

The Effect of Carbon Emission Disclosure, Audit Committee, Independent Commissioners, and Firm Size on Firm Value in Coal Subsector Companies for the 2019–2023 Period

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| Received: July 27, 2025 | Revised: August 18, 2025 | Accepted: August 26, 2025 | Online: August 30, 2025 |
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Abstract

The primary aim of the study is to determine whether the disclosure of carbon emissions, existence of an audit committee, existence of independent commissioners and size of firms is found to affect the company value. To attain that, the companies in the coal subsector that were subject to the research were chosen among the companies listed in the Indonesia Stock Exchange, in the period of 2019-2023 (a total of 44 companies). Out of this population, a purposive sampling technique was used, which calculated 11 companies of the research sample. The source of data used in this research was secondary in nature, as it was acquired by means of the annual reports and the sustainability reports of the companies throughout the five-year observation period. The analytical technique used was the multiple linear regression analysis to measure the correlation existing between the independent variables and the company value. The findings of the study show that the value of the company is declining and this deterioration is partly due to the audit committee. The independent commissioners, firm size and carbon emission disclosure on the contrary did not have a significant impact on company value within the scope of this study. However, in totality, the variables of carbon emission disclosure, audit committee, independent commissioners and firm size exhibit a constructive effect on the company value as captured in a coefficient of 21.92%.

Keywords: Carbon Emission Disclosure, Audit Committee, Independent Commissioners, Firm Size, Company Value.

1. Introduction

To maximize firm value is the fundamental objective of any business enterprise especially those businesses in the coal subsector. This objective is however not always simple as it is also affected by a series of external forces which tend to drive the industry dynamics. Price to Book Value (PBV) ratio is one of the most important measures to gauge the perception of the market on the performance of the company which is the relation between the price per share on the market and the related book value. Analysis of such a ratio can determine whether a company is undervalued or overvalued by the investors. The observations of PBV trends of coal sector companies within the period of 2019-2023 indicate significant fluctuations, and it is necessary to focus closer attention and analyze them. The following graph gives a clear picture of these variations as they have taken place over the years

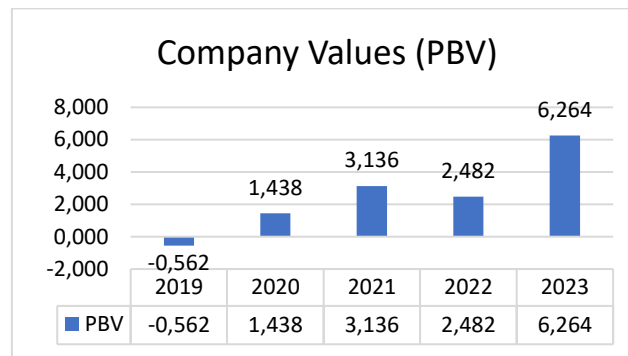


Figure 1. Average Firm Value for the 2019-2023 Period

Source: Processed IDX Data, 2024

The fluctuation in the firm value can be attributed to a variety of factors but what investors must take note of is the Carbon Emission Disclosure (CED). Although increasingly relevant, the exact place of CED in the formation of firm value remains unresolved, leaving a definite research gap that should be discussed in further detail. Studies like those by Hardiyansah et al. (2021) and Nazwa & Fitri (2022) indicate that CED is linked to the firm value in a positive manner, thus the increased confidence enables the investors to enhance their trust in the company. On the contrary, a counterargument can be seen in the research by Nirjayanti & Machdar (2024) and Apriliani et al. (2024) since they raise the hypothesis that CED does not make any meaningful difference to firm value, therefore questioning the reliability of the prior results. The works of Kurnia et al. (2021), Kim et al. (2021) and Wahyuningrum et al. (2022), add more validity to the assumption presented in the present study that CED is more likely to positively impact it. Their research suggests that, through Publicity, firms can decrease uncertainty of investors, corporate reputation, and access to financial resources accelerating the growth of firms, or rather, make firms look more attractive to their potential investors.

In addition to carbon emission disclosure, a second critical governance mechanism that can have a bearing on firm value is audit committee. The academic sources are contradictory on this point, however. A study by Octavia & Yuniati (2024), provides evidence of the positive association between firm value and number of members of the committees. As compared to this, a study by Arie Susandya & Suryandari (2021) indicated that there was no measurable relation between these parameters. Oversight of the management is essential by having an independent and competent audit committee according to the agency theory. The important premise therefore given is that effective supervision by this committee should have direct and positive effect on the value of a firm. This view can also be supported by the evidence provided by Pratiwi et al. (2023), which shows that audit committee is positively related to company performance and value as well as moderately related to asset growth, sales, capital structure, and financial distress in company value.

Like in the audit committee, the independent commissioner is also another significant aspect that can have an impact on firm value. Nevertheless, empirical evidence on the topic is for the most part unreliable. As an example, a study conducted by Valencia (2019) indicates that the larger the independent commissioners, the more positive it is to firm value. In contrast, Gusriandari et al. (2022) concluded that there was no relation between independent commissioners and the worth of a firm. The logic of agency theory supports the view that the considerable number of independent commissioners will positively impact the role of management oversight, which will help reduce the instance of opportunistic behavior and increase firm value. As hypothesized on this theory, Nugroho & Aini (2023) also determined that the effect of independent commissioners on firm value is positive and significant, reflecting the fact that they improve the firm government and gains the confidence of the investors.

Lastly, the literature divides into two sides in the question of whether it has been proven that firm size is a significant variable that can affect company value or not. As shown by a study by Hardianti & Mulyani (2023) the firm size has been shown to have a positive correlation on the company value; however, two other studies published by Adityaputra & Perdana (2024) and Dewi & Sembiring (2022) have indicated that there is no relationship between the two. As signaling theory suggests, bigger companies can exhibit more favorable signals to the market that are related to their stability, efficiency, and the growth potentials. A large firm size is often suggestive of better access to resources, better risk management and a competitive advantage, that can statistically generates better investor confidence, and consequently to higher price of the stock. This theoretical explanation is supported by a research carried out by Novelia (2020), who concluded that the standard reaction of investors is to believe that bigger companies are more stable and more promising.

The concern of theoretical uncertainty comes to the front with regard to the degree to which these variables can affect the firm value especially in the coal subsector. The present subsector is marked with some unique characteristics which are highly influenced by industrial forces, environmental hazards as well as effects of market conditions hence a suitable object of inquiry. It is based on these circumstances that the current study is aimed at presenting a more specific study of the importance of these variables as applied to the coal industry in particular. In so doing, the research study would be in a position to contribute not only an empirical addition to the already available body of theory but also create knowledge that has practical significance to decision-makers involved in the industries that are related to coal sub-structure.

2. Literature Review

2.1. Signaling Theory

The signalling theory is an estimate of how firms enable important information to be conveyed to the outside world (Spence (1973)). In this theory, the management is placed as the sender of the signals internally, whereas the outsiders, mainly investors are the recipients of the signals. This output of communication is meant to eliminate the disparity