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# Environmental Disclosure as Legitimacy and Agency Tools for Indonesian Oil, Gas, and Mining Companies: Determinants and Impact During the Extraordinary Events

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## ABSTRACT

This research aimed to determine the factors affecting the oil, gas, and mining companies in disclosing their environmental responsibility during the pandemic and its impact to company value. The research was conducted on energy sector companies with 36 companies chosen as sample. The results provided empirical evidence that environmental performance and profitability were significant predictors of environmental disclosure with the p-value of 0.042 and 0.035, whereas the size of companies was not a factor affecting environmental disclosure since its p-value was 0.588. However, environmental disclosure, profitability, and size of companies were not significant predictors of the value of companies with the p-values respectively being 0.951, 0.838, and 0.829. In addition, environmental disclosure was proven not to be an intervening variable between environmental performance, profitability, and size of the company towards company values with the p-values respectively being 0.959, 0.962, and 0.977. This research indicated that companies were experiencing problems to run environmental performance during the pandemic, but they still had the responsibility to disclose their poor performance to investors and society. However, investors had different views since they tended to look at environmental disclosure, environmental performance, and other company characteristics as factors to consider in deciding investment alternatives during the pandemic.

***Keywords:*** *Environmental, Financial, Performance, Disclosure, Value*

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## INTRODUCTION

Over the past two decades, community demand for extensive and comprehensive information provided by companies has continued to increase, particularly regarding social and environmental responsibilities (Balluchi et al., 2021; Rodrigues et al., 2021). Furthermore, economic growth in developing countries often leads to environmental damage, contributing to rising temperatures and declining human life quality (Solikhah & Maulina, 2021). This has intensified the community demand for transparency particularly from high-profile companies whose primary operations have the potential to contribute towards global warming, reduce environmental sustainability, and generate hazardous waste (Deswanto & Siregar, 2018; Rinsman & Prasetyo, 2020). Consequently, these companies face the challenge of maintaining legitimacy in the community. Oil, gas, and mining companies are among the high-profile companies that receive serious attention from the community, especially environmentalists and investors. To maintain their legitimacy, these companies tend to disclose their environmental practices through annual and sustainability reports. (Gerged et al., 2021; Gerged et al., 2021).

Oil, gas, and mining companies in Indonesia have also fulfilled these disclosure obligations. This is evidenced by the Indonesian Environmental Reporting Index during the Covid-19 pandemic in 2021, which had an IER value of above 1. These companies maintained a high commitment to explaining the environmental impact of their operations, even during the pandemic (Istiningrum, 2023). Although environmental disclosure is mandatory in Indonesia, guidelines and standards have not been explicitly issued by the government. The formats, content, and extent of environmental reporting vary among companies, leading to voluntary disclosure (Purnama, 2018; Maulia & Yanto, 2020).

Environmental and financial performance are recognized as key factors influencing companies' decisions to provide environmental disclosure. Previous research found a positive relationship between environmental performance and disclosure (Al-Tuwaijri et al., 2004; Devie et al., 2019) and a negative effect on disclosure (Li et al., 1997; Hughes et al., 2001). Financial performance is also a supporting factor in maintaining community legitimacy through environmental disclosure (Rinsman & Prasetyo, 2020).

Companies are established to achieve the goal of maximizing value (Rinsman & Prasetyo, 2020), which is influenced by both financial and non-financial performance. Financial performance is reflected in reports demonstrating the ability to generate profits, while non-financial performance includes social and environmental activities undertaken (Mardi et al., 2019). Environmental disclosure in annual and sustainability reports is one indicator of leaders' commitment to addressing important environmental issues (Anita et al., 2021; Abdillah et al., 2021). This holds significant meaning for stakeholders, including investors who consider such information when making investment decisions, especially in companies whose operations intersect with natural resource exploitation, including oil, gas, and mining sectors. Investors directly request companies to engage in environmental management activities that provide benefits as well as demonstrate responsibility to the community (Pflieger et al., 2005). Companies that show initiative in voluntarily engaging in green investments tend to receive positive responses from potential investors. These responses in turn allow their value to increase (Moser & Martin, 2012).

