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Uncovering Profitability Drivers: The Effect of Green Accounting, Good Corporate Governance, and Firm Size in Coal Industry Listed on Indonesia Stock Exchange (2019 – 2023)

Muhammad Hanif Taufik[1], Galuh Tresna Murti[2*]
[1]Telkom University, Bandung, Indonesia, mhmdhaniif@student.telkomuniversity.ac.id
[2]Telkom University, Bandung, Indonesia, galuht@telkomuniversity.ac.id

[*]Corresponding Author: galuht@telkomuniversity.ac.id[2]

Abstract: Profitability refers to a company's aptitude for deriving earnings from its operational undertakings and the judicious stewardship of its assets. This dimension illustrates the extent to which a firm utilizes its resources efficiently and reflects its success, competitiveness, and productivity within the industry. The objective of this inquiry is to scrutinize how green accounting, proxied by environmental performance (X1), good corporate governance embodied by the board of directors (X2), independent commissioners (X3), audit committee (X4), and firm size (X5), exerts an influence on profitability (ROA) (Y) among coal enterprises enumerated on the Indonesia Stock Exchange from 2019 to 2023. This study adopts a quantitative approach employing secondary data drawn from corporate annual disclosures. A purposive sampling technique was utilized to designate eleven firms, culminating in 55 observational data points. The independent variables (X) and the dependent variable (Y) were analyzed through panel data regression procedures. The findings unveil that environmental performance, board of directors, independent commissioners, audit committee, and firm size collectively impart an impact on profitability. Nevertheless, under partial scrutiny, solely firm size exerts a positive effect on profitability, whereas the remaining variables do not manifest significant influence.

Keywords: firm size, good corporate governance, green accounting, profitability.

INTRODUCTION

Every company in running their business has a demand to have a competitive advantage as evidence of the realization of company goals to achieve maximum profit, so the companies must carry out their activities in an effective and efficient way in using its resources to create added value and be able to compete in a competitive market with good financial performance (Murti & Faradisyi, 2023). Financial performance indicates a company's capability to manages their assets to generate income and reflects its financial condition over a specific period. This information is crucial for both current and potential investors when making investment decision. Moreover, financial performance serves as a key indicator of whether a company is performing well or bad, and it can be assessed using profitability ratios such as return on assets

(ROA) (Kenton, 2024; Prijayanti & Haq, 2023). This research is based on signaling theory, which was originally introduced by Michael Spence in 1973, this theory states that when one party has certain information, they can communicate it through signals to the other party. The receiving party then interprets those signals and responds accordingly (Amanda et al., 2019).

Profitability stands as a pivotal emblem of financial efficiency, appraising a corporation's capacity to harvest earnings through the prudent orchestration of its assets. Profitability is measured using ratios. To evaluate the profitability of a business, it is necessary to examine its financial results over various periods. Different financial ratios such as profitability, activity, liquidity, and solvency can be used for this assessment. Return on Assets (ROA) is one of the most commonly used indicators for assessing profitability. An increase in asset value (ROA) may be associated with increased profitability and better performance of the company (Murti & Faradisyi, 2023; Riswanti & Effriyanti, 2023).

The 2019 trade war between the US and China had a significant impact on the global economy, particularly on the demand for coal energy (Adharsyah, 2019). China's decision to restrict coal imports led to a decline in coal demand, causing global coal prices to fall and negatively affecting Indonesia as one of China's main coal suppliers (ckb.co.id, 2018). As the world's largest coal consumer, China's import policies significantly influenced global coal price trends (Hanung, 2018). This situation caused a significant decline in the financial performance of Indonesia coal companies, such as PT Indo Tambangraya Megah Tbk (ITMG), which experienced a 50% decline in revenue due to falling coal prices (Budiartie, 2020; Citradi, 2020).

A similar decline occurred in 2023, when coal companies experienced financial losses again due to falling coal prices. For example, ITMG reported a net profit of US$500 million, which is a 58,3% decrease from US$1.2 billion in the previous year (Durrohman, 2024). This decline contrast with 2022, when the Russia-Ukraine conflict led to increased demand for coal from Indonesia due to reduced gas supplies to Europe (Laoli, 2024). However in 2023, increased production from other coal producing countries, the resolution of supply chain issues, high interest rate, and a mild winter in Europe contributed to lower demand and reduced coal prices (Nugroho, 2023; Setiawati, 2024).

