How Sustainability Reporting Strengthens the Profitability – Firm Value Link in Coal Mining Companies

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Abstract: This study investigates whether sustainability reporting can moderate the effect of profitability on firm value. Using a quantitative approach, it examines profitability as the independent variable, firm value as the dependent variable, and sustainability reporting as the moderating variable. The research analyses time series and cross-sectional data for 12 coal mining companies listed on the Indonesia Stock Exchange between 2020 and 2022. The findings reveal that profitability negatively impacts firm value. However, sustainability reporting moderates this relationship, enhancing firm value. This study builds on previous research by demonstrating the importance of sustainability reporting as a non-financial tool in boosting firm value. Focusing on coal mining companies with published financial and sustainability reports during 2020 to 2022, the analysis targets the specific impact of sustainability reporting within this industry.

Keywords: Profitability; Sustainability Reporting; Firm Value.

Abstrak: Studi ini menyelidiki apakah pelaporan keberlanjutan dapat memoderasi pengaruh profitabilitas terhadap nilai perusahaan. Dengan pendekatan kuantitatif, penelitian ini memeriksa profitabilitas sebagai variabel independen, nilai perusahaan sebagai variabel dependen, dan pelaporan keberlanjutan sebagai variabel moderasi. Penelitian ini menganalisis data time series dan cross-sectional untuk 12 perusahaan pertambangan batu bara yang terdaftar di Bursa Efek Indonesia pada periode 2020 hingga 2022. Temuan menunjukkan bahwa profitabilitas berdampak negatif terhadap nilai perusahaan. Namun, pelaporan keberlanjutan memoderasi hubungan ini, sehingga meningkatkan nilai perusahaan. Studi ini memperkuat penelitian sebelumnya dengan membuktikan pentingnya pelaporan keberlanjutan sebagai instrumen non-keuangan dalam meningkatkan nilai perusahaan. Dengan berfokus pada perusahaan pertambangan batu bara yang telah menerbitkan laporan keuangan dan laporan keberlanjutan selama periode 2020 sampai 2022, analisis ini menargetkan dampak spesifik pelaporan keberlanjutan dalam industri ini.

Kata Kunci: Profitabilitas; Pelaporan Keberlanjutan; Nilai Perusahaan.

INTRODUCTION

Maximising profits is a fundamental objective for companies, including those in Indonesia's coal mining industry. However, this pursuit often has negative consequences, especially when social and environmental responsibilities are neglected. Studies have shown that the surrounding communities and ecosystems suffer when companies fail to balance profitability with responsible management practices (Baeshen et al., 2021; Misutari & Ariyanto, 2021). For instance, in North Jakarta, emissions from coal storage facilities for steam power plants have caused severe air pollution, leading to acute respiratory infections among residents. Such incidents highlight the risks of profit-driven operations in environmentally sensitive areas.

Indonesia's dependence on fossil fuels exacerbates the environmental challenges of its coal mining industry. Despite commitments to achieving net-zero emissions by 2060,





coal remains a primary energy source, creating a significant gap between policy aspirations and operational realities. The coal sector contributes substantially to economic growth but comes at high social and environmental costs. Addressing these issues necessitates integrating stricter pollution controls and adopting cleaner technologies to align with sustainability goals.

Sustainability reporting allows coal mining companies to address their environmental and social impacts transparently. It bridges profit-driven objectives with the need for responsible stewardship, providing stakeholders with insights into emissions, resource usage, and community impacts. This transparency builds trust among investors, communities, and policymakers, encouraging a shift towards more sustainable practices (Meuer et al., 2019).

This study's novelty lies in examining the moderating role of sustainability reporting in the relationship between profitability and firm value in Indonesia's coal mining sector. Unlike prior research, which broadly analyses sustainability reporting across industries, this study focuses on a sector deeply intertwined with environmental and social challenges, such as pollution and public health issues. The study provides insights into how cultural, regulatory, and economic factors shape sustainability practices by investigating these dynamics.

Building on signalling theory, the study positions sustainability reporting as more than a compliance tool; it is a strategic mechanism for enhancing firm value. Quantitative evidence underscores that sustainability reporting moderates the relationship between profitability and firm value, marking a methodological advancement by framing it as a moderating rather than an independent variable. This perspective enriches the literature on emerging markets, showcasing how sustainability reporting can serve as a credible signal to investors and align operations with broader environmental goals.

By adopting sustainability reporting, coal mining companies can improve their environmental and social accountability. Enhanced transparency on emissions reductions and site rehabilitation fosters trust with local communities, benefiting corporate image and stakeholder relations. This aligns industry practices with national environmental targets, contributing to sustainable development.

Investors increasingly prioritise non-financial information when making decisions. Profitability remains a key metric, but transparency in environmental performance, as conveyed through sustainability reports, is equally vital. Research indicates that incorporating sustainability reporting as a moderating variable enhances stakeholder perceptions and firm value, creating a balance between short-term profitability and long-term sustainability (Gómez-Trujillo et al., 2020; Tangke et al., 2022).

While sustainability reporting's significance grows, more research is needed to understand its impact in Indonesia. This study addresses this gap by examining the interplay of profitability, sustainability reporting, and firm value in the Indonesian context, offering insights for companies, policymakers, and investors.

This study's research questions are: (1) Does profitability positively affect firm value? (2) Does sustainability reporting moderate this relationship? The study aims to assess these relationships, providing actionable insights for improving corporate accountability and aligning business practices with sustainability goals.