The oil, gas, and mining companies had several difficulties during the Covid-19 outbreak in 2021 due to the excessive supply of oil, gas, and coal. The need for energy had decreased significantly because of government policies limiting human movement which resulted in an excess of energy supply. This created financial difficulties for those companies as indicated by the decrease of profitability by 38.7% for oil and companies and 4.91% for mining companies during the outbreak (Kusmayadi et al., 2022). In addition, as high-profile industries, companies have a responsibility to carry out exploration and exploitation activities by paying attention to green environmental principles. During the outbreak in 2021, two oil, gas, and mining companies received a black Proper rating, indicating very poor environmental management and 44% of companies were yet to be certified with ISO14001 (Istiningrum, 2023). The poor financial and environmental performances due to the excessive supply of energy caused the oil price to fall by 30% and consequently, investors viewed the company value as lower as indicated by the fall in the market price of the company shares (Supriyanto, 2021).

Companies with poor financial and environmental performances would limit their environmental disclosures to the stakeholders due to the

effort to save expenditure by limiting voluntary activities (Weber, 2017; Kılıç & Kuzey, 2019). However, the facts showed that oil, gas, and mining companies continued to provide extensive environmental disclosure to stakeholders during the outbreak as indicated by the company's IER value reaching above 1 (Istiningrum, 2023). In addition, companies with extensive environmental disclosure literally will have a positive effect on company value (Firmansyah et al., 2021). The fact showed a different phenomenon as compared to the empirical evidence. Even though the oil, gas, and mining companies had good environmental disclosure during the outbreak, the value of those companies fell as indicated by the fall in the market price of their shares by 21% (Supriyanto, 2021; Umar et al., 2023).

Based on those conditions, this research aimed to examine the factors influencing environmental disclosure in oil, gas, and mining companies listed on the Indonesia Stock Exchange and the impact of environmental disclosure on company value during the pandemic. This research was expected to develop the equations to help investors and society determine the factors that are associated with environmental disclosures and company value during extraordinary events.

## LITERATURE REVIEW

### Environmental Performance and Disclosure

The Legitimacy and Agency Theories serve as the basis for the relationship between environmental performance and disclosure. Based on these theories, strong environmental performance will be transmitted to societies and investors through environmental disclosure (Baalouch et al., 2019). This is carried out by companies to achieve a competitive advantage by enhancing their reputation in the eyes of society (Braam et al., 2016). Additionally, companies with good environmental performance seek to provide something different to owners and potential investors compared to those who poorly manage the environment. This differentiation is performed by providing comprehensive and extensive information about environmental responsibilities to societies and investors (Akhsa & Darsono, 2021).

In contrast to some of the aforementioned research, environmental performance was found to harm environmental disclosure (Cho et al., 2012). This indicated that companies with poor environmental performance are forced to provide extensive disclosure to stakeholders, including the public and investors. These companies may employ environmental reporting as a communication strategy to convey the challenges faced, with the hope that this information can be used to change societies' perceptions. This allows the public and investors to see that the company still has an environmental commitment even though it is in a situation of financial difficulty. Based on these findings, Hypothesis 1 in this research was formulated as follows:

$H_1$: *Environmental performance has an influence on environmental disclosure.*

### Financial Performance and Environmental Disclosure

The Legitimacy Theory states that society has high demands that companies with good economic performance should be able to maintain their legitimacy by disclosing a high commitment to environmental awareness programs (Giacomini et al., 2020). Furthermore, companies with high financial performance have a good willingness to deliver the information to the owners that they already appropriately run their business to increase the owner's interest as well as the company's sustainability in the future (Reverte, 2009)

Environmental disclosure demonstrates a responsibility towards the environment, which requires relatively high amounts of human and financial resources. Companies with high profitability have more flexibility in implementing green environmental management activities and their disclosure compared to those with low profitability (Kılıç & Kuzey, 2019). Financially successful companies can adopt more environmentally responsible practices due to strong support to fund the necessary environmental management costs (Weber, 2017). Furthermore, these companies have the leeway to provide extensive environmental information to maintain legitimacy in the eyes of the community (Maulana et al., 2021).