Profit is the main goal of a company, but environmental sustainability is also very important. Green accounting signifies a mechanism intertwining the quantification, documentation, and disclosure of fiscal, societal, and ecological dimensions (Hapsari et al., 2025). Green accounting comes as an accounting concept that balances profit and environmental goals. Green accounting serves as an environmental management tool, a medium of communication with society, and provider of relevant information for those who need to understand the company's activities (Chasbiandani et al., 2019; Wiranti, 2023). Participation in the Environmental Management Performance Assessment Programme (PROPER), conducted by the Ministry of Environment and Forestry, which evaluates environmental performance, may indicate how well the company utilises green accounting. Companies with good environmental performance often have implemented green accounting and tend to experience increased sales and profits, because consumers prefer environmentally friendly products, so environmental performance measurement can be done as a proxy for green accounting (Fahira & Yusrawati, 2023; Hamidi, 2019).

Environmental performance reflects a company's commitment to minimizing the negative environmental impact of its operations (Ningtyas & Triyanto, 2019). Companies that effectively manage and reduce negative environmental impacts tend to demonstrate stronger environmental performance. This strong performance can also serve as a strategic approach to enhancing financial outcomes (Majidah & Aryanty, 2022; Putri et al., 2019). Supporting this, (Rahman et al., 2023) found that green accounting proxied by environmental performance has a positive and significant effect on profitability, companies with strong environmental performance and their performance reflected in high PROPER ratings, there will be an increase

in profitability. In contrast, (Purwanti et al., 2024) concluded that environmental performance does not significantly affect profitability, which suggest that a good or bad company's environmental practices, even with a high PROPER rating, do not necessarily impact its profitability.

H1: Environmental performance has a positive and significant effect on profitability.

In the era of globalization, companies are required to implement good corporate governance (GCG) to ensure transparency and accuracy of financial information for shareholders. Proper GCG enactment may amplify investor conviction and exert a favorable influence upon corporate prowess. In addition, GCG also includes ethical principles and collaboration that encourage fairness, harmonization, and maximum development of the organization (Lubis & Susanto, 2019; Prijayanti & Haq, 2023). As asserted by (Fajri et al., 2022), the audit committee, independent commissioners, and the board of directors collectively embody the apparatus of corporate governance.

The board of directors, elected by shareholders, holds the responsibility for managing company operation and achieving company goals (Ni'mah & Syaiful, 2021; Pratama et al., 2022). As part of internal governance, they play a key role in implementing good corporate governance to enhance financial outcomes (Terzaghi & Ikhsan, 2022). The magnitude of the board of directors is perceived to wield an influence upon the the company's financial performance, with larger board of directors often linked to improved financial performance due to diverse expertise (Oktafiana & Suryono, 2022). This, in line with (Prijayanti & Haq, 2023) research, which indicate a significant positive correlation between board size and profitability. However, (Honi et al., 2020) argue that board of director size is not enough, the competence and professionalism of directors is more important in improving company's financial performance.

H2: Board of directors has a positive and significant effect on profitability.

Members of the commission's council who have no financial ties, managerial participation, ownership, or familial relations with directors are referred to as independent commissioners (Sianturi et al., 2020). Their presence can enhance company performance through effective supervision, reducing fraud in financial reporting, increase reports objectivity, and encourage investor confidence, which could lead to higher profitability. So the large number of independent commissioners tends to be better than those who don't have it (Daljono, 2023; Pratiwi & Noegroho, 2022). Previous research shows mixed result on how independent commissioners influence financial performance. Research by (Intia & Azizah, 2021) found a positive effect, suggesting that more independent commissioners enhance oversight and improve performance. In contrast, (Dewi & Azizah, 2023) found that they do not have a significant connection with financial performance.

H3: Independent commissioners has a positive and significant effect on profitability.

