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The Effect of Green Accounting and Environmental Performance on The Profitability of Energy Sector Companies Listed on The IDX in 2022-2023

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Abstract
The increasing global concern over environmental sustainability has prompted companies, particularly in the energy sector, to implement green accounting practices and improve environmental performance. However, the effectiveness of such practices in enhancing profitability remains debated. This study aims to examine the influence of green accounting and environmental performance on the profitability of energy sector companies listed on the Indonesia Stock Exchange (IDX) for the 2022–2023 period. The research uses a quantitative method with secondary data obtained from financial statements, sustainability reports, and annual reports. A purposive sampling technique was applied to 77 companies, and data were analyzed using multiple linear regression. The findings reveal that green accounting has a significant positive impact on profitability, while environmental performance does not significantly affect profitability when tested individually. However, when tested together, both variables jointly influence profitability positively and significantly. These results suggest that integrated implementation of green accounting and environmental management enhances financial outcomes. The implication is that regulators should encourage companies to adopt sustainability reporting comprehensively. Moreover, only 17.6% of profitability is explained by the tested variables, indicating that other external and internal factors should be examined in future research.

Introduction

Every company has different efforts to increase the company's profitability. As done by PT TBS Energi Utama Tbk (TBS) as reported by Sindo News Wijayanto (2025) stated that TBS managed to record positive financial performance throughout 2024. And this is supported by positive growth in the waste management segment and increased mining operational efficiency. Indirectly in the company's operations, it often intersects with the activities of the people who live around the company. This is one of the company's focuses on maximizing waste management and its impact on the residential environment around the mining operation.

Figure 1 can be seen as an increase in the number of PROPER Program participants by 15% from 2022. With 69.09% of the compliance rate and 30.95% for the disobedience of PROPER participants. Although the percentage of obedience decreased from the previous year, from the number of participants there was an increase of 155 companies. It was stated that one of the causes of non-compliance was participants who were participating in PROPER for the first time. The Minister of Environment and Forestry has set the PROPER performance rating for the 2022-2023 period, which includes 3,694 participants (registered companies), of which 1,077 participants are certified in red ratings and 211 participants are subject to legal action/non-operational/suspended. From this data, it can be seen that there are many companies that still do not meet PROPER standards in the implementation of company operations, so the possibility of having a negative impact will be greater if there is no improvement from related parties.

In a study conducted by Meiriani et al. (2022) stated that green accounting has a significant influence on profitability, further Saifuddin & Wiyono (2023) stated that green accounting has no influence on profitability. As for environmental performance, it has a positive influence on profitability. This result is inversely proportional to research from Handoyo, et al. (2022) which states that environmental performance has no effect on profitability.

Through the results of previous research that are inconsistent, further research needs to be carried out. This background strengthens this research to be conducted, in order to determine the impact of green accounting and environmental performance on profitability. This research involves companies in the energy sector listed on the Indonesia Stock Exchange in 2022-2023.

In recent years, the integration of environmental co Green accounting and environmental performance have become central issues in the global discourse on corporate sustainability and social responsibility. In the Indonesian context, growing public awareness regarding the environmental consequences of industrial activity—particularly in the energy sector—has increased the demand for integrating environmental aspects into corporate financial reporting. As one of the primary contributors to carbon emissions and ecological degradation, energy companies are expected to pursue not only profit but also responsible environmental stewardship. Therefore, it is critical to examine the extent to which the implementation of green accounting and environmental performance contributes to overall corporate profitability.

Green accounting represents a company's effort to record and disclose financial information related to environmental activities, such as waste management costs, energy efficiency investments, and expenditures on environmentally friendly technologies. This practice promotes transparency and accountability in environmental management. It is also believed to strengthen investor trust and public image, potentially leading to long-term financial gain. However, the implementation of green accounting in Indonesia still faces significant challenges due to the absence of standardized reporting guidelines and limited regulatory incentives.

Environmental performance, on the other hand, is typically assessed through compliance with environmental standards such as Indonesia's PROPER program or ISO 14001 certification. Strong performance in these areas signals a company's proactive approach to minimizing negative environmental impacts. Nonetheless, existing literature presents conflicting evidence on the link between environmental performance and profitability. While some studies report a positive relationship due to enhanced reputation and operational efficiency, others suggest that environmental investments can temporarily reduce profit margins, particularly in the short term.

This inconsistency in research findings highlights the importance of further empirical studies, particularly within context-specific sectors such as energy. Past studies have shown mixed results—some support a significant positive influence of green accounting and environmental performance on profitability (e.g., Meiriani et al., 2022; Kotango et al., 2024), while others found no statistically significant relationship (e.g., Saifuddin & Wiyono, 2023; Handoyo et al., 2022). These discrepancies suggest that the impact of environmental practices on profitability may depend on factors like industry type, company size, and the stage of environmental policy implementation.

