# Does an Energy Company's Sensitivity Affect its Performance?: Environmental, Social and Governance Analysis in Coal, Gas, Oil, and Basic Materials Industry Companies

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**ABSTRACT**

This study aims to investigate the relationship between the types of energy companies, namely coal, gas and oil, and their performance levels. In addition, the influence of companies that have high sensitivity to the environment on company performance is also tested. Several important variables were also tested such as social activities, governance, as well as the type of energy company, namely coal, gas and oil. The research was conducted on energy companies and basic material industries listed on the Indonesia Stock Exchange from 2018 to 2021. The method used is multiple regression analysis with a data sample of 154 observations. Four models are used in measuring financial performance, namely ROA, ROE, NPM, and new reduced variables. It was found that environmental activities do not affect performance, including in companies that have high sensitivity. Likewise, social activities and corporate governance proxied by female directors, intensity of board meetings, and board education have no significant effect. On the other hand, liquidity has a positive effect on ROA, DER has a negative effect on ROE and performance reduction results. A unique finding shows that only coal companies have a positive relationship with the performance of companies in the energy sector.

**Keywords:** Coal, Gas and Oil, Basic Material, Performance, Environmental Disclosure
**JEL Classifications:** C12, M21, L71

## 1. INTRODUCTION

Coal, oil and gas companies are energy companies that have high sensitivity to environmental pollution (IEA, 2020; Johnston et al., 2020; Kabeyi and Olanrewaju, 2022). This is a key focus in an era of environmental uncertainty and climate change. The core activities of these companies, such as natural resource exploitation, processing, and distribution, have significant impacts on ecosystems and environmental quality. In fact, several studies and reference sources have underscored how important attention to environmental pollution by these energy companies (Balcombe et al., 2017; Lamma, 2021; Rachmat et al., 2021).

One of the most noticeable impacts of energy companies is greenhouse gas emissions. The burning of fossil fuels, including coal, oil and natural gas, is the main cause of increased $CO_2$ concentrations in the atmosphere. Several studies emphasize the energy sector's large role in greenhouse gas emissions that contribute to global climate change (Naumenko-Dézes et al., 2022; Peters et al., 2020). In fact, coal companies are often major contributors to air pollution, with emissions of fine particulate matter, sulfur dioxide ($SO_2$), and nitrogen oxides (NOx) detrimental to air quality and human health (Cheng et al., 2014; Rachmat et al., 2021).

Another problem that occurs due to many oil spills. Oil companies have a huge potential risk related to oil spills at sea (Asif et al.,

2022; Fingas, 2017). Also Methane emissions that occur due to the operations of natural gas companies that contribute to greenhouse gas emissions (Balcombe et al., 2017; Shirizadeh et al., 2023) and the amount of hazardous waste that contaminates groundwater and soil (Hasan et al., 2021; Lamma, 2021).

Hence, energy companies around the world are currently facing pressure from increasingly stringent regulations (Dechezleprêtre and Sato, 2017; Jefferson, 2015), as well as the demands of society and investors to reduce their environmental impact. Therefore, they are increasingly focusing on clean technologies, renewable energy and sustainable practices in a bid to minimize negative impacts on the environment and contribute to the shift towards a greener energy system.

In addition to environmental issues, social activities and good business management are also important parts of running a company. Especially companies that have high sensitivity to the environment. Based on McKinsey and Company (2020) that the Company must pay attention to environmental, social and good governance aspects to maintain its business sustainability.

As a form of accountability, the company must disclose its activities related to environmental activities and social activities made in the annual report. Usually the level of disclosure is related to the type of industry and size of the company (Huang et al., 2011). This is in line with Monteiro and Aibar-Guzmán (2010) that large companies have an interest in environmental disclosure. One of them is an energy company, as expressed by Gatimbu et al. (2017) that energy companies that inform environmental pollution will support the company's financial performance to be better.

In addition to energy companies, other types of companies such as the basic materials industry should also pay attention to environmental costs. Although it does not have the high sensitivity of energy companies, it will help increase the value of the company (Handayani, 2023). Management in both types of companies must do good protection against environmental and social impacts so that their performance can be maintained (Bhuyan et al., 2017; Husser and Evraert-Bardinet, 2015; Szczepankiewicz et al., 2023). Climent et al. (2021) have proven the importance of ESG disclosure in supporting the improvement of company performance (Fatemi et al., 2018; Mohammad and Wasiuzzaman, 2021).

In relation to ESG, corporate governance is an important factor in determining performance. Several recent studies reveal the role of governance in triggering improved corporate performance in Indonesia (Dewany, 2015; Suhadak et al., 2019; Trisnaningsih and Rahmasari, 2022). However, the results of these studies have not been specifically conducted in the energy and basic materials company sector.