The Indonesian association of audit committees states that the audit committee was established by the board of commissioners to operate professionally and independently. Its main role is to assist the board in strengthening oversight, particularly in areas such as accounting policies, internal control systems, and financial reporting. A larger number of audit committee members is believed to enhance management supervision, thereby improving company performance (Yulianti & Cahyonowati, 2023). According to (Sari et al., 2020), audit committees improve financial performance by enhancing the control of financial reporting. This increases the reliability of financial reports and leads to better outcomes for the company. However, this is in contrast to research (Sembiring & Saragih, 2019), which claims that audit committees have no significant impact on financial performance and that they often merely work to fulfil regulatory requirements rather than improve the company's results.

H4: Audit committee has a positive and significant effect on profitability.

Firm size is defined as a value used to classify firms as large or small firms, typically reflected in its workforce strength, production capabilities, and financial resources (Fayola & Nurbaiti, 2020; Nabila & Wuryani, 2021). Firm size is an important consideration for investor as it reflects the total assets owned by a firm, a larger firm size reflects that the business is developing and growing well (Murti & Azizah, 2024; Prijayanti & Haq, 2023). Larger firms generally have a greater potential to generate profits, which can enhance their profitability (Nainggolan et al., 2022). According to previous research by (Murti & Faradisyi, 2023), stating that firm size effect the financial performance, which larger firms are typically more capable of securing external funding and tend to have better management compared to smaller companies, which in turn leads to improved financial performance. In contrast with (Apriliani & Dewayanto, 2018), concluded that firm size does not significantly affect financial performance as measured by ROA, as a larger scale does not necessarily reflect effective management.
H5: Firm size has a positive and significant effect on profitability.

This inquiry delves into phenomena alongside divergences discovered in antecedent studies. It scrutinizes the manner in which green accounting, manifested through environmental performance, and good corporate governance, embodied by the board of directors, independent commissioners, audit committee, as well as firm size, impart an impact on the profitability of coal sector enterprises catalogued on the Indonesia Stock Exchange throughout 2019 to 2023. The ensuing points delineate the research questions:

1. What are the descriptive results of green accounting, good corporate governance, firm size, and profitability of coal industry companies listed on the Indonesia Stock Exchange in 2019 to 2023?
2. Will green accounting, good corporate governance and firm size affect the profitability of coal industry companies listed on the Indonesia Stock Exchange from 2019 to 2023?
3. Will green accounting affect the profitability of coal industry companies listed on the Indonesia Stock Exchange from 2019 to 2023?
4. Does good corporate governance affect the profitability of coal industry companies listed on the Indonesia Stock Exchange from 2019 to 2023?
5. Does size of the firm affect the profitability of coal industry companies listed on the Indonesia Stock Exchange from 2019 to 2023?

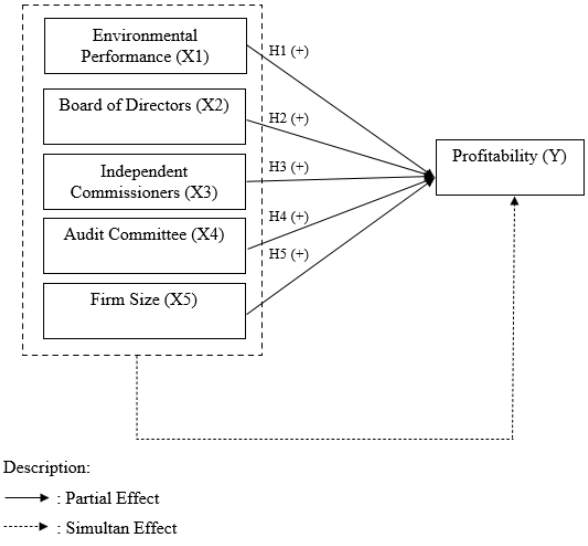


Figure 1. Conceptual Framework
Source: Processed by author, 2025

METHODS

In this research, the method used is quantitative method, according to (Fiantika et al., 2022:1), quantitative research is a systematic and scientific method that explores phenomena, their components, and the relationships between them. It aims to test hypotheses using statistical tools, focusing on measurements that connect real-word observations with mathematical representations. This research uses a deductive approach, which as explained by (Darwin et al., 2021:20), starts from a general theory and continues by testing it to draw specific conclusions.