The size of companies is considered one of the key factors that influence growth and debt financing (Luo et al., 2019). Large companies often face greater pressure to disclose environmental responsibilities compared to

smaller ones (Salehi et al., 2019). The community demands engagement in green environmental activities, hence these companies voluntarily issue corporate social responsibility reports to maintain their legitimacy in the eyes of the community (Firmansyah et al., 2021) and reduce political costs (Haniffa & Cooke, 2005). Based on these findings, hypotheses 2 and 3 in this research were formulated as follows:

$H_2$: *Profitability has a positive influence on environmental disclosure.*
$H_3$: *The size of companies has a positive influence on environmental disclosure.*

### *Environmental Disclosure and Companies Value*

Value is determined by the investors' perception of how companies manage their operational activities to generate profits and is reflected in stock prices (Copeland et al., 2005). According to the Agency Theory, environmental disclosure by management in annual reports helps reduce agency conflicts between management and the owners. The owners believe that management runs the companies that have good prospects and this will lead to a significant influence on market reactions (Hardiyansah et al., 2021).

Previous research has successfully proven that environmental disclosure has a significant effect on the value of companies (Setiadi & Suhardjanto, 2017) and generates positive responses from investors. This information is a crucial aspect considered by investors who are aware that companies' activities might cause environmental degradation (Firmansyah & Ardi, 2020). Investors perceive engagement in environmental disclosure as being transparent and accountable in managing the waste generated from their operational activities. Furthermore, this information forces companies to improve their environmental management systems in waste and emissions management, ultimately resulting in a positive impact on value (Firmansyah et al., 2021). Based on these findings, Hypothesis 4 was formulated as follows:

$H_4$: *Environmental disclosure has a positive influence on the value of companies.*

### *Financial Performance and Companies Value*

The Agency Theory indicates the relationship between financial performance and company value. A high financial performance shows that management works in a manner that is in line with the owners' expectations and this leads to the increase of company value. Profitability has been established as a crucial factor influencing the value of companies (Hidayat & Khotimah, 2022), meaning that higher profitability leads to higher value. The high amount of margin generated attracts investors to invest capital, thereby increasing value (Jaunanda & Fricilya, 2022). Aside from profitability, size also has a significant positive effect on the value of companies (Oktariyani & Rachmawati, 2021). This attribute is used to determine companies' ability to fulfill operational costs, as larger companies tend to have higher operational costs for asset maintenance. Size also indicates an increase in assets, hence, investors are more interested in investing in large companies, leading to an increase in value. Based on these findings, Hypotheses 5 and 6 in this research were formulated as follows:

$H_5$: *Profitability has a positive influence on the value of companies.*
$H_6$: *The size of companies has a positive influence on the value of companies.*

### *Hypothesis Development with Environmental Disclosure as an Intervening Variable*

The environmental performance that is conducted by companies encourages the companies to disclose more relevant environmental information to stakeholders (Rinsman & Prasetyo, 2020). The companies provide extensive environmental disclosure with the expectation that potential investors may give a potential signal in the form of an increase in the share price (Devie et al., 2019). It means that environmental performance affects environmental disclosure first, then environmental disclosure affects company value. Therefore, Hypotheses 7a was formulated as follows:

$H_{7z}$: *Environmental disclosure is an intervening variable between the value of companies and environmental performance*

Companies having a high financial performance as indicated by high profitability and a large company size are more motivated to voluntarily disclose environmental information. Such companies have more asset and

financial benefits to disclose extensive information regarding environmental responsibility (Rinsman & Prasetyo, 2020). Disclosing environmental information helps the companies maintain their legitimacy in societies and reduce the information asymmetry to investors. As a result, potential investors tend to provide a positive signal to the companies and the share price tends to increase (Devie et al., 2019). It means that financial performance as indicated by profitability and size affects environmental disclosure first, then environmental disclosure affects company value. Therefore, Hypotheses 7b and 7c were formulated as follows:

$H_{7b}$: *Environmental disclosure is an intervening variable between the value of companies and profitability.*
$H_{7c}$: *Environmental disclosure is an intervening variable between the value of companies and size.*

## METHODOLOGY

### Research Variable Measurement

This research used a quantitative associative approach that examined the causal relationship between determinants such as environmental performance, profitability, and the size of companies with environmental disclosure and value. Variables and their indicators are shown in Table 1.