In terms of their operations, the basic materials industry and the energy industry are important sectors that have an impact on the environment, although the level of sensitivity differs. Because of this, these sectors have activities that have many operational rules (Prooijen et al., 2021) because it harms the environment. But on the other hand, its activities are needed for human life so that it becomes

a gap. Therefore, basic material and energy industry companies are important to study, especially on corporate governance factors. This is in line with the results of research which prove that corporate governance activities play a role in improving performance, such as meeting intensity (Chou et al., 2012; Pollak and Parnell, 2018), level of education (Lina and Pengchao, 2011; Wang et al., 2017), and the presence of female directors (Adams and Ferreira, 2011; Ananda et al., 2021; Mohan, 2014).

Based on the above background, this study aims to examine the performance of energy companies that have high sensitivity to the environment, especially in coal, oil and gas companies. Several important factors following ESG issues, namely environmental impact, social, and good governance are tested by comparing with basic material industry companies as a representation of companies that do not have high sensitivity to the environment.

This research was conducted in Indonesia for a strong reason, namely the huge potential of primary energy demand. According to the Indonesian Energy Outlook, in 2025 it is projected that the energy mix for new renewable energy will be 21%, gas 24%, coal 34%, and oil 21%. Meanwhile, the national final energy demand in 2050 based on BaU, PB and RK scenarios amounted to 548.8 MTOE, 481.1 MTOE and 424.2 MTOE, respectively (DEN, 2019). Meanwhile, in line with the increasing business growth in Indonesia, the basic materials industry is also experiencing an increase in demand and production (Kementrian Perindustrian Republik Indonesia, 2020). Even the Indonesian government is focusing on improving the performance of one of its Companies (Suharsono and Lontoh, 2020) so this research will provide benefits for academic development and for policymakers.

## 2. LITERATURE REVIEW

### 2.1. Company Performance of Coal, Oil and Gas, and Basic Materials Industries

The company's financial performance is an important aspect in the success of a company (Helvaci, 2002). Good financial performance can benefit the company, investors and stakeholders. Conversely, poor financial performance can have a negative impact on the company and reduce stakeholder confidence. Companies that have good financial performance will also have a good impact on company value (Suhadak et al., 2019) and on the contrary, away from potential bankruptcy (Widhiastuti et al., 2019).

The importance of financial performance for energy companies, especially coal, gas and petroleum, causes a lot of special attention, both researchers and practitioners. Usually the company's performance can be seen in the financial statements through financial performance assessment. From each financial report prepared, stakeholders highlight financial performance because it reflects the company's success rate (Dang-Duc, 2011). Dang-Duc (2011) notes that financial performance provides a more precise perspective of a company's performance. Financial performance can be measured by profitability (Nguyen and Nguyen, 2020). In fact, profitability tends to be a long-term target that not only measures the achievement of a product but also the improvement of the market.

Of the two types of energy companies studied, it is necessary to analyze the relationship between the type of energy company and company performance. This can help in analyzing the characteristics of different types of companies. Therefore, the first hypothesis is:

$H_{1a}$: Coal companies tend to have a positive relationship with their company performance

$H_{1b}$: Gas and oil companies tend to have a positive relationship with their company performance.

## 2.2. Environmental Disclosure

Environmental disclosure helps increase transparency in the operational activities of energy and basic materials companies. It provides stakeholders with a better understanding of the environmental impacts of their business activities. The information provided through environmental disclosure helps stakeholders make more informed decisions and understand the company's responsibility towards environmental issues. However, environmental disclosures are more widely disclosed in high-performing companies. It is disclosed in annual reports, 10-Ks, and sustainability reports (Tadros and Magnan, 2019). Economic and legitimacy factors provide high support for this practice.

The disclosure is also triggered by the existence of regulations on companies regarding the obligation to report their activities that have an impact on the environment. So that there is an adjustment from the company in voluntarily disclosing after the regulation (Shima and Fung, 2019).

Transparent and accurate environmental disclosure can help companies build a responsible reputation and image in managing environmental impacts, especially in companies that have high sensitivity. Study conducted by Michelon (2011) and (Zhongfu et al., 2011) found that companies with a good reputation for sustainability performance tend to have better financial performance. Thus, there is strong evidence that good environmental disclosure can have a positive impact on company performance. This disclosure can certainly differ between companies that have high sensitivity to the environment and those that do not.