This research is classified as a descriptive, which aims to systematical and accurately describe current conditions, phenomena, or relationships, as defined by (Kristiyanti, 2023:3). This research uses a case study, focusing on specific objects or events to gain an in-depth understanding of real-world issues from various perspectives (Nugraha et al., 2023:69). The unit of analysis is a group of similar companies, namely coal industry companies. This study uses secondary data from the company's annual report, which shows that the researchers were not involved at all.

The research was conducted in a natural environment without constructions. This is a typical natural environment where things happen (Nugraha et al., 2023:67). The study harnessed purposive sampling to designate 45 coal enterprises enumerated on the Indonesia Stock Exchange (IDX) during 2019 to 2023. Purposive sampling constitutes a technique of specimen selection grounded upon delineated criteria (Darwin et al., 2021:115). The following criteria are used to select samples:

Table 1. Sample Criteria

No	Criteria	Amount
1	Coal industry companies listed on the IDX for the 2019 – 2023 period.	45
2	Coal industry companies that are not consistently listed on the IDX throughout the 2019 – 2023 period.	(11)
3	Coal industry companies that do not consistently publish annual report during the 2019 – 2023 period.	(5)
4	Coal industry companies that are not consistently listed in the PROPER rating for the 2019 – 2023 period.	(18)
	Total Sample	11
	Total Observation (11 x 5 years)	55

Source: Processed by author, 2025

This research uses the panel data regression method for its data analysis technique, which combines times series and cross-sectional data into a structured format for analysis. Data processing was carried out using EViews software version 12 and Microsoft Excel 2016. The panel data regression formulation harnessed within this inquiry is articulated as enumerated below:

$$PROF = \alpha + \beta_1 EP + \beta_2 BOD + \beta_3 IC + \beta_4 AC + \beta_5 FS + \varepsilon$$

Table 2. Variable Operational

Variable	Indicator	Scale
Profitability (PROF) (Y)	$ROA = \frac{Net\ Profit\ After\ Tax}{Total\ Assets} X100\%$ (Prabowo & Sutanto, 2019)	Ratio
Environmental Performance (EP) (X1)	Giving a score to each PROPER color group, namely: Gold: Excellent (5), Green: Good (4), Blue: Fair (3), Red: Bad (2), Black: Very Bad (1) (Rahman et al., 2023)	Ordinal
Board of Directors (BOD) (X2)	$BOD = \sum Board\ of\ Directors$ (Ni'mah & Syaiful, 2021)	Ratio

Independent Commissioners (IC) (X3)	$IC = \frac{\sum Independent\ Commissioners}{\sum Member\ of\ Commissioners}\ X\ 100\%$ (Liyanto & Anam, 2019)	Ratio
Audit Committee (AC) (X4)	$AC = \sum Member\ of\ Audit\ Committee$ (Rahmawati et al., 2017)	Ratio
Firm Size (Size) (X5)	$Size = Ln\ (Total\ Assets)$ (Murti & Azizah, 2024)	Ratio

Source: Processed by author, 2025

RESULTS AND DISCUSSION

Descriptive Statistic

This research descriptive statistical analysis includes one dependent variable and five independent variables, which measured using two different scales: (a) ratio scaled variables, including profitability, board of directors, independent commissioners, audit committee, and firm size; (b) an ordinal scaled variable, namely environmental performance. For ratio scaled variables, the analysis includes the calculation of the average (mean), maximum, minimum, and standard deviation values. Meanwhile, the ordinal variable is analyzed using frequency distribution to identify the most dominant category.

Table 3. Descriptive Statistical Test Results on a Ratio Scale

	PROF (Y)	BOD (X2)	IC (X3)	AC (X4)	SIZE (X5)
Mean	0,161836	5,563636	0,451273	3,218182	20,33251
Maximum	0,618000	15,00000	0,750000	4,000000	23,10100
Minimum	-0,260000	2,000000	0,330000	3,000000	16,95800
Std. Devi	0,178618	2,594607	0,121153	0,416818	1,636226
Observation	55	55	55	55	55

Source: EViews 12 (processed, 2025)

Table 3 shows the results of the descriptive statistical analysis of the ratio scale:

