because t-count < t-table, which means that Ho is accepted and H1 is rejected for stock prices when implementing green accounting.

Table 10. T-Test (Partial) Stock Prices

Model		Unstandardized Beta	Coefficient Std. Error	Standardized Coefficient Beta	t	Sig.
1	(Constant)	0,009	0,010		0,989	0,396
	Average of stock price on green accounting	3,000	0,000	1,000	1012125,998	0,000

Source: Processed Primary Data

Coefficient of Determination of Share Prices

View the R-squared value of the model summary (for simple regression).

Table 11. Coefficient of Determination of Share Prices

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1,000	1,000	1,000	0,0092

Source: Processed Primary Data

F Test (Simultaneous) Stock Prices

Has a significant effect if the significance value is less than 0.05 (α = 5%)

Table 12. F Test (Simultaneous) Stock Prices

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	92822080,00	1	92822080,00	1,024	0,000
	Residual	0,000	3	0,000		
	Total	92822080,00	4			

Source: Processed Primary Data

This means that the average share price in green accounting has a significant effect on the total share price data for 3 (three) years of 0.000.

Research Discussion

In general, the results of this research want to invite companies in the industrial sector, especially mining, whether in nickel, tin, gold, coal, or others, to implement green accounting so that areas used as mining objects can still be managed again by the community with the budget issued by the special company for environmental financing. This environmental financing is not cheap, but the company's involvement in preserving the environment, especially for areas that have been used by mining activities, will be an added value for mining companies that implement green accounting both in the eyes of the community around the mining area, local governments, and investors.

Effect of Implementing Green Accounting on Annual Earnings

Using the Kolmogorov-Smirnov test, the significance of the average earnings in green accounting is 0.135, and the significance of the total earnings data for 3 years is 0.155, so that the p-value (significance) is > 0.05, meaning the data is normally distributed.

However, judging from the F test in Table 4.8, it is known that the average earnings in green accounting have a significant effect on the total earnings data for 3 (three) years, amounting to 0.000.

This research is in line with research by Zulhaimi and Hanifa in 2015, which stated that earnings data before and after the implementation of green accounting was stated to be normally distributed, so parametric statistical testing could be used.

The Effect of Implementing Green Accounting on Annual Share Prices

Using the Smirnov-Kolmogorov test, the significance of the average share price in green accounting is 0.200, and the total data on the significance of share prices for 3 years is 0.200. If the p-value (significance) is greater than 0.05, then the data is normally distributed. It can be concluded that the data is the average share price in the implementation of green accounting, and the data on the number of share prices in the application of green accounting is stated to be normally distributed so that parametric statistical tests can be used.

However, it is known that the average share price in green accounting has a considerable impact on the overall profits data for three (three) years, totaling 0,000, based on the F test in Table 4.12.

Effects of Implementing Green Accounting on Annual Earnings and Share Prices

This means that the average earnings in green accounting have a significant effect on the total earnings data for three (3) years, amounting to 0.000. Because it is significant that the average annual earnings are less than 0.05, there is a significant influence simultaneously.

This means that the average share price in green accounting has a significant effect on the total share price data for 3 (three) years of 0.000. Because it is significant that the average annual share price is less than 0.05, there is a significant influence simultaneously [4], [6].

Conclusion

The study's findings indicate that annual profits and green accounting are not significantly different. Furthermore, the application of green accounting to stock prices does not significantly change [3], [11], [12]. Lastly, the adoption of green accounting has no appreciable concurrent impact on stock prices and yearly profits. From this conclusion, the researcher's recommendation future research should be conducted annually and include a broader range of companies. Meanwhile, investors need to better understand the financial reports presented by the company and observe developments in perspectives and the implementation of green accounting for mining companies [1], [3], [11].

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