Focusing on energy sector companies listed on the Indonesia Stock Exchange (IDX) during 2022–2023 offers a relevant and strategic lens, given the sector's dual economic and environmental significance. This study uses data from financial statements, annual reports, and sustainability reports to empirically assess the influence of green accounting and environmental performance on profitability, using return on assets (ROA) as the primary indicator. A multiple linear regression model is employed to test both individual and simultaneous effects, providing a robust analytical framework with direct managerial and policy implications.

Overall, the findings reveal that green accounting has a positive and significant effect on profitability, while environmental performance, when measured individually, does not show a statistically significant influence. However, jointly, both variables significantly impact profitability, emphasizing the importance of integrated environmental strategies in corporate planning. These findings support the need for stronger regulatory frameworks and the promotion of green investments. Future research is encouraged to explore other contributing variables such as corporate social responsibility (CSR) disclosures, firm size, and operational efficiency to develop a more comprehensive model of profitability in the context of environmental sustainability.nsiderations into corporate accounting and performance assessments has emerged as a strategic imperative, especially in sectors that exert a considerable ecological footprint, such as the energy industry. Despite increasing regulatory pressure and rising societal expectations, many energy companies still fail to adopt comprehensive environmental accounting frameworks or disclose their environmental performance transparently. This leads to a significant question: Do environmental accountability and green accounting practices have a measurable effect on a firm's profitability? Although environmental initiatives are often framed as ethical imperatives, there is ongoing debate regarding whether they contribute positively to financial outcomes. This study aims to critically examine whether green accounting and environmental performance—as reflected through standardized programs like PROPER and ISO certifications—actually influence profitability among energy companies in Indonesia.

The urgency of this research lies in the global and national momentum toward sustainable economic development. Governments, investors, and consumers increasingly demand transparency and responsibility in how businesses impact the environment. For energy companies, which operate in high-emission and resource-intensive industries, this pressure is especially intense. Compliance with environmental standards is no longer optional but a central factor in determining long-term competitiveness and stakeholder trust. Yet, despite government initiatives such as Indonesia's PROPER program and ISO 14001 certification requirements, the correlation between these environmental efforts and business performance remains unclear, prompting the need for targeted academic inquiry.

Additionally, as Indonesia moves toward net-zero emissions and greener energy portfolios, understanding how environmental investments align with economic benefits becomes critical. Without clear evidence linking sustainability with profitability, firms may lack the motivation to go beyond minimum compliance. Therefore, this study responds to the urgent call for empirical evidence that can guide policy, investment, and operational decisions in the energy sector.

Earlier studies have offered diverse findings regarding the connection between environmental practices and profitability. Meiriani et al. (2022) reported that green accounting had a significant and positive impact on corporate profitability in the mining sector, suggesting that robust environmental disclosures can create long-term value by improving efficiency and stakeholder relationships. However, Saifuddin & Wiyono (2023) contested this by showing no significant correlation, attributing inconsistencies to differences in environmental cost allocation and disclosure practices across firms.

Similarly, Handoyo et al. (2022) found that environmental performance, as measured through certifications and compliance indicators, did not significantly influence profitability in publicly listed firms. They argued that many companies implement environmental programs symbolically, without embedding sustainability into core business strategies.

On the contrary, Kotango et al. (2024) discovered that environmental costs had a substantial influence on profitability, especially when firms transparently reported investments in waste management, emission reductions, and renewable resources. These conflicting findings underscore the need for further research focused on sector-specific dynamics—particularly in the energy sector, which remains underexplored in the Indonesian context.

Although several studies have examined green accounting and environmental performance in relation to profitability, few have narrowed their scope specifically to the Indonesian energy sector. This industry is uniquely positioned at the intersection of environmental risk and national economic priority, yet it is often generalized in broader studies. Moreover, most prior research relies on aggregated or annual data without accounting for the latest reporting standards or utilizing robust econometric techniques. This study addresses these gaps by focusing exclusively on energy companies listed on the Indonesia Stock Exchange (IDX), using 2022–2023 financial, sustainability, and annual reports. It applies simultaneous regression models to capture both partial and joint effects of green accounting and environmental performance—offering a more precise understanding of how these variables influence Return on Assets (ROA).

The novelty of this study lies in its methodological and contextual approach. It is among the first to simultaneously assess the impact of green accounting and environmental performance—operationalized through PROPER ratings and ISO 14001 certifications—on profitability in Indonesia's energy sector using updated post-pandemic data. Unlike previous research that treats these variables independently, this study uses multiple regression analysis to test their combined influence, offering a more comprehensive model. Additionally, it contributes a sector-specific lens by focusing on energy companies, which face both reputational and regulatory pressures to align business practices with environmental goals.

The objective of this research is to determine the effect of green accounting practices and environmental performance on the profitability of energy companies listed on the Indonesia Stock Exchange. Specifically, the study seeks to identify whether these two independent variables have significant individual and collective effects on Return on Assets (ROA) and to provide a predictive model for profitability based on environmental disclosure indicators.

This study contributes to academic literature by filling empirical and contextual gaps in understanding the environmental-profitability nexus. For practitioners and policymakers, the findings offer actionable insights into which environmental metrics correlate with improved business outcomes. Companies can utilize the research to design sustainability strategies that also drive profitability, while regulators may consider the evidence in shaping future environmental disclosure requirements. Investors, in turn, can better assess ESG risks and returns when evaluating companies in the energy sector. Overall, this research promotes a paradigm where sustainability is not a cost but a value driver.