1. The standard deviation of the profitability variable (Y) is greater than the mean value, indicating significant variation in profitability among companies. This means that even though the average shows a positive value, there are some companies that have profitability levels below average or even negative. The maximum value of profitability is 0,618000, and the minimum is -0,260000.
2. The board of directors variable (X2) possesses a mean surpassing its standard deviation, signifying that the average figure aptly embodies the scrutinized data. This indicates that, in general, the board composition within the sampled entities resides at a reasonably sound tier, evidenced by a maximum count of 15 and a minimum of 2.
3. The independent commissioner variable (X3) exhibits a mean exceeding its standard deviation, denoting that the average measure aptly encapsulates the surveyed data. This implies that the proportion of independent commissioners across the sampled corporations remains relatively uniform and demonstrates minimal fluctuation. The maximum value of independent commissioners is 75%, while the minimum is 33%.
4. Audit committee variable (X4) has an average value higher than the standard deviation, which shows grouped and homogeneous data. Which means that the proportion of audit committees among the companies in the sample tends to be similar. The maximum value of audit committee is 4, while the minimum value is 3.
5. Firm size variable (X5) has an average value higher than the standard deviation, which shows that the total assets of the sample companies are grouped (not varied) and homogeneous. However, most of the companies listed have total assets above the average, with the maximum value of 23,10100, and the minimum value of 16,95800.

Table 4. Descriptive Statistical Test Results on an Ordinal Scale

Environmental Performance		
Rating	**Frequency**	**Percentage**
Gold (5): Excellent	9	16,36%
Green (4): Good	23	41,82%
Blue (3): Fair	23	41,82%
Red (2): Bad	0	0
Black (1): Very Bad	0	0
Total	55	100%

Source: Processed by author, 2025

Table 4 shows that certain companies consistently participated in the PROPER program throughout the observation period, most of them belong to the green (good) and blue (fair) rating categories, each with 23 observations or 41,82% of the total observation. Meanwhile, the gold (excellent) category has a lower frequency, with only 9 observations or 16,36% of the total observation data. During this research period, there are no companies that have a red (bad) or black (very bad) rating.

Classical Assumption Test

Performing linear regression using the ordinary least squares (OLS) method requires the classical assumption tests. According to (Basuki, 2021:27), it is sufficient to only perform tests for multicollinearity and heteroscedasticity in panel data regression.

a. Multicollinearity Test

Table 5. Results of Multicollinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0,119630	250,5670	NA
EP	0,001211	36,90071	1.311652
BOD	0,000150	11,80965	2,077991
IC	0,037156	16,93901	1,103449
AC	0,004360	96.14310	1,557853
SIZE	0,000327	285,2107	1,802015

Source: EViews 12 (processed, 2025)

The multicollinearity assessment outcomes reveal that each independent variable holds a Variance Inflation Factor (VIF) score below 10. This signifies that no multicollinearity complication arises among the independent variables within the regression framework employed in this inquiry.

b. Heteroscedasticity Test

Table 6. Results of Heteroscedasticity Test

Heteroskedasticity Test Glejser			
F- Statistic	1,413349	Prob. F (5,49)	0,2360
Obs*R-squared	6,932289	Prob. Chi-Square (5)	0,2257
Scaled explained SS	0,000150	Prob. Chi-Square (5)	0,3273

Source: Source: EViews 12 (processed, 2025)

Referring to the heteroscedasticity examination detailed in Table 6, the Chi-Square probability (Obs*R-Squared) value amounts to 0.2257, which surpasses 0.05. This denotes that the dataset in this inquiry manifests no heteroscedasticity issue.

Panel Data Regression Model Selection

Choosing the most fitting model necessitates conducting an array of specification examinations, including the Chow test, Hausman test, and Lagrange Multiplier test. Nonetheless, if both the Chow and Hausman assessments indicate that the Fixed Effect Model (FEM) is the most suitable framework, performing the Lagrange Multiplier test becomes superfluous (Basuki, 2021:60).

Table 7. Panel Data Regression Model Specification Result

	Prob. Chi-Square	Result
Chow Test	0,0000	Fixed Effect Model (FEM)
Hausman Test	0,0003	Fixed Effect Model (FEM)

Source: EViews 12 (processed, 2025)

As delineated in Table 7, the Chow test yields a p-value of 0.0000, which lies below 0.05. This substantiates that the fixed effects model (FEM) stands as the most fitting framework for this inquiry. Moreover, the Hausman test furnishes a probability of 0.0003 < 0.05, thereby reaffirming the appropriateness of FEM. Consequently, the Lagrange multiplier examination becomes superfluous.