THEORETICAL REVIEW

Using signalling theory, this research highlights the role of sustainability reporting in reducing information asymmetry. By offering detailed disclosures, companies can demonstrate their commitment to sustainable practices, signalling reliability to investors and enhancing risk management.

Profitability plays a significant role in influencing firm value, particularly in the coal mining sector, where financial stability and growth potential are crucial for attracting long-term stakeholders. High profitability signals a company's ability to sustain operations and its capacity to reinvest in expansion projects, fund innovations, and provide consistent returns to investors, creating a positive cycle of growth and trust (Tangke et al., 2022). These attributes make profitability a critical indicator of firm value, reflecting a company's resilience and appeal to potential investors.

H1: Profitability has positive effects on the value of a company.

Sustainability reporting is essential for companies to communicate their commitment to sustainable practices and build trust with stakeholders. Through sustainability disclosures, companies can provide investors with additional signals that underscore their dedication to environmental, social, and governance (ESG) principles (Werastuti et al., 2021; Momchilov, 2022). By adopting these practices, businesses demonstrate responsible operations and attract investors who prioritise ethical investments. This approach allows companies to differentiate themselves in a market that increasingly values transparency and responsibility, enhancing their corporate image.

Additionally, sustainability reporting helps companies manage and mitigate social and environmental risks associated with their activities. By openly addressing potential impacts and detailing steps taken to address them, firms can reduce operational risks tied to societal and environmental concerns (Buallay, 2019; Momchilov, 2022; Ngu & Amran, 2018; Werastuti et al., 2021). Through these reports, companies can demonstrate a balanced approach that considers social, economic, and environmental aspects. As a result, this balanced transparency strengthens stakeholders' confidence in the company's operations, contributing positively to its reputation and corporate value.

An interesting aspect of sustainability reporting is its moderating relationship between profitability and firm value. For companies that actively engage in sustainability reporting, profitability's positive impact on firm value can be significantly enhanced (Rinsman & Prasetyo, 2020; Werastuti et al., 2021). Conversely, companies that do not engage in sustainability reporting may see a diminished link between profitability and firm value (Grassmann, 2021; Alabi & Issa, 2022; Swarnapali, 2020; Linh et al., 2022; Oprean-Stan et al., 2020). These findings highlight that sustainability reporting is not merely a supplementary practice but can directly influence a company's financial metrics by affecting investors' perceptions.

The Triple Bottom Line (TBL) concept, introduced by John Elkington in Cannibals with Forks: The Triple Bottom Line of 21st Century Business (1994), reinforces the idea that businesses should value "People, Planet, and Profit" as interconnected goals for sustainable success. This model encourages companies to focus not only on profitability but also on their social and environmental responsibilities (Salsabila, 2023). (Hermawan & Sutarti, 2021); (Safitri, 2018) and (Meirawati et al., 2023) found that sustainability reporting did not significantly impact profitability's influence on firm value, suggesting





that some investors still prioritise traditional financial metrics over sustainability disclosures. This finding highlights an ongoing challenge for companies as they work to balance conventional financial performance with sustainable business practices.

In contrast, (Ariswari & Damayanthi, 2019), (Werastuti et al., 2021) found that sustainability reporting effectively moderated the relationship between profitability and firm value, suggesting that comprehensive sustainability disclosures can enhance firm value when profitability is high. This variation in empirical findings reflects the complexity of sustainability's role in financial performance and corporate valuation. The differences in research outcomes imply that sustainability reporting may be more influential in specific contexts, industries, or investment climates and that its impact may evolve as investor priorities shift.

Given the differing empirical results, researchers have proposed a hypothesis that explores the relationship between sustainability reporting, profitability, and firm value. This hypothesis aims to deepen understanding of how sustainability reporting can interact with traditional financial metrics to shape investor perceptions and firm value. As sustainability becomes a more prominent consideration in investment decisions, further research will provide crucial insights into how firms can leverage sustainability reporting to align with profitability goals and stakeholder expectations, ensuring long-term corporate success. Based on the difference in empirical results, the researcher formulated the following hypothesis:

H2: Sustainability reporting moderates the influence of profitability on the company's value.

METHODS

This study uses a quantitative approach using an independent variable on profitability, the dependent variable on firm value, and the moderating variable of sustainability reporting. This research classified sustainability reporting as nonexperimental with time series and cross-sectional data classification. The research sample comprises 12 listed coal mining companies on the Indonesia Stock Exchange for 2020 to 2022. This period was chosen due to the Covid-19 pandemic as the use of coal for electricity production increased. The data source is the official website of the Indonesia Stock Exchange, www.idx.co.id. Sustainability reporting data is obtained through the company website.

Variables Measurement. Sustainability Report Disclosure Index (SRDI) measures sustainability reporting, which assigns a score of 0 if an item is not revealed and one (1) if it is. There are 89 components in economics, environment, and social aspects, and the grading is based on the GRI Standard 2016. After the completion of the scoring of the items, the total items are revealed and divided into all items to get each company's score.

Moderated Regression Analysis uses three types of variables and measurement tools in this study. Tobin's O represents firm value, a measure used to determine the company's value from and estimate the value on the market above each money invested. Sustainability reporting is an overview of economic, social, and environmental organisational practices. **Table 1** describes the variables and their measurement.