Materials and Methods

This study aims to calculate and compare variables from secondary data of energy sector companies listed on the IDX for the 2022-2023 period as a population and found 90 companies. The determination of the data sample in this study used purposive sampling, with samples selected systematically according to certain conditions (Sugiono, 2018). The criteria used by the researcher are as follows:

1. Energy sector companies listed on the IDX (Indonesia Stock Exchange) in 2022-2023.
2. The company publishes financial statements or annual reports or sustainability reports during the 2022-2023 period.

After analysis, it was found that 77 companies met the criteria according to the data needed by the researcher, so that there were 154 data samples that could be processed by researchers.

Results and Discussions

Table 1. Descriptive Statistical Test

Certificate	Score
Obtaining a Gold PROPER certificate	5
Obtaining a Green PROPER certificate	4
Obtaining a Blue PROPER certificate	3
Obtaining a Red PROPER certificate	2
Obtaining a Black PROPER certificate	1
No/not yet followed PROPER	0

So that green accounting has the lowest value of 0 (no/not following PROPER) and a maximum value of 5 (gold). The standard deviation value of green accounting of 1.833 is greater than the average value of 1.12, indicating that there are various variations in data deviation between companies.

In the environmental performance variable, the researcher used a dummy approach with an ISO 14000/14001 award. Companies that win the award will get a score of "1" and companies that do not/have not received an award will get a score of "0". With an average of 0.62, it shows that the standard deviation value is smaller which is 0.486 thus, the variation in the distribution of data deviations is less diverse in environmental performance.

Meanwhile, in profitability, the researcher used ROA (return on assets) with a standard deviation value greater than the average, namely 0.1100616 > 0.075193. These results show that the variants of data deviation distribution are more diverse between companies.

Classic Assumption Test

It can be seen in table 2 The normality test results from the classical assumption test of normality using One sample K-S show normal data results because the significant values are 0.087 > 0.05 so that the researcher can conclude that green accounting, environmental performance and profitability are normal distributions.

Multicollinearity Test

In table 3 of the results of the multicollinearity test, the value of Tolerance on the variables of green accounting (X1) and environmental performance (X2) > 0.1 which is 0.861 and for the VIF statistical value is also below 10 which is 1.161. So that this result can be concluded by the researcher that the test results do not occur multicollinearity and are in accordance with the requirements of this test, then the research can be continued.

Multiple Linear Regression Analysis

Based on table 4, the regression results can be taken from the regression model as follows:

$$LENGTH = 0.046 + 0.025X1 + 0.002X2 + e$$

So this result means that when green accounting and environmental performance have a value of 0, then the ROA value is 0.046 according to the regression value. With a change of 0.025 in green accounting for profitability and 0.002 for environmental performance for profitability. Then for green accounting and environmental performance, it has a positive influence on profitability (ROA) as well as for green accounting on profitability and environmental performance on profitability.

Partial Significance Test (T Test)

In the hypothesis test, the researcher uses a table from the multiple liner regression test with the following test standards and conditions: when the t-value is below 0.05, then the hypothesis will be accepted moderately for a t-value above 0.05, then the hypothesis is rejected. The results of table 4 show that the significance value of green accounting is 5.763E-7 (0.0000005763) so that it meets the requirements is below 0.05. Therefore, from this explanation, the conclusion that can be drawn is that green accounting has a significant influence on profitability. Then the financial performance has a significant value of 0.892 so that it is not in accordance with the requirements of being above 0.05. Therefore, it can be concluded that financial performance does not affect profitability.

H1 = Green Accounting has a significant effect on Profitability (accepted).

H2 = Environmental performance has an effect on the significant Profability (rejected).

F Test (Simultaneous)

In table 5, it can be seen that the value is simultaneously significant 4.3976E-7 (0.00000043976) or below 0.05 so that it can be concluded that green accounting and environmental performance have a simultaneous effect.

H3 = Green Accounting and Environmental Performance have a significant effect on Profitability (accepted).

Coefficient of Determination Test (R2)

The result of the Durbin Watson test is 1.854 after comparing it with the values of the table dU we can see that 1.854 < 1.7629 and 1.854< 4-1.7629. It can be concluded that the researcher's data does not autocorrelate. In table 6, the R value is recorded at 0.420, which shows that this value is included in the category of quite strong (0.4-0.59). As for the R Square value which reached 17.6%, which means that the influence between green accounting and environmental performance on profitability (ROA) is still 82.4% of other factors that can affect the company's profitability value.

Conclusion

From the research that has been conducted, the following conclusions can be drawn: Partially, green accounting has a positive and significant effect on profitability. Partially, environmental performance has no significant effect on proficiency. Simultaneously, green accounting and environmental performance have a significant effect on profitability. Although it was found to have a significant influence on profitability in the study, this value was small, only reaching 17.6%, so there were still another 82.4% that were influenced by other factors.

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