Panel Data Regression Model Selection Results

Table 8. Result of Panel Data Regression Analysis (FEM)

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Result
C	-6,559680	1,439865	-4,555760	0,0001	
EP	-0,027556	0,040401	-0,682060	0,4992	H1 Rejected
BOD	0,008562	0,018416	0,464920	0,6446	H2 Rejected
IC	-0,256044	0,231784	-1,104665	0,2761	H3 Rejected
AC	-0,026245	0,114493	-0,229230	0,8199	H4 Rejected
SIZE	0,343150	0,068760	4,990519	0,0000	H5 Accepted
R-squared	0,689699	**Mean dependent var**		0,161836	
Adjusted R-squared	0,570352	**S.D. dependent var**		0,178623	
F-Statistic	5,778953	**Durbin-Watson stat**		1,736214	
Prob(F-Statistic)	0,000005				

Source: EViews 12 (processed, 2025)

$$PROF = -6{,}559680 - 0{,}027556\,\text{EP} + 0{,}008562\,\text{BOD} - 0{,}256044\,\text{IC} - 0{,}02645\,\text{AC} + 0{,}343150\,\text{SIZE}$$

It is possible to infer from Table 8 with coefficients from the panel data regression that environmental performance, independent commissioners, and the audit committee have a relationship that is negatively associated with reductions in profitability. While the board of directors and firm size have a positive relationship, which increases profitability. The constant value suggests that if all independent variables are zero, profitability would significantly decrease.

Hypothesis Test

a. Coefficient of Determination (R^2)

The determination coefficient (R^2) shows how much the dependent variable is influenced by the independent variables (Sahir, 2022:54). A diminutive R^2 value signifies a feeble influence, whereas a figure nearing 100% denotes a more robust impact. The adjusted R^2 score of 0.570352 implies that the independent variables within this inquiry elucidate 57% of the variance in the dependent variable, while the residual 43% stems from extraneous determinants not meticulously explored.

b. Simultaneous Test (F-Test)

The primary objective of the F-test was to ascertain whether the dependent variable is jointly influenced by the independent variables. This examination was carried out at a 5% (0.05) significance threshold. Table 8 reveals that the Prob(F-statistic) value amounted to 0.000005, which is inferior to 0.05. Table 8 shows that the Prob(F-statistic) value was 0.000005 less than 0.05. This study has confirmed that environmental performance (X1), board (X2), independent commissioners (X3), audit committee (X4), and firm size (X5) all have a significant impact on profitability (Y).

c. Partial Test (t-Test)

According to (Sahir, 2022:53), a t-test was performed at a 5% (0,05) significance level to assess how each independent variable (X) individually affect profitability (Y). As shown in Table 8, the t-test result shows:

1. Environmental performance (X1) shows that it does not have a partial effect on profitability (Y) with a probability value of 0,4992 > 0,05.
2. The board of directors (X2) probability value is 0,6446 > 0,05, indicating that the board of directors does not have a partial effect on profitability (Y).
3. Independent commissioners (X3) have a probability value of 0,2761 > 0,05, suggesting that independent commissioners do not have a partial effect on profitability (Y).
4. The audit committee (X4) has a probability value of 0,8199 > 0,05, showing that the audit committee does not have partial effect on profitability (Y).
5. Firm size (X5) shows probability value of 0,0000 < 0.05, demonstrating a significant partial effect of the firm size on profitability (Y).

Discussion

The Effect of Environmental Performance (X1) on Profitability (Y)

The partial test findings reveal that environmental performance, assessed through PROPER rankings, exerts no significant effect on the profitability of coal enterprises listed on the IDX from 2019 to 2023. This suggests that attaining a PROPER program rating does not inherently assure an enhancement in corporate profitability, and a firm's environmental standing, whether commendable or poor, does not influence its profitability.