Table 1. Variable Measurement

| Variable | Definition | Measurement | Source | |
|--------------------------|---|-------------|--|---|
| Firm Value | Measure used to determine the company's value based on the | Tobin's Q | (Dwiastuti & Dillak, 2019) | |
| | estimated market value for each invested nominal amount. | | | |
| Profitability | The ratio that compares the profit generated by the company with the total assets | ROA | (Sloan, 2019) | |
| Sustainability Reporting | Forms of corporate accountability in economic, environmental, and social aspects. | SRDI | (Setiawan Madyakusumawati, 2023) | & |

Data Analysis. This study uses panel data; a data panel combines time series and cross-sectional data, producing more complete and varied information. Panel data processing is done with Eviews software version 13. In determining the regression model, there are three models, namely Common Effect Model (CEM), Random Effect Model (REM), and Fixed Effect Model (FEM). Only the best model can be used for regression analysis from three tested models: the Chow test, which compares the Common Effect Model and the Fixed Effect Model. Hausman's test compares the Fixed Effect Model and the Random Effect Model. Lagrange Multiplier compares the Common Effect Model and the Random Effect Model. The Common Effect Model was chosen and considered the best of the three existing models based on the three tests.

Classic assumption tests consist of normality, autocorrelation, multicollinearity, and heteroscedasticity tests. The normality test ensures that this research's data is usually distributed and compulsory. The autocorrelation test is used to test the linear regression model for interference errors in the current period compared to the previous period. A multicollinearity test ensures a high correlation between independent variables in the research regression model. Lastly, the heteroscedasticity test tests whether there is no variance accuracy from the residual one to another observation in the researchers' regression model. The entire classical assumption test has been run and yielded good and qualifying research results.

Sample selection in this study used purposive sampling and data analysis using a Moderate Regression Analysis test. MRA will be carried out simultaneously with the independent variable, the moderating variable, and the interaction variable with the dependent variable (Wijaya & Budiman, 2019). Therefore, the model developed is:

Firm
$$Value_{it} = \alpha + \beta_1 ROA_{it} + \beta_2 SRDI_{it} + \beta_3 ROA_{it} * SRDI_{it} + \varepsilon_{it}$$
 (1)

Information: ∞ is Constant; $\beta_1 - \beta_3$ are Regression coefficient; SRDI_{it} sustainability Reporting Disclosure Index (SRDI); ROA_{it} is Return On Asset; ROA_{it}*SRDI_{it} is Interaction variable between profitability and sustainability reporting; \mathcal{E} is Error terms

RESULTS

Table 2 provides descriptive statistics for firm value, profitability (measured by return on assets), and sustainability reporting. The descriptive analysis of firm value shows that PT Petrosea Tbk. (PTRO) had a minimum value of -0.994, with an actual firm value





of 0.369 in 2020. Meanwhile, P.T. Bayan Resources Tbk. had a maximum firm value of 2.415, or an actual value of 11.194, in 2022.

The profitability analysis reveals that P.T. Bumi Resources Minerals Tbk. (BRMS) In 2020, the minimum return on assets was 0.006, meaning each Rupiah invested generated a profit of Rp 0.006. Conversely, Golden Energy Mines (GEMS) in 2022 recorded a maximum value of 0.616, indicating each Rupiah invested yielded a profit of Rp 0.616

The minimum value of 0.000 for sustainability reporting implies no published sustainability report, which was particularly common in 2020 among companies like P.T. Bayan Resources Tbk. (BYAN), PT Golden Energy Mines Tbk. (GEMS), PT Baramulti Sukessarana Tbk. and (BSSR). and PT Mitrabara Adiperdana Tbk. and and (MBAP). P.T. Bukit Asam Tbk records the maximum value (PTBA) in 2022, showing a higher level of sustainability reporting.

Table 1. Descriptive Test Result

| | Firm Value | Return on Asset | Sustainability Reporting |
|----------------|------------|-----------------|--------------------------|
| Mean | 1.595 | 0.222 | 0.397 |
| Median | 0.916 | 0.145 | 0.404 |
| Maximum | 11.194 | 0.616 | 0.898 |
| Minimum | 0.369 | 0.006 | 0.000 |
| Std. Deviation | 1.872 | 0.1898 | 0.228 |
| Skewness | 3.950 | 0.863 | -0.146 |
| Kurtosis | 20.463 | 2.393 | 2.597 |
| Jarque-Bera | 551.136 | 5.029 | 0.372 |
| Probability | 0.000 | 0.080 | 0.830 |
| Sum | 57.441 | 7.994 | 14.314 |
| Sum Sq. Dev | 122.684 | 1.261 | 1.826 |
| Observation | 36 | 36 | 36 |

Source: The Processed Secondary Data (2023)

The study employed panel data analysis using Eviews version 13 and three model types: Common Effect, Random Effect, and Fixed Effect Models. The Common Effect Model was selected as the best fit. **Table 3** presents the Moderated Regression Analysis (MRA), revealing that all variables significantly influence firm value (p less than 0.050). Notably, profitability, measured by return on assets, negatively impacts firm value. However, the interaction between profitability and sustainability reporting positively affects firm value, with a coefficient of 10.404 and a significance level of 0.001, confirming the moderating role of sustainability reporting.