Based on the explanation above, the second hypothesis is:

$H_2$: Disclosure of environmental performance has a positive effect on company performance

$H_{2a}$: Companies with a high level of sensitivity to the environment have a positive effect on Company performance.

## 2.3. Social Disclosure

In general, social disclosure is related to company performance through several mechanisms. Among them, social disclosure can increase stakeholder trust (Starks et al., 2017) to the company as they can assess the company's social, environmental and ethical practices. This can improve the company's image, consumer satisfaction, and employee loyalty. In addition, social disclosure can also help companies reduce reputational risk (Maaloul et al., 2023) by identifying and addressing social and environmental issues that can affect the company's image. In addition, social disclosure can also improve the company's financial performance

(Chen and Xie, 2022) because it can increase investor confidence and improve the company's operational efficiency.

However, as mentioned earlier, the relationship between social disclosure and firm performance may vary depending on factors such as industry, firm size, and the country in which the firm operates. For example, companies operating in industries that are more open and involved in sensitive social and environmental issues may benefit more from social disclosure than companies in industries that are less open or less involved in such issues (Hussaini et al., 2021). Overall, social disclosure has a positive impact on improving company performance (Chen and Xie, 2022; Fatemi et al., 2018; Hussaini et al., 2021; Mohammad and Wasiuzzaman, 2021). Based on the explanation, the third hypothesis is:

$H_3$: Disclosure of social performance has a positive effect on company performance

## 2.4. Corporate Governance

Governance is the framework that governs the company's operations and is managed to ensure that the company operates efficiently, fairly, transparently, and in accordance with applicable laws and regulations. Some important elements in corporate governance are board diversity, board education level, and meeting intensity.

Based on several studies, there is a positive relationship between the presence of female directors and company performance. One of the reasons for this is because gender diversity in leadership can bring different perspectives and help in better decision-making. In addition, the presence of female directors can also increase team effectiveness and reduce the risk of decisions being made based on a one-sided perspective.

Mohan (2014) proves that gender has an impact on performance. Meanwhile, Khan and Vieito (2013) proved that companies governed by female or male directors have similar performance. Further, Kabara et al. (2022) explained that the presence of gender on the board of directors is not important, because female directors do not have an impact on company performance (Yasser, 2012). However, the attendance rate is better than that of male directors (Adams and Ferreira, 2009) Therefore, if the composition of female directors is regulated, it can potentially improve company performance. However, if it is controlled by women, this results in a decrease in company performance (Adams and Ferreira, 2009; Ananda et al., 2021). Therefore, based on the above explanation, the fourth hypothesis is:

$H_4$: The presence of female directors has a negative effect on company performance.

Meeting intensity, which is the frequency and duration of meetings between team members or employees. Related to this relationship, many studies have examined the relationship between meeting intensity and company performance. Research conducted by Chou et al. (2012) and Pollak and Parnell (2018) The results of this study show that the more frequent meetings are held,

the more the company's performance increases. The results of this study also show that meetings that are held regularly and effectively can improve coordination and communication between team members or employees, thus having a positive impact on company performance. Lin et al. (2014) emphasized that meeting attendance has a good impact on company performance, but it must be controlled, especially for directors who have a higher level of busyness to reduce the intensity of meetings so that the actions interfere with company performance. Based on theory and empirical studies, the fifth hypothesis is:

$H_5$: The intensity of board of directors meetings has a positive effect on company performance.

According to some experts, there is a strong correlation between the education level of company directors and company performance. The results show that the higher the level of education of the directors, the better the resulting company performance. Research that supports this is research by Lina and Pengchao (2011) dan Wang et al. (2017), who found that the education of directors has a positive relationship with the financial performance of the company. In fact, the presence of professors plays an important role, especially in their ability to monitor management functions (Francis et al., 2014). This means that the higher the education of the directors, the better the company's financial performance.

However, too much diversity in the education level of the board of directors may lead to a decline in performance (Adnan et al., 2016), especially in small colleges (Gantenbein and Volonté, 2012). Usually, the different levels of education lead to different levels of business outlook. Of course this will interfere with performance. So another opinion (Kabara et al., 2022) explains that the level of education is not something that is important in improving company performance. From the empirical study described, the sixth and seventh hypotheses are:

$H_6$: Directors' education level has a positive effect on company performance.

$H_7$: Educational Background in Economics and Business has a positive effect on company performance.

## 3. RESEARCH METHOD

This research was conducted at energy and basic material industry companies listed on the Indonesia Stock Exchange from 2018 to 2021. By using purposive sampling method to select samples to be used in this study by considering the availability of the required data, namely companies that report environmental and social activities. The data used were 74 energy sector companies and 93 basic material sector companies, so the data obtained was 668 observations. Then incomplete data was discarded from all variables during the study period so that 154 observations were obtained. Meanwhile, to see the explanation of all variables can be seen in detail in Table 1.