This finding shows that better environmental performance does not always lead to increase profitability. In fact, companies with better PROPER ratings often show average or below-average profitability. This suggests that PROPER ratings alone are not a strong indicator of a company's profitability prospects. Environmental efforts reflected in PROPER ratings have not provided direct economic value to company profitability, particularly in the coal industry, where such efforts may be seen as additional costs rather than profit drivers.

The majority of the company has only achieved blue or green ratings, indicating compliance with basic regulations rather than striving for excellence. These ratings also do not appear to enhance reputation or attract investor interest. In result, environmental initiatives seem to be undertaken only to fulfill regulatory requirements. This shows that the PROPER assessment received by the company is not the only information that can be used by external parties as an emblem to appraise the firm's profitability prospects. In other terms, although signaling theory posits that commendable environmental performance may transmit favorable cues to the market, in practical application, PROPER ratings cannot be considered a strong signal of financial performance, especially when the majority of companies only achieve minimum compliance standards.

This outcome stands in opposition to the theoretical premise suggesting that environmental performance positively influences profitability. Nevertheless, these revelations resonate with the studies conducted by (Purwanti et al., 2024) and (Reinamah et al., 2024), both of which discerned no significant linkage between environmental performance and profitability,

underscoring that an elevated PROPER rating does not directly translate into superior financial outcomes.

The Effect of Board of Directors (X2) on Profitability (Y)

Based on partial test results, it shows that the board of directors, measured by the total number of board, has no significant impact on profitability of coal companies listed on IDX from 2019 to 2023. This shows that having a large number of board members does not guarantee better company performance or higher profitability, which means that the effectiveness role of the board of directors in managing the company is not only determined by its size.

This finding also indicates that the number of directors is not the only information that can be a signal for external parties in assessing the effectiveness of the performance of the board of directors in carrying out its functions, which eventually impacts the growth of the company's profitability. To improve the company's governance and decision-making process, other elements must be taken into account. This demonstrates that although the company has adhered to POJK No. 33/POJK.04/2014, which states that the board and committee of public companies must have at least two members on the board, the regulation does not guarantee any direct increase in profitability. As a result, the performance, competence, and efficiency of the board are more important than the number of members.

The results of this study contradict the initial hypothesis that the BOD has a significant and positive impact on profitability. However, these findings consistent with (Honi et al., 2020) and (Febrina & Sri, 2022), shows that the board does not affect profitability (ROA). The research indicates that having more board members can disrupt profitability due to more complex decision-making and potential internal conflicts. Consequently, the size of the board does not determine profitability. What is most important is the quality, competence, and professionalism of the board members when performing their duties.

The Effect of Independent Commissioners (X3) on Profitability (Y)

Drawing from the partial test outcomes, it is discerned that independent commissioners, gauged by their proportion within the board of commissioners, exert no substantial effect on the profitability of coal enterprises listed on the Indonesian Stock Exchange (IDX) throughout 2019 to 2023. This likewise implies the absence of a positive nexus between the presence of independent commissioners and corporate profitability. Although entities may have adhered to POJK regulation No. 33/POJK.04/2014, which mandates a minimum of 30% independent membership within the board of commissioners, such compliance does not inherently assure superior supervisory quality nor an augmentation in profitability.

This finding indicates that the effectiveness of independent commissioners depends more on their quality, competence and industry understanding rather than their presence. Therefore, their role in improving profitability cannot be assessed just based on their numbers. The existence of independent commissioners remains an important part of corporate governance, but their effectiveness in driving company profitability is not only determined by their number, therefore the existence of independent commissioners is not the only information that can be a signal for external parties in illustrating an effective supervisory function in strengthening the profitability of a company, there are still many other factors that can be stronger information and signals in providing an overview of the company's profitability prospects.

The preliminary hypothesis positing that independent commissioners possess a positive and significant influence on profitability stands at odds with this outcome. Nevertheless, this revelation aligns with the investigation conducted by (Pratiwi & Noegroho, 2022) and (Dewi & Azizah, 2023) who likewise discerned no significant influence of independent commissioners on financial performance, suggesting that their presence does not inherently assure effective oversight nor an enhancement in financial outcomes as reflected by return on assets (ROA).