Table 2. MRA Statistical Test Result

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| С | -0.829 | 0.451 | -1.838 | 0.075 |
| ROA | -0.567 | 0.204 | -2.772 | 0.009 |
| SRDI | -2.469 | 0.717 | 3.439 | 0.001 |
| ROA*SRDI | 10.404 | 2.880 | 3.611 | 0.001 |

Source: The Processed Secondary Data (2023)







Firm $Value_{it} = -0.829 - 0.567ROA_{it} - 2.469SRDI_{it} + 10.404ROA_{it} * SRDI_{it}$ (2)

Table 3 shows the moderation equation in this study, which states that all the variables used in research have a significant effect on firm value (p less than 0.050). Profitability peroxide by return on the asset has a negative effect on the firm value of coallisted mining companies. Interaction between profitability and sustainability reporting has a positive effect on firm value, with a value of 10.404 and a significance value of 0.001 less than 0.050, showing that sustainability reporting moderates the effect of profitability on firm value.

Table 3. Coefficient of Determination Test

| R-Squared | 0.337 |
|--------------------|---------|
| Adjusted R-squared | 0.263 |
| S.E. of regression | 0.651 |
| Sum squared resid | 11.444 |
| Log Likelihood | -28.541 |
| F-statistic | 4.585 |
| Prob (F-statistic) | 0.010 |

Source: The Processed Secondary Data (2023)

The coefficient of determination test (R-squared) is shown in **Table 4**. An adjusted R-squared of 0.263 indicates that the variables used influence 26.390 per cent of firm value, with the remaining 73.610 per cent impacted by other variables.

DISCUSSION

The results of the hypothesis testing in this study show that profitability has a negative effect on the value of coal companies. This finding contradicts previous research, such as that by (Natsir & Yusbardini, 2020), who found that profitability significantly impacts company value. They argue that higher profits indicate growth potential and can attract more investment, ultimately driving up stock prices and increasing market value. The same view is supported by research (Susanti & Restiana, 2018), which emphasises that better financial performance, reflected in higher profits, directly contributes to increasing company value.

However, this study is more aligned with the findings of (Ferriswara et al., 2022), who stated that profitability, mainly return on equity (ROE), can negatively affect company value. Their research shows that although high profitability reflects financial success, it does not always increase company value. Conversely, other financial indicators positively impact company value, such as total asset turnover and debt-to-asset ratio. This finding suggests that the relationship between profitability and company value is more complex than a simple positive correlation, with many other factors at play.

Interestingly, this study identifies a paradox in the Indonesian coal mining sector, where high profitability does not always correlate with increased company value. One of the main factors influencing this paradox is the growing attention from investors to environmental, social, and governance (ESG) factors. The coal sector, known for being a major contributor to greenhouse gas emissions, is often perceived as a high-risk sector from a sustainability perspective. Although coal companies may generate significant profits, the negative environmental impacts of their operations, such as ecosystem damage





and pollution, can reduce the company's perceived value in the eyes of investors who are increasingly concerned about social and environmental issues.

Several factors may explain why coal companies' Return on Assets (ROA) negatively affects company value. One of these factors is the high dependence on external variables that are difficult to predict, such as fluctuations in coal commodity prices and tightening government regulations on sustainability and carbon emissions.(Bolton & Kacperczyk, 2021) Although a high ROA reflects operational efficiency, companies highly dependent on these external factors may struggle to maintain their financial performance in the long term if coal prices drop or environmental regulations become stricter. This negative impact can ultimately reduce market expectations of the company's growth and lower its value.

Another significant factor is the rising environmental costs in the coal industry. As a sector with a significant environmental impact, the coal industry faces increasing pressure to reduce greenhouse gas emissions and other environmental damage. When complying with stricter environmental regulations, coal companies prioritising short-term profitability without considering social and environmental responsibilities may incur additional costs. These costs, whether in the form of fines or significant investments in adopting ecofriendly technologies, can erode profit margins and ultimately lower company value (Wang et al., 2022); (Wang et al., 2023).

Uncertainty related to climate change also plays a crucial role. While coal companies may show high ROA, global concerns about climate change can deter investors from entering the sector. Suppose a company fails to demonstrate commitment to sustainability or lacks a clear strategy to address climate change. In that case, the perceived value by investors may decrease, particularly among those who prioritise ESG considerations. This uncertainty can lead to greater stock price volatility and reduce the company's market value, even if ROA remains high. (Atz et al., 2022); (Alessi et al., 2021); (Pedersen et al., 2020); (Pástor et al., 2020).

Another contributing factor is the negative perception of sustainability risks. Even with a high ROA, investors may see coal companies that do not prioritise sustainability as high-risk. For instance, companies that fail to manage their operations' social and environmental impacts may lose investor trust. A poor reputation associated with environmental damage or social conflicts around their operations can lead to investment avoidance and harm company value in the long run (Wang et al., 2022); (Wang et al., 2023); (Maung et al., 2020).

Additionally, regulatory factors can influence the relationship between ROA and company value. Governments in many countries, including Indonesia, are increasingly enforcing stricter regulations on the fossil fuel sector, including coal. Coal companies that fail to adapt to new regulations on carbon emissions or resource management risk facing significant additional costs. These costs can harm long-term profitability, even if ROA appears strong in specific periods (Hengge, 2023); (Leisen et al., 2019); (Byrd & Cooperman, 2018); (Coysh et al., 2020); (Zhao, 2020).

A fourth factor influencing the relationship between ROA and company value is the dependence on high capital and debt levels. Coal companies often require substantial capital investment to finance their operations, including infrastructure development and resource management. If a company overly relies on debt to finance its operations, it can create liquidity risks that affect its financial stability. While a high ROA indicates operational efficiency, companies with weak capital structures or high debt levels may struggle to survive in unstable economic conditions, ultimately harming company value







(Bintoro & Rahmadhani, 2021); (Sasongko & Yusnita, 2023); (Teng et al., 2021); (Yuan et al., 2018); (Tu, 2021).

The volatility of coal prices is another important factor. While a high ROA may indicate short-term profitability, coal price volatility can affect the company's long-term performance. When coal prices drop sharply, companies heavily reliant on coal revenue may experience a decline in profitability. Fluctuations in profitability can lead to variations in ROA and make the company less attractive to investors, who generally prefer companies with more stable and diversified income streams (Rezina et al., 2020); (Mulyanti et al., 2019).

Management practices and human resource management also play a crucial role in profitability and company value dynamics. Coal companies with non-transparent management or lacking long-term sustainability strategies may struggle to build strong relationships with stakeholders, including governments, communities, and investors. Failure to address sustainability challenges and a lack of strategic planning can damage the company's image and reduce investor confidence, even if the company's ROA remains high (Beretta et al., 2021); (Raghupathi et al., 2023); (Safitri, 2018).

The growing global awareness of climate change and environmental damage has led many investors to focus more on corporate activities' social and environmental impacts. As one of the most significant contributors to carbon emissions, the coal sector is often avoided by investors concerned about sustainability. Although coal companies may generate significant profits, they are considered high-risk due to the potential environmental damage they cause. This negative perception can affect the perceived value of the company. As a result, high profitability in this sector is often insufficient to increase company value (Saes & Muradian, 2021); (Byrd & Cooperman, 2018).

Stakeholder theory emphasises that companies must consider the interests of all stakeholders, not just shareholders, to achieve long-term success and sustainability. This approach is critical in industries with a significant environmental impact, such as coal mining. Coal mining operations directly affect local communities, regulators, and investors, making alignment with stakeholders critical. The increasing pressure to align operations with stakeholder expectations for the Indonesian coal industry, especially considering the government's target to achieve Net Zero Emissions by 2060, highlights the importance of adopting sustainability practices. By applying stakeholder theory, coal companies can strengthen relationships with key stakeholders and increase company value through greater transparency.

Increasingly stringent regulations are also affecting the coal sector. As regulations to reduce carbon emissions and environmental pollution become tighter, coal companies that fail to adopt sustainable practices face significant additional costs. These costs, whether in the form of fines or investments needed for clean technologies, can harm long-term profitability and lower company value. Additionally, the negative perception of coal companies, especially from the public and investors concerned about the environment, can significantly affect company value, even if profitability is high.

In this context, attracting sustainable investment becomes a significant challenge for coal companies. With the growing global interest in ESG-oriented investments, coal companies that fail to demonstrate commitment to sustainability through transparent ESG reporting may struggle to secure funding. This can lead to a decline in company value, even if the company is profitable in the short term. High profitability without an emphasis on sustainability and environmental responsibility may hinder the company's ability to attract investment, thus becoming a barrier to increasing company value.







Recent studies (Ananda & Lisiantara, 2022; Tarigan, 2023) show that investors are often sceptical of high profitability in the coal sector due to its association with unsustainable and environmentally damaging practices. While profitability can indicate financial success, it may also create negative perceptions among investors prioritising ESG factors. To improve this perception and build investor trust, coal companies must adopt clear and transparent sustainability reporting, as the Global Reporting Initiative (GRI) standards recommended. This will be key to building long-term investor trust and increasing company value.

As ESG considerations become increasingly important in investment decisions, investors' views of profitability in the coal industry have also shifted. Investors are now more cautious of companies that earn high profits through environmentally damaging practices. High-profit margins in the coal sector are often seen as a result of aggressive resource extraction and a lack of investment in sustainable practices. Therefore, coal companies need to balance profitability with sustainable practices to ensure their business continuity in the future.

The hypothesis testing results indicate that profitability influences firm value, offering several practical implications for stakeholders. For coal companies, the findings emphasise the importance of considering non-financial factors, such as social and environmental impacts, to enhance corporate value. Despite high profitability, companies must balance financial gains with social and environmental responsibility to improve their corporate image and attract investors increasingly focused on ESG (environmental, social, governance) factors. Coal companies should adopt more transparent and responsible sustainability practices to mitigate reputational risks and enhance long-term value.

Investors should exercise caution when assessing coal companies solely based on profitability. The findings suggest that high profitability alone does not guarantee market value if sustainability considerations are ignored. Investors should prioritise companies with transparent sustainability reports and incorporate ESG aspects into their investment decisions to safeguard long-term returns. For Creditors: often concerned with long-term risks, must look beyond financial ratios like ROA. Companies relying solely on high profitability but neglecting social and environmental risks may face additional future costs due to stricter regulations or reputational damage. Creditors should ensure that companies have robust sustainability strategies and can adapt to tightening regulations.

Regulators and financial authorities must adjust policies to ensure the coal sector complies with increasingly stringent sustainability standards. Incentives can be provided to companies adopting strong ESG practices alongside enhanced regulations requiring transparent disclosure of environmental and social impacts. Improved oversight of sustainability-related information disclosure is also critical.

Academics should investigate the relationship between profitability and corporate value in the coal sector and the impact of non-financial factors like ESG. Further research can identify best practices for coal companies in addressing sustainability challenges and contribute to developing management and sustainability theories. Academics can also assist in formulating policies that help coal companies enhance their value by better managing social and environmental risks.

Coal company managers must evaluate and adjust their strategies to balance profitability with sustainability. They should adopt policies that reduce their operations' environmental impact and strengthen relationships with local communities and other stakeholders. Effective management of ESG factors will contribute to long-term corporate value enhancement.