### 3.1. Data Analysis Method
This study uses PCA to simplify the observed variables by reducing their dimensions so that they become new variables that will be regressed. In this case, the variables that will be analyzed using PCA are ROA, ROE, and NPM. After the results are found, the three financial ratios will be used as the dependent variable.

Suppose $x=[x_1, x_2, x_3., x_p]$ is a vector of the original variables observed with the covariance matrix $\sum(\sigma_{ij})$, then the first principal component denoted by $Y_1$ is defined as:

$$Y_1 = \sum a_{ij}X_j = a_1^T X$$

Where:

$$Y_1 = a_{11}X_1 + a_{12}X_2 + a_{13}X_3 + \ldots + a_{1p}X_p$$
$$\vdots$$
$$Y_p = a_{p1}X_1 + a_{p2}X_2 + a_{p3}X_3 + \ldots + a_{pp}X_p = a_p^T X$$

**Table 1: Description of variables**

| Symbol | Description | Source of the data |
|---|---|---|
| Dependent variable | | |
| ROA | The ratio of earning after tax divided by total assets | Financial statment |
| ROE | The ratio of earning after tax divided by total equity | Financial statment |
| NPM | The ratio of earning after tax divided by sales | Financial statment |
| Independent variable | | |
| Soc | Score value of social disclosure according to GRI | GRI |
| Env | Score value of environmental disclosure according to GRI | GRI |
| Meet.Dir | Total intensity of board of directors meetings in 1 year | Annual report |
| Edu.Dir | Director's education level: 0=Senior High School, 1=S1, 2=S2, 3=S3 | Annual report |
| EduFin.Dir | Financial education background: 1=has a financial education background, 0=not | Annual report |
| Gend. Dir | Dummy variable: 1=female, 0=male | Annual report |
| Sensit | Dummy variable: 1=the company has high sensitivity to the environment, 0=the company does not have high sensitivity to the environment. | Annual report |
| COAL | Dummy variable: 1=coal company, 0=other company. | Annual report |
| Gas and Oil | Dummy variable: 1=gas and oil company and, 0=other company. | Annual report |
| Basic | Dummy variable: 1=basic material industry company, 0=other company | Annual report |
| Control variable | | |
| Size | Natural logarithm of Total asset | Financial Statment |
| DER | Ratio by comparing debt to total equity | Financial Statment |
| CR | Ratio by comparing current assets with current debt | Financial Statment |

With:

$Y_p$ = random variable from the original variable to the new variable, $Y_p$ = original random variable, $X$ = original random variable matrix of the form:

$$\begin{bmatrix} Y_1 \\ Y_2 \\ \vdots \\ Y_p \end{bmatrix} = \begin{bmatrix} a_{11} & a_{12} & \cdots & a_{1p} \\ a_{21} & a_{22} & \cdots & a_{2p} \\ \vdots & \vdots & \ddots & \vdots \\ a_{p1} & a_{p2} & \cdots & a_{pp} \end{bmatrix} \begin{bmatrix} X_1 \\ X_2 \\ \vdots \\ X_p \end{bmatrix}$$

Which maximized variety $Y_1$, namely $\sum a_1$, with obstacles $a_1^T a_1 = 1$. If the covariance matrix of the vector x is $\sum$, then variants $Y_1$ is formulated as:

$$var(Y_1) = a_1^T \sum a_1$$

The transformation problem is how to select the coefficient of the linear combination so that:

$$var(Y_1) > var(Y_2) > \ldots > var(Y_p)$$

The analysis results the with Lagrange function yielded $a_1, a_2, \ldots, a_p$, as an eigenvector corresponding to the eigenvalue $\lambda_1, \lambda_2, \ldots, \lambda_p$, from matrix covariance $\sum$. The general form of the Lagrange equation is:

$$L(x) = f(x) - \lambda[g(x) - c]$$

Where:
f(x) = Objective function
g(x) = Constraint function
c = Constant

Then to find the factors that affect financial performance, regression analysis is used by considering several financial performance indicators, namely ROA, ROE, ROI, and reduction result performance.