The Effect of Audit Committee (X4) on Profitability (Y)

Pursuant to the partial test (t-test) findings, the audit committee, quantified by its numerical composition, manifests no noteworthy influence on the profitability of coal corporations enlisted on the IDX throughout 2019–2023. This revelation intimates that a more extensive audit committee does not intrinsically denote heightened efficacy in executing its oversight mandate. In essence, the audit committee's involvement in supervising financial disclosures and internal control mechanisms does not intrinsically propel profitability merely through its magnitude.

Although companies have complied with POJK regulation No. 55/POJK.04/2015, which requires at least three audit committee members, if only fulfills the requirement it cannot guarantee the effective execution of their responsibilities. Without the support of high-quality resources, specific industry knowledge, and strong integrity, the audit committees cannot function optimally as part of good corporate governance mechanism. This indicates that information of a larger audit committee is not captured as a signal for external parties regarding the prospect of a company's profitability growth.

The results contradicts the initial hypothesis which assumes audit committees will have a positive and significant impact on profitability. However, this in line with (Sembiring & Saragih, 2019) and (Izdihar & Suryono, 2022), indicate that having an audit committee often serves merely to comply with regulations.

The Effect of Firm Size on Profitability

Anchored in the partial test outcomes, firm size measured using the natural logarithm of total assets revealed a significant positive effect on the profitability of coal enterprises listed on the IDX from 2019 to 2023. This suggests that larger entities typically orchestrate their assets with superior dexterity, resulting in higher profitability. In Indonesia's coal sector, companies with larger assets often control both upstream and downstream activities, which enables higher cost efficiencies and stronger pricing power. Considering the capital-intensive nature of the industry, companies with substantial assets are more capable in maintaining production and providing stable returns, even during market fluctuations.

An increase in firm size will be seen by investors as good news and become the basis for their consideration in assessing the company's sustainability, as larger company size reflects greater potential profits, which can enhance profitability. Larger companies also have greater opportunities to obtain external funding, which in turn can strengthen operations and support the growth of the company. Therefore, an increase in firm size is one of the information that can be captured by external parties and become a signal regarding the company's sustainability and profitability prospects. This finding implies that firm size plays a key role in driving the profitability.

This result supports the initial hypothesis that firm size has a significant positive effect on profitability. It also aligns with (Rahardjo & Wuryani, 2021) and (Jumantari et al., 2022) which found that larger companies typically perform better financially due to their ability to obtain funding more easily and expand their business effectively.

CONCLUSION

This inquiry explores the extent to which the profitability of coal sector enterprises listed on the Indonesia Stock Exchange from 2019 to 2023 is shaped by green accounting, good corporate governance, and firm size. The findings demonstrate that green accounting embodied by environmental performance, good corporate governance embodied by the board of directors, independent commissioners, and audit committees, along with firm size, collectively exert an influence on profitability. Nonetheless, when examined in isolation, environmental performance and the elements of good corporate governance do not impart a significant impact

on profitability. Conversely, firm size individually manifests a significant and positive bearing on profitability.

The descriptive analysis show that the profitability variable shows high variation among companies, as indicated by a standard deviation higher than the mean, which suggests that some companies have-below average or even negative profitability. The variables of board of directors, independent commissioners, audit committee, and firm size all have average values higher than their standard deviations, indicating that these variables are relatively homogeneous and the averages represent the data. Meanwhile the environmental performance variable, reflected by the gold to blue rating achieved by coal industry companies, indicates that most coal companies listed on the IDX between 2019 – 2023 have demonstrated strong efforts in managing the environment. Throughout the observation period, none of the companies received red (bad) or black (very bad) ratings.

For academia, these findings can add to the existing knowledge on accounting, particularly in areas related to green accounting, good corporate governance, firm size, and profitability. Future researchers are expected for re-examining variables which did not show an effect by using other measurement approaches and consider adding other variables or industries to increase clarity regarding what factors affect profitability.

From a practical perspective, companies are suggested to optimize the development of productive assets to increase profitability, as a larger total asset have been shown to have a positive effect on profitability (ROA). For investors, it is recommended to make firm size as reflected in total assets as one of the main indicators in assessing the company's profitability prospects, because large assets companies tend to have more mature capabilities and better capacity to generate high profitability (ROA).

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