**Table 1: Research Variables**

| Variables | Indicators |
|---|---|
| Environmental disclosure | Indonesian Environmental Reporting Index (IER) (Suhardjanto & Miranti, 2009), where: $IER's = \frac{\sum(item\ disclosure\ x\ IER's)}{Total\ Items}$ (1) |
| Environmental performance | ISO 14001 (Devie et al., 2019)<br>Proper (Purnama, 2018) |
| Profitability | Return on Equity (ROE) (Solikhah & Maulina, 2021), where $ROE = \frac{profit\ after\ tax}{total\ equity}$ (2) |
| Size of companies | Natural logarithm of total assets (Khansa & Prasetyo, 2022). |
| Value of companies | Tobin's Q (Nurhayati & Kurniati, 2019), where Tobin's Q is calculated in the following way: $\frac{(stock\ price\ x\ outstanding\ stocks)+total\ liabilities}{total\ assets}$ (3) |

### *Research Population and Sample*

The population in this research included 167 oil, gas, and mining companies listed on the Indonesia Stock Exchange in 2021. A total of 36 companies were selected as samples using a purposive sampling technique as shown in Table 2.

**Table 2: Determination of the Research Sample**

| Criteria | Number of Companies |
|---|---|
| Oil, gas, and mining companies listed on the Indonesia Stock Exchange in 2021 as a population | 167 |
| Companies not publishing an annual/sustainability/financial report for 2021 | (27) |
| Companies with currencies other than the rupiah in the 2021 financial report | (47) |
| Companies suffering a loss in 2021 | (28) |
| Companies with incomplete research data | (29) |
| Companies fulfilling the requirements as a sample | 36 |

### *Data Analysis Techniques*

The data in this research was analyzed using the Structural Equation Model with Partial Least Squares (SEM PLS) due to the small number of research samples. The SEM PLS was also used because the research had an intervening variable and the hypotheses that were developed in this research were associated with the direct and indirect effects. In addition, the SEM PLS is also an appropriate technique to be used in the type of research with financial ratios, seconder data, and path analysis (Hair Jr et al., 2021). Two equations were used to test the hypotheses. Equation 4 was used to test $H_1$, $H_2$, and $H_3$; while Equation 5 was used to test $H_4$, $H_5$, and $H_6$.

$$EnvDisc = \alpha_1 Prof + \alpha_2 Perform + \alpha_3 Size \quad (4)$$
$$CompaniesVal = \alpha_4 EnvDisc + \alpha_5 Prof + \alpha_6 Size \quad (5)$$

To test whether environmental disclosure acted as an intervening variable, bootstrapping was used as a statistical method to evaluate the significance and direction of the relationship between financial and environmental performances, environmental disclosure, and company value. If the relationship between financial and environmental disclosures and company value decreased significantly when environmental disclosure was included in the model, this indicated the presence of an intervening effect. The hypotheses regarding the intervening variable are accepted if the p-value < 0.05 for α = 5% or a p-value < 0.10 for α = 10%.

## RESULTS AND DISCUSSION

Data collected from annual and sustainability reports were then processed using Smart PLS 4. The results are shown in Figure 1 below.

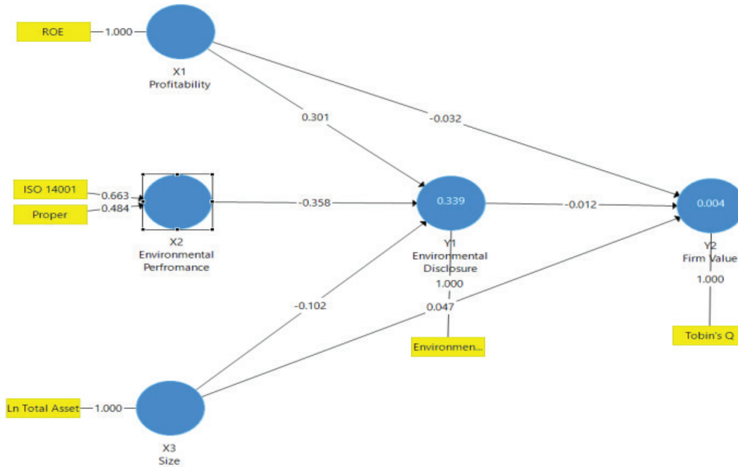


**Figure 1: Structural Equation Model Analysis**

Based on Figure 1, the inner and outer model equations formed in this research were as follows:

| | | |
|---|---|---|
| Prof | = 1,00ROE | (6) |
| Perform | = 0,663ISO + 0,484Proper | (7) |
| Size | = 1,00Ln Total Asset | (8) |
| EnvDisc | = 1,000 IER | (9) |
| CompaniesVal | = 1,000 Tobin's Q | (10) |
| EnvDisc | = 0,301Prof - 0,358Perform - 0,102Size | (11) |
| CompaniesVal | = -0,012EnvDiscl - 0,032Prof + 0,047Size | (12) |

with the following description:

| | | |
|---|---|---|
| CompaniesVal | = | value of companies |
| EnvDisc | = | environmental disclosure |
| Perform | = | environmental performance |
| Prof | = | profitability |
| Size | = | size of companies |

The bootstrap analysis was conducted to test the significance of exogenous latent variables' effect on the endogenous as well as the significance of the intervening variable. The test results are presented in Table 3 with the exogenous latent variables showing a significant effect on the endogenous latent variable when the p-value < 0.05 for α = 5% or p-value < 0.10 for α = 10%.

**Table 3: Significance Test**

| Hypotheses | t-statistics | p-value | Hypotheses | Conclusion |
|---|---|---|---|---|
| $H_1$ | 2.041 | 0.042 | Accepted | Significant |
| $H_2$ | 2.119 | 0.035 | Accepted | Significant |
| $H_3$ | 0.541 | 0.588 | Rejected | Insignificant |
| $H_4$ | 0.061 | 0.951 | Rejected | Insignificant |
| $H_5$ | 0.203 | 0.838 | Rejected | Insignificant |
| $H_6$ | 0.217 | 0.829 | Rejected | Insignificant |
| $H_{7a}$ | 0.051 | 0.959 | Rejected | Insignificant |
| $H_{7b}$ | 0.047 | 0.962 | Rejected | Insignificant |
| $H_{7c}$ | 0.029 | 0.977 | Rejected | Insignificant |

As shown in Table 3, the data supported $H_1$ because the p-value of 0.042 < 0.05 indicated a significant effect of environmental performance on environmental disclosure and the effect was negative since the value of path coefficient was -0,358. Therefore, it can be concluded that environmental performance had a significant negative effect on environmental disclosure in oil, gas, and mining companies These results are consistent with previous research conducted by Hughes et al. (2001) and Cho et al. (2012).

In the USA, companies with poor environmental management are required to provide broader disclosure due to the Statement of Financial Accounting Standard (SFAS) 5, which mandates disclosure requirements for contingent accounting. Similarly, ISO 14001 certification signifies the commitment to continuously improve their environmental management systems. This motivates companies to disclose their commitments widely to the community, even though their environmental performance is still inadequate. Companies communicate to the community that limitations in health conditions during the pandemic have compelled them to restrict performance (including environmental performance) to prevent the spread of the virus. Low environmental performance companies tend to utilize

environmental disclosure to maintain their legitimacy in the eyes of the community (Cho et al., 2012).

As shown in Table 3, the data supported H2 because the p-value of 0.035 < 0.05 indicated a significant effect of profitability on environmental disclosure, and the effect was positive since its path coefficient was 0.301. Therefore, it can be concluded that profitability had a significant positive effect on environmental disclosure in oil, gas, and mining companies. Previous research also showed similar results, where higher profitability led to broader environmental disclosure (Maulia & Yanto, 2020; Ifada et al., 2021). Companies require substantial capital to finance environmental preservation activities because it is associated with high and costly technological needs (Maulia & Yanto, 2020). The high capital needs become a strength for companies with high profitability because they can allocate a portion of their profits to invest in environmental management technologies. Furthermore, companies are certainly motivated to convey this strength in their annual and sustainability reports, seeking legitimacy from the community that high-profile companies have fulfilled their environmental responsibilities.

As shown in Table 3, the data did not support H3 because the p-value of 0.588 > 0.05 indicated that size had no significant effect on environmental disclosure. This result contradicts some previous research that formed the basis for the hypothesis suggesting size has a positive effect on environmental disclosure (Oktariyani & Rachmawati, 2021; Jaunanda & Fricilya, 2022). However, Maulana et al. (2021) obtained similar results as this research. Both large and small oil, gas, and mining companies face pressure from environmentalists due to their activities directly interacting with nature and generating hazardous waste (Sulistyono, 2015). These companies continue to make efforts to provide information on their environmental performance through annual reports and other official media.

Based on Table 3, the data did not support H4 because the p-value of 0.951 > 0.05 indicated that environmental disclosure had no significant effect on value. This result was consistent with several previous research (Rinsman & Prasetyo, 2020; Khansa & Prasetyo, 2022). Table 3 also showed that the data did not support H5 due to the p-value of 0.838 > 0.05 indicating profitability did not have a significant effect on the value

of companies. This result is consistent with several previous research (Deswanto & Siregar, 2018; Palupi & Hendiarto, 2018). Furthermore, the data did not support H6 because the p-value of $0.829 > 0.05$ suggests that the size of companies did not have a significant effect on value. Investors do not solely rely on environmental disclosure as an indicator for making investment decisions. They consider the overall information disclosed, both mandatory and voluntary disclosure. Therefore, environmental disclosure is not a guarantee for the fluctuation of companies' stock market prices (Muharramah & Hakim, 2021).

The capital market also experienced a significant decline during the Covid-19 pandemic. Individuals who initially relied on financial data such as profitability and size of companies as well as non-financial data including environmental disclosure for making investment decisions became irrational investors. They engage in panic selling due to excessive emotions when stock prices decline because of Covid-19. Some investors continued to hold onto their stocks despite the decline, displaying irrational behavior and an inability to make clear investment decisions. Financial measures such as profitability and size of companies as well as non-financial measures namely voluntary disclosure were no longer used as benchmarks by investors during this time. Investment decisions were made based on proxies, such as the number of positive patients, the implementation of restrictions, and vaccine availability, leading to hasty and suboptimal decision-making (Deswanto & Siregar, 2018). However, some investors remained rational in making investment decisions.

Rational investors consider various factors when buying stocks experiencing price declines. These factors include (1) the demand for the stock product, (2) whether companies producing the product are price controllers, (3) availability, (4) whether the product produced is valuable/has a high value such as energy, solar power, food, and others, (5) the essential nature of the product (Sitinjak, 2020). In other words, investment decisions during the pandemic were mostly determined by product characteristics and not companies' characteristics. Therefore, in this research, some company characteristics, such as profitability, size, and environmental disclosure, had no significant effect on value.

As shown in Table 3, the data did not support H7a, H7b, and H7c because the *p-value* for the three hypotheses was > 0.05, indicating that environmental disclosure was not an intervening variable between profitability and value of companies, environmental performance, and value of companies, as well as size and value of companies. Environmental disclosure was not considered an intervening variable because it had no significant effect on the value of companies. These results are consistent with research conducted by Rinsman and Prasetyo (2020). Although oil, gas, and mining companies with high profits and diverse variations in environmental performance consider engaging in environmental disclosure important to maintain community legitimacy (including investors) during the pandemic, investors had the opposite perception. In other words, investors did not see companies' environmental disclosure, environmental performance, and financial performance as a means of making decisions (Deswanto & Siregar, 2018).

This research is derived from a different point of view between companies and investors to determine the factors associated with a company's value. From the companies' point of view, the condition will be better if they disclose their poor environmental performance to investors and society with the hope that investors and the public view the companies as still committed to implementing environmental performance during extraordinary events causing financial difficulties. However, investors had different views since they tended not to look at environmental disclosure, environmental and financial performances as factors to consider in deciding investment alternatives during the extraordinary event.

## CONCLUSION

Environmental and financial performance are often considered key factors influencing the provision of environmental disclosure by oil, gas, and mining companies. Investors ultimately consider this information as a factor affecting the value of companies. Therefore, this research was conducted to examine the determinants and impact of environmental disclosure on oil, gas, and mining companies. By using the structural equation model, the results showed that environmental performance had a significant negative effect on environmental disclosure. Meanwhile, the impact of financial

performance on environmental disclosure varied relatively. Profitability, as one proxy of financial performance, was proven to have a significant positive effect on environmental disclosure, while the size of companies had no significant effect.

Environmental disclosure itself did not significantly affect the value of companies during the pandemic. Other factors such as environmental performance, profitability, and company size were also proven as the factors that did not affect company value. Therefore, environmental disclosure did not act as an intervening variable. This research provides quite interesting results considering that investors did not pay attention to environmental performance, financial performance, and environmental disclosure in making investment decisions. Anomalous conditions during the pandemic caused a paradigm shift in investor valuation.

It becomes very necessary for companies to note that traditional measures such as environmental disclosure, environmental and financial performance are not measures for investors to make investment decisions when extraordinary events occur. Therefore, the companies and researchers should add several variables related to product characteristics as determinants that might affect the value of companies. Besides the important findings, this research has a limitation regarding the number of samples. The number of samples in this research was relatively small because the sampling was restricted to oil, gas, and mining companies in 2021. It is suggested that further research add time series data to provide more accurate results.

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