The basic model can be formulated as follows:

1. Prediction model for ROA

$ROA = a + b_1 Env_{it} + b_2 Soc_{it} + b_3 Sensit_{it} + b_4 Gend_{it} + b_5 Meet_{it} + b_6 Edu. Dir_{it} + b_7 EduFin. Dir_{it} + b_8 Size + b_9 DER_{it} + b_{10} CR_{it} + b_{11} COAL_{it} + b_{12} Gas\&Oil_{it} + e$  (1)

2. Prediction model for ROE

$ROE = a + b_1 Env_{it} + b_2 Soc_{it} + b_3 Sensit_{it} + b_4 Gend_{it} + b_5 Meet_{it} + b_6 Edu.Dir_{it} + b_7 EduFin.Dir_{it} + b_8 Size + b_9 DER_{it} + b_{10} CR_{it} + b_{11} COAL_{it} + b_{12} Gas\&Oil_{it} + e$  (2)

3. Prediction model for NPM

$NPM = a + b_1 Env_{it} + b_2 Soc_{it} + b_3 Sensit_{it} + b_4 Gend_{it} + b_5 Meet_{it} + b_6 Edu.Dir_{it} + b_7 EduFin.Dir_{it} + b_8 Size + b_9 DER_{it} + b_{10} CR_{it} + b_{11} COAL_{it} + b_{12} Gas\&Oil_{it} + e$  (3)

4. Prediction model for reduced result performance

$Perf = a + b_1 Env_{it} + b_2 Soc_{it} + b_3 Sensit_{it} + b_4 Gend_{it} + b_5 Meet_{it} + b_6 Edu.Dir_{it} + b_7 EduFin.Dir_{it} + b_8 Size + b_9 DER_{it} + b_{10} CR_{it} + b_{11} COAL_{it} + b_{12} Gas\&Oil_{it} + e$  (4)

## 4. RESULTS AND DISCUSSION

### 4.1. Descriptive Statistics
Table 2 shows a summary of the descriptive analysis of each variable consisting of minimum, maximum, mean and standard deviation. From the table it is known that there are several variables with minus values, namely the DER ratio with a value of $-29.14\%$, ROA with a value of $-0.499\%$, ROE with a value of $-2.548\%$, and NPM with a value of $-22.407\%$. There are also standard deviation values that are greater than the average such as gender variables, directors with a financial education background, the number of female directors, DER, Coal, Gas and Oil, ROA, ROE, and NPM ratios. All of these show values with considerable variation.

### 4.2. Company Financial Performance Based on PCA Analysis
Financial performance variables are measured by several financial ratios, namely ROA, ROE, and NPM. The three ratios are then reduced to one variable using Principal Component Analysis (PCA). Furthermore, the new variable is called Perf (performance).

To determine whether or not factor analysis is used in reducing the ratio, the Kaiser-Meyer-Olkin (KMO) test and Barlett's T-test are conducted. The analysis results are shown in Table 3 that the KMO value of 0.544 is >0.5 and Barlett's test has a significance value below 0.05, so it is concluded that the data can be used for factor analysis.

Furthermore, Component Matrix output is presented to see factors that can be used in measuring financial performance based on the highest correlation level. Table 4. shows that factor 1 has a greater value than factor 2 of all variables used, so that ROA, ROE, and NPM variables can be reduced to one variable. In this study, the new variable is named variable performance (perf).

### 4.3. Correlation Matrix
This analysis is intended to see the directional relationship between each variable used, including financial performance variables namely ROA, ROE, NPM, and new variables (Perf). The analysis uses Pearson Correlation. The results can be seen in Table 5.

Table 5 shows the relationship between the variables. It also shows the significance value to see whether there is a close relationship or

**Table 2: Descriptive analysis**

| Variables | Minimum | Maximum | Mean | SD |
|---|---|---|---|---|
| Environmental disclosure | 0.00 | 1.00 | 0.4542 | 0.24311 |
| Social disclosure | 0.00 | 1.00 | 0.5317 | 0.25465 |
| Sensitivity | 0.00 | 1.00 | 0.5714 | 0.49649 |
| Gender (female director) | 0.00 | 3.00 | 0.5325 | 0.75985 |
| Meeting intensity of director | 3.00 | 90.00 | 21.9481 | 17.04849 |
| Director education level | 1.00 | 4.00 | 2.5714 | 0.62473 |
| Director's educational background is in accounting and finance | 0.00 | 1.00 | 0.2143 | 0.41166 |
| Size | 25.39 | 32.51 | 30.0373 | 1.49812 |
| DER | −29.14 | 24.85 | 0.9973 | 3.61897 |
| Current ratio | 0.01 | 7.42 | 1.8117 | 1.20844 |
| Coal company | 0.00 | 1.00 | 0.2338 | 0.42461 |
| Gas and oil company | 0.00 | 1.00 | 0.1299 | 0.33726 |
| ROA | −0.499 | 0.498 | 0.0395 | 0.11414 |
| ROE | −2.548 | 4.905 | 0.1201 | 0.48793 |
| NPM | −22.407 | 60.093 | 0.2689 | 5.25134 |