Institutional investors prioritising sustainable investments must be more selective in choosing coal companies that meet high ESG standards. The long-term success of coal companies depends on their profitability and ability to manage social and environmental impacts. Institutional investors should support companies with transparent and responsible sustainability reporting.

Stakeholders involved in the coal industry, including local communities and environmental NGOs, should monitor how coal companies operate. They can advocate for greater social and environmental responsibility and support sustainability policies. A focus on sustainability can reduce negative societal impacts and strengthen stakeholder relationships.

Governments and regulators must ensure that coal companies adopt practices aligned with national and global sustainability goals, such as Net Zero Emissions targets. Policies that encourage transparency in ESG reporting and promote the adoption of environmentally friendly technologies will help mitigate long-term risks to coal companies' value.

Financial institutions financing coal companies must integrate ESG factors into their credit assessments. Evaluating social and environmental risks will influence the financial stability of coal companies in the future. Financial institutions can promote sustainability by incentivising companies that commit to sustainability through transparent disclosures and compliance with international reporting standards.

Sustainability reporting can help mitigate the negative impact of profitability on firm value, as indicated by this study's second hypothesis test result. Transparent sustainability reporting, such as that recommended by standards like GRI, allows coal companies to demonstrate their commitment to sustainability and improve the negative perceptions of their profitability. This, in turn, can enhance investor and stakeholder trust and reduce the negative impact of profitability derived from unsustainable practices.

The second hypothesis test result also aligns with research by (Rinsman & Prasetyo, 2020) and (Werastuti et al., 2021), which shows that companies not engaged in sustainability reporting tend to experience a decrease in the relationship between profitability and firm value. These findings highlight the importance of sustainability reporting, not only as an additional practice but also as something that can directly influence the company's financial metrics. Good sustainability reporting can help improve the relationship between profitability and firm value by increasing transparency and investor trust (Lating et al., 2019).

Signalling theory in corporate reporting suggests that companies can use disclosures to convey stability and value, giving investors confidence in their long-term potential. (Sholatika & Triyono, 2022); (Nikmah et al., 2022) Through sustainability reporting, companies signal a commitment to ESG principles, which has become increasingly appealing to investors prioritising ethical and sustainable investments. This signalling is crucial for coal companies, as sustainability disclosures can demonstrate an awareness of environmental risks and a proactive approach to managing them. By signalling responsibility, coal companies can appeal to ESG-focused investors, who may otherwise be cautious of investing in such a high-impact sector. (Xu, 2021); (Ahmad et al., 2021); (Sideri, 2021); (Ismail et al., 2021); (Raghupathi et al., 2023).

For example, coal companies can use sustainability reports to reassure investors that they are addressing their environmental footprint and working toward sustainable practices. This approach is particularly relevant in high-risk industries, where investors seek companies actively mitigating their negative environmental impact. Beyond coal,







energy companies have successfully signalled their commitment to sustainability, attracting investors dedicated to supporting low-carbon initiatives. (Xu et al., 2018); (Glazerman & Cohen, 2020). In other sectors like manufacturing, companies use sustainability reports to communicate efforts in waste reduction and energy efficiency, appealing to socially conscious investors. (Göçer et al., 2019); (Uyar et al., 2019); (Sideri, 2021).

Studies have shown that companies with robust sustainability reporting attract more interest from institutional investors who prioritise long-term environmental impact over short-term profits. These investors often look beyond financial metrics to assess a company's commitment to sustainability and responsible management. Consequently, sustainability reporting enhances transparency and broadens investment appeal by signalling ethical values to potential investors. This aligns with signalling theory, as companies leverage sustainability reporting to showcase their dedication to responsible practices, enhancing credibility across investor groups. (Hassan et al., 2020); (Oware & Worae, 2023); (Sideri, 2021); (Werastuti et al., 2021); (Ismail et al., 2021); (Christensen et al., 2021).

Sustainability reporting using the Global Reporting Initiative (GRI) standards provides transparency regarding a company's efforts to manage environmental, social, and governance (ESG) impacts. In the context of coal companies, this transparency can strengthen the relationship between profitability and company value. Investors tend to value companies that show a genuine commitment to sustainability, as they are more confident that such companies will be able to navigate the challenges related to environmental regulations and climate change. Clear sustainability reports help coal companies gain the trust of investors increasingly concerned with ESG factors. (Demirkan et al., 2021); (Ahmad et al., 2021); (Sideri, 2021); (Putra et al., 2021).

High profitability alone is not always enough to enhance a company's value if it is not accompanied by proper management of environmental and social risks. Coal companies can demonstrate their seriousness in managing these risks by providing standardised sustainability reports. This can strengthen the impact of profitability on company value, as investors will see the company as having more significant long-term potential and lower risks, thus boosting their confidence in its value. (Byrd & Cooperman, 2018)

Coal companies that include information about their efforts to reduce environmental impact, such as carbon emission reductions, waste management, and post-mining land rehabilitation, show their commitment to sustainability. GRI sustainability reports can strengthen the relationship between profitability and company value, as investors are more likely to support companies responsible for their operations' social and environmental impacts. Therefore, sustainability reporting enhances a company's image and strengthens the value investors place on it. (Demirkan et al., 2021); (Băndoi et al., 2021); (Damayanti & Prayoga, 2021); (Werastuti et al., 2021).

Increasing environmental and sustainability regulations require coal companies to comply with stricter standards. Sustainability reporting that adheres to GRI standards helps companies demonstrate compliance with these regulations in a measurable and organised manner. Compliance with these regulations can reduce company uncertainties and help mitigate legal and financial risks associated with environmental violations. In turn, this can strengthen the link between profitability and company value. (Indiana, 2022); (Xing et al., 2020); (Lee, 2020).







With the growing demand for ESG-oriented investments, sustainability reports that comply with GRI standards can help coal companies attract more investors who prioritise sustainability. In this context, sustainability reporting can moderate or even strengthen the influence of profitability on company value. Companies that report strong ESG performance are seen as more attractive by investors who prioritise social and environmental considerations, even if the company operates in a high-risk sector like coal. (Ahmad et al., 2021); (Pástor et al., 2020); (Zhao et al., 2018); (Ismail et al., 2021); (Cohen, 2023).

Sustainability reporting helps coal companies identify and manage environmental and social risks that could impact profitability and company value. With sustainability reports that align with GRI standards, companies can proactively address risks such as commodity price fluctuations, stricter regulations, or public protests. Good risk management strengthens the company's appeal to investors and moderates the adverse effects that might arise from high profitability that is not matched by attention to ESG issues.(Glazerman & Cohen, 2020); (Cohen, 2023).

A company's reputation is a crucial factor that can influence its value. By providing sustainability reports that adhere to GRI standards, coal companies can improve their reputation in the eyes of the public and investors. Companies seen as responsible for the environment and society are valued more, even if their profitability is low. Therefore, sustainability reporting can strengthen the influence of profitability on company value by adding a more positive reputation dimension, which will drive investor demand and increase market value. (Demirkan et al., 2021); (Beretta et al., 2021); (Sideri, 2021); (Băndoi et al., 2021).

Companies with standardised and transparent sustainability reports are more likely to gain access to financing from financial institutions and investors. This is because well-prepared reports show the company has a clear long-term strategy for managing ESG risks and opportunities. Access to financing can strengthen the relationship between profitability and company value, as the company will have more resources to expand its operations and improve performance. (Cohen, 2023); (Zhao et al., 2018); (Sideri, 2021).

By openly reporting on sustainability, coal companies can strengthen relationships with stakeholders, including local communities, customers, and employees. This can enhance loyalty and support for the company, which in turn can strengthen operational and financial stability. As reflected in GRI reports, well-integrated sustainability practices can improve the company's perceived value in the eyes of stakeholders and moderate the influence of profitability on company value. (Beretta et al., 2021); (Demirkan et al., 2021); (Nguyen, 2020); (Fadilla et al., 2021); (Alshehhi et al., 2018).

Sustainability reports that comply with GRI standards provide information on current ESG performance and help companies plan long-term sustainable strategies. With sustainability-oriented strategies, coal companies can reduce reliance on unstable external factors and strengthen their competitiveness in the market. In the long run, this can enhance company value and moderate the influence of profitability on company value by steering it towards a more stable and sustainable future. (Byrd & Cooperman, 2018); (Li et al., 2019).

Sustainability reporting, particularly when following standards like GRI, is critical for coal companies facing increasingly strict regulations in Indonesia. In addition to GRI, IFRS S1 and IFRS S2 standards can guide coal companies in their sustainability reporting. IFRS S1 (International Financial Reporting Standard for Sustainability) provides guidelines for companies to report broader sustainability information, though it has not yet







been fully implemented worldwide. For coal companies, this reporting includes environmental, social, and governance impacts related to their operational activities, such as resource management, energy usage, and waste and pollution management.

One of the main focuses of IFRS S1 is transparency in environmental impact management. For coal companies, this means reporting carbon emissions, water usage, and the impact of mining operations on land, air, and water. This report also includes the company's efforts to mitigate environmental impacts, such as adopting eco-friendly technologies and more efficient resource management. Thus, coal companies can show their commitment to reducing negative environmental impacts and supporting global sustainability initiatives. (Raghupathi et al., 2023)

Additionally, IFRS S1 requires companies to disclose how climate change may affect their operations. For coal companies, this includes disclosing risks related to decreased demand for fossil energy, stricter emission regulations, or the impact of weather changes on supply or mining operations. Companies are also expected to disclose the extent to which they comply with existing sustainability regulations and how these regulations may affect their strategies and operations. Good governance practices are also crucial, with coal companies expected to be responsible for managing workers' rights, occupational safety, and their contributions to the well-being of local communities.

IFRS S1 for coal companies demands greater transparency in sustainability reporting, particularly in the environmental, social, and governance aspects that are increasingly important to investors, regulators, and the global community. Additionally, IFRS S2, which focuses on disclosing information related to climate-related risks and opportunities, provides further guidance for coal companies to disclose the impact of climate change on their operations, which is becoming essential in attracting sustainable investments. (Miglionico, 2022); (Rossi et al., 2018); (Benameur et al., 2023).

Sustainability reporting mitigates profitability's negative impact on firm value by increasing transparency, fostering investor trust, and aligning business practices with Environmental, Social, and Governance (ESG) principles. This relationship highlights the importance of adopting robust sustainability reporting frameworks, particularly in high-impact industries like coal, where profitability often raises concerns about environmental and social repercussions. Companies can address these concerns by adhering to standards such as the Global Reporting Initiative (GRI), building stakeholder trust, and bolstering their long-term value. (Demirkan et al., 2021); (Beretta et al., 2021); (Ismail et al., 2021).

For coal companies, sustainability reporting is essential for demonstrating commitment to ESG principles. Transparent disclosures guided by GRI standards allow companies to showcase their dedication to responsible practices, thereby mitigating reputational risks associated with profitability derived from unsustainable operations. Clear sustainability reports enhance investor relations by providing evidence of proactive management of environmental and social risks, strengthening stakeholder confidence and improving firm value. Furthermore, reporting on efforts like emissions reduction, waste management, and regulatory compliance reduces legal and operational uncertainties, offering additional protection against potential risks.

Investors play a key role in driving demand for sustainability practices. Sustainability reports enable informed decision-making by providing a comprehensive view of a company's ESG performance alongside traditional financial metrics. This transparency is particularly valuable to ESG-focused institutional investors, prioritising companies demonstrating responsible management and long-term viability. These reports







attract ethical investors and help align investment portfolios with broader sustainability goals, making companies with firm ESG commitments more appealing.

Promoting robust sustainability reporting can also benefit regulators and policymakers. Encouraging adherence to frameworks such as GRI, IFRS S1, and IFRS S2 ensures that coal companies meet evolving environmental and climate-related regulations. Offering incentives for compliance can drive broader adoption of these practices across industries, improving overall sustainability performance and setting industry-wide benchmarks. This regulatory support fosters a culture of transparency and accountability that benefits companies and society.

Financial institutions, too, can leverage sustainability reporting in their credit evaluations and funding decisions. Incorporating ESG performance into assessments helps institutions identify companies that are better equipped to manage long-term risks and opportunities. Firms with substantial sustainability disclosures are more likely to secure financing, enabling growth and enhancing firm value. By prioritising companies with transparent and responsible practices, financial institutions contribute to the broader push toward sustainability in high-impact sectors.

Academics and researchers are important in advancing theoretical and practical understanding of sustainability reporting. Further exploration of its moderating effects on profitability and firm value can provide insights that refine corporate strategies and policymaking. Such research also bridges the gap between theoretical frameworks, like signalling theory, and their real-world applications in improving firm performance.

Broader implications of sustainability reporting extend to societal benefits and global competitiveness. Reporting practices align with signalling theory, conveying a company's commitment to responsible and ethical practices and meeting investor preferences for sustainable investments. Adopting global standards such as GRI, IFRS S1, and IFRS S2 enhances transparency and positions coal companies as competitive players in a global market increasingly prioritising sustainability. These practices strengthen firm value and contribute to resilience in a rapidly evolving regulatory and market landscape.

By integrating these insights, coal companies and stakeholders can leverage sustainability reporting to mitigate the adverse effects of profitability on firm value and foster a more sustainable and investor-friendly operational model.

CONCLUSION

This study's findings reveal that profitability negatively affects the value of coal companies, which contrasts with previous research that suggested higher profits drive increased company value. While profitability is typically seen as an indicator of growth potential, this study suggests that it does not always lead to higher company value in the coal industry. The negative relationship between profitability and company value may be attributed to environmental concerns, sustainability risks, and investor preference for socially responsible investments. In particular, the growing focus on environmental, social, and governance (ESG) criteria in investment decisions diminishes the positive impact of profitability on company value.

The negative correlation between profitability and company value in the coal sector can also be explained by external factors such as fluctuating coal prices, stringent environmental regulations, and the increasing cost of compliance with sustainability standards. Despite high return on assets (ROA), coal companies face significant challenges in maintaining long-term profitability due to the volatility of coal prices and the







rising costs associated with environmental management. Furthermore, investors are increasingly cautious of sectors with high environmental impacts, such as coal mining, which reduces confidence in the long-term value of companies in this industry.

In conclusion, this study emphasises the importance of sustainability reporting in moderating the relationship between profitability and company value. Transparent and comprehensive ESG disclosures, including those following global standards such as GRI, can help coal companies mitigate the negative perception of their environmental impacts. By demonstrating a commitment to sustainable practices, coal companies can attract ESG-conscious investors, thereby enhancing their value in the market. The findings highlight the need for coal companies to balance short-term profitability with long-term sustainability strategies to improve investor confidence and ensure competitiveness in a rapidly evolving global market.

This study has several limitations that should be considered when interpreting the results. Firstly, the analysis focuses solely on the coal industry in Indonesia, and the findings may not be generalisable to other sectors or regions with different regulatory environments and market dynamics. Additionally, the study primarily examines financial and historical data and ESG-related factors. However, it does not delve deeply into qualitative, which may not fully capture the effects of recent changes in environmental policies or shifts in investor preferences toward sustainability.

Future research could expand on this study by examining the role of ESG factors in other industries, particularly those with significant environmental footprints. It would be valuable to explore the impact of ESG reporting standards, such as IFRS S1 and IFRS S2, on companies' financial performance and valuation across various sectors. Additionally, future studies could incorporate qualitative methods, such as interviews with industry experts or analysis of stakeholders' perspectives, to gain deeper insights into how corporate sustainability efforts influence investor behaviour and company value. Longitudinal studies could also better understand how the relationship between profitability and company value evolves, especially in response to shifting regulatory and market trends related to climate change and sustainability.

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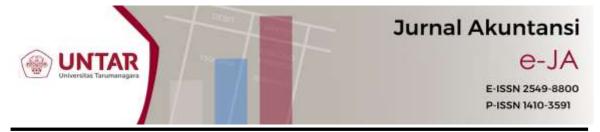


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