**Table 3: Analisis Kaiser-Meyer-Olkin**

| KMO and bartlett's test | | |
|---|---|---|
| Kaiser-Meyer-Olkin measure of sampling adequacy. | | 0.544 |
| Bartlett's test of sphericity | Approx. Chi-square | 6.071 |
| | Df | 3 |
| | Sig. | 0.108 |

**Table 4: Component matrix**

| Variables | Component | |
|---|---|---|
| | 1 | 2 |
| ROA | 0.673* | 0.401 |
| ROE | −0.549 | 0.832* |
| NPM | 0.691* | 0.270 |

not. In addition, this analysis also shows the relationship between the independent variable and the dependent variable to help explain the effect to be analyzed.

### 4.4. Main Analysis

In this section, we will analyze all variables that allegedly affect the performance of the Company, both Companies that have high sensitivity to the environment and other Companies. The goal is to answer all the hypotheses proposed earlier.

There are four models of measuring the Company's financial performance, namely ROA, ROE, NPM, and new variables resulting from the reduction of the three ratios. Table 6 presents the output of all models used in the SPSS analysis.

Of all the models used, the third model, namely NPM, cannot be continued because the significance value of the F test is >0.05 (0.988). so only models 1, 2, and 4 can be continued to test the hypothesis.

In model 1, the results of the analysis found that environmental and social disclosures have no influence on company performance. Likewise, the level of sensitivity of the Company to the environment has no influence on performance. Corporate Governance also does not have any impact on the Company's performance. Meanwhile, the Company's liquidity (current ratio) and the type of coal company have a positive influence.

Furthermore, in model 2, the analysis found the same result as the previous model, that none of the independent variables affect ROE, both sensitivity variables, environmental and social disclosure, and corporate governance. However, one of the control variables, DER, has a significant negative effect. Similarly, the type of coal company is positively related to performance as measured by DER.

In model 4, the analysis found that none of the independent variables affect financial performance. However, as in the analysis of model 2 that DER has a significant negative effect and the variable type of coal company is negatively related to the company's performance.

## 5. DISCUSSION

### 5.1. Analysis of Environmental Performance, Social Performance, and Sensitivity of Energy Companies

Of the four models developed, which controlled for the variables of company size, leverage, and liquidity, none of the models succeeded in showing that environmental and social disclosures are variables that have a significant effect on the financial performance of the company, including companies that have high sensitivity to the environment.

In this regard, energy and basic material industry companies often have a primary focus on technical, operational and economic aspects to achieve efficiency and profitability. In a highly competitive business environment, companies tend to focus their attention on factors that directly affect financial performance (Kusmayadi et al., 2022). In this context, environmental and social disclosures may be considered a lower priority and have no direct influence on company performance. Therefore, the sensitivity of corporate

Environmental and social disclosures are often related to image, reputation, and profitability (Dewi, 2020), and relationships with stakeholders. In some cases, these impacts may not directly result in increased profits or significant financial growth. This needs to be tested again with more extensive research.

Another important point is that energy and basic materials companies are often subject to regulatory requirements (van

**Table 5: Pearson correlation**

| Variables | Env | Soc | Sensit | Gend.Dir | Meet.Dir | Edu.Dir | FinEdu.Dir | Size | DER | CR | Coal | Gas.Oil | ROA | ROE | NPM |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Env | 1 | | | | | | | | | | | | | | |
| Soc | 0.679** (0.000) | 1 | | | | | | | | | | | | | |
| Sensit | −0.248** (0.002) | −0.201* (0.012) | 1 | | | | | | | | | | | | |
| Gend.Dir | 0.096 (0.236) | 0.111 (0.172) | 0.054 (0.502) | 1 | | | | | | | | | | | |
| Meet.Dir | 0.186* (0.021) | 0.263** (0.001) | −0.028 (0.729) | 0.291** (0.000) | 1 | | | | | | | | | | |
| Edu.Dir | 0.060 (0.458) | 0.040 (0.626) | −0.090 (0.265) | −0.012 (0.885) | 0.212** (0.008) | 1 | | | | | | | | | |
| FinEdu.Dir | −0.026 (0.752) | −0.018 (0.827) | −0.155 (0.054) | −0.054 (0.508) | −0.161* (0.046) | 0.054 (0.502) | 1 | | | | | | | | |
| Size | 0.300** (0.000) | 0.273** (0.001) | −0.109 (0.180) | 0.079 (0.333) | 0.195* (0.015) | 0.191* (0.018) | −0.075 (0.352) | 1 | | | | | | | |
| DER | 0.089 (0.272) | 0.159* (0.049) | 0.053 (0.518) | 0.086 (0.287) | −0.015 (0.856) | −0.193* (0.017) | −0.067 (0.409) | 0.276** (0.001) | 1 | | | | | | |
| CR | 0.035 (0.668) | 0.140 (0.084) | 0.038 (0.640) | 0.004 (0.957) | 0.110 (0.174) | 0.019 (0.811) | −0.010 (0.901) | −0.052 (0.519) | −0.083 (0.309) | 1 | | | | | |
| Coal | −0.064 (0.427) | −0.080 (0.327) | 0.478** (0.000) | −0.165* (0.040) | −0.130 (0.108) | 0.084 (0.298) | 0.011 (0.895) | 0.108 (0.181) | 0.030 (0.716) | 0.156 (0.054) | 1 | | | | |
| Gas.Oil | −0.003 (0.967) | 0.062 (0.448) | 0.335** (0.000) | 0.315** (0.000) | 0.141 (0.081) | −0.075 (0.353) | −0.202* (0.012) | 0.260** (0.001) | 0.264** (0.001) | −0.165* (0.041) | −0.213** (0.008) | 1 | | | |
| ROA | 0.027 (0.743) | 0.100 (0.217) | 0.193* (0.017) | −0.052 (0.524) | −0.019 (0.815) | 0.078 (0.334) | −0.013 (0.877) | 0.073 (0.368) | 0.100 (0.216) | 0.305** (0.000) | 0.408** (0.000) | −0.070 (0.390) | 1 | | |
| ROE | −0.052 (0.522) | −0.091 (0.262) | −0.050 (0.540) | −0.078 (0.336) | −0.034 (0.677) | 0.090 (0.268) | 0.165* (0.041) | −0.093 (0.250) | −0.504** (0.000) | −0.043 (0.593) | 0.105 (0.195) | −0.143 (0.076) | −0.087 (0.285) | 1 | |
| NPM | 0.012 (0.883) | −0.011 (0.893) | 0.046 (0.567) | −0.070 (0.392) | −0.041 (0.614) | −0.014 (0.860) | −0.048 (0.551) | 0.009 (0.911) | 0.058 (0.478) | −0.020 (0.810) | −0.015 (0.858) | −0.018 (0.821) | 0.157 (0.052) | −0.100 (0.218) | 1 |

**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed)

**Table 6: Output analisis**

| Model | 1-ROA | | 2-ROE | | 3-NPM | | 4-Perf | |
|---|---|---|---|---|---|---|---|---|
| | t | Sig. | t | Sig. | t | Sig. | t | Sig. |
| Env | −0.333 | 0.739 | −0.247 | 0.805 | 0.413 | 0.681 | −0.297 | 0.767 |
| Soc | 1.089 | 0.278 | 0.074 | 0.941 | −0.199 | 0.843 | 0.198 | 0.843 |
| Sensit | 0.148 | 0.882 | −1.460 | 0.146 | 1.231 | 0.220 | −1.484 | 0.140 |
| Gend.Dir | −0.094 | 0.925 | −0.196 | 0.845 | −0.741 | 0.460 | −0.183 | 0.855 |
| Meet.Dir | −0.440 | 0.661 | 0.218 | 0.828 | −0.414 | 0.679 | 0.184 | 0.855 |
| Edu.Dir | 0.950 | 0.344 | −0.624 | 0.534 | 0.178 | 0.859 | −0.527 | 0.599 |
| FinEdu.Dir | −0.134 | 0.893 | 1.742 | 0.084 | −0.546 | 0.586 | 1.746 | 0.083 |
| Size | −0.158 | 0.874 | 0.028 | 0.978 | 0.448 | 0.655 | −0.003 | 0.998 |
| DER | 1.312 | 0.192 | −6.927 | 0.000** | 0.800 | 0.425 | −6.815 | 0.000** |
| CR | 3.220 | 0.002** | −1.362 | 0.175 | −0.102 | 0.919 | −1.010 | 0.314 |
| Coal | 3.470 | 0.001** | 2.346 | 0.020* | −1.125 | 0.263 | 2.759 | 0.007** |
| Gas&Oil | 0.215 | 0.830 | 1.073 | 0.285 | −0.943 | 0.347 | 1.127 | 0.262 |
| R | | 0.501 | | 0.557 | | 0.159 | | 0.556 |
| R-square | | 0.251 | | 0.310 | | 0.025 | | 0.310 |
| F Sign. | | 0.000** | | 0.000** | | 0.988 | | 0.000* |

**. significant at the 0.01 level (2-tailed). *. significant at the 0.05 level (2-tailed)

Prooijen et al., 2021) environmental and social aspects. Environmental and social disclosures are often an attempt to meet these requirements and ensure legal compliance. However, these disclosures may be viewed more as regulatory obligations and compliance rather than factors that directly affect the Company's performance, especially in companies that have a high sensitivity to the environment.

## 5.2. Corporate Governance Analysis
Some important elements of corporate governance analyzed in this study are the presence of female directors, the intensity of board meetings, and educational background.

The results of the analysis show that the presence of female directors does not show any significant effect in improving the financial performance of energy and basic material industry companies. This is indicated by the entire model. Therefore, the presence of a female board of directors is not too important (Kabara et al., 2022). Or it may be because their proportion on the Board is still small. Although their presence is better than that of male directors (Adams and Ferreira, 2011) But if the proportion of women is still relatively low, the presence of female individuals may not have a significant influence.

In this study, the frequency of meetings did not show any significant influence on the performance of energy and basic materials companies. This could also be due to many reasons. For example, the quality of board meetings (Buchdadi et al., 2019; Chou et al., 2012). Although the frequency of board meetings is important to ensure good communication and coordination between board members, research shows that it does not necessarily have a significant impact on performance.

In addition, education level and financial education background also do not affect company performance. Although both education level and financial education background can provide a better understanding of the financial aspects of the company, company performance does not depend solely on financial competence. (Kabara et al., 2022).

## 5.3. Control Variable Analysis
In the first model, liquidity has a significant influence on performance improvement. Good liquidity allows companies to meet their financial obligations more easily. In the energy and basic materials industries, where companies may have high operating costs and long-term investments, having adequate liquidity is important to maintain smooth operations and meet debt repayment obligations. If a company is unable to meet its financial obligations, this can have a negative impact on ROA, due to increased interest expenses or potential bankruptcy.

In addition, liquidity can also assist companies in financing long-term investments needed for business expansion or increasing production capacity. With good liquidity, companies can easily access the financial resources needed to purchase new assets and technologies that can improve the productivity and performance of the company. This, in turn, can have a positive impact on the company's ROA.

While in the second and fourth models, it was found that DER has a negative influence on financial performance. Companies in the energy sector and basic materials industry often require significant capital investment for project development or production assets. To finance these investments, companies may rely on loans or debt. However, the higher the DER, the higher the interest expense that must be paid. High interest expenses can reduce the net profit available to shareholders, thus negatively impacting the company's performance.

In fact, a high DER may also increase the company's financial risk. In the energy and basic materials industries, commodity price fluctuations or regulatory changes can have a significant impact on a company's revenues and profits. If the company has a high level of leverage, relatively small fluctuations in revenue or profit can have a large impact on ROE. This higher financial risk can reduce investor confidence and reduce the company's financial performance, especially in the energy and basic materials industry.

All the models used, the type of coal company is always positively related to company performance. This means that of all types

of energy companies operating in Indonesia, coal companies are positively related to performance, both ROA, ROE, and the reduced financial performance of ROA, ROE, and NPM. This could be due to the fact that coal companies have a broader market and thus consistent coal demand. Even Indonesia's coal export market is also quite a lot so that sales remain stable. This is proven to increase Indonesia's economic growth (Setiawan et al., 2020). In addition, coal reserves are abundant enough that raw material reserves can cover market needs. Therefore, coal companies perform better than gas and oil companies.

# 6. CONCLUSION

This study seeks to examine the impact of environmental activities in improving company performance, especially in companies that have high sensitivity to the environment such as coal, gas, and oil companies. This study also compares with basic material industry companies as a proxy for companies that have lower environmental sensitivity. In addition, several important variables were also tested such as social performance disclosure and corporate governance. It was found that none of the models showed that environmental disclosure, social disclosure, and corporate governance have a significant influence on company performance. Including the Company's sensitivity to the environment also does not show any influence. On the other hand, liquidity is an important variable that can increase ROA. Then DER has a negative influence on ROE and on the performance of the reduced company. An interesting finding is that only coal companies have a positive relationship with performance. This means that compared to other companies in the energy sector, these companies have the opportunity to continue to grow in Indonesia along with the growing market demand supported by abundant coal raw materials.

This research contributes to the development of science, especially in economic studies in the energy sector about the characteristics of different energy companies. In addition, it also contributes as a policy material for the Indonesian government regarding the description of energy companies in Indonesia compared to basic material industry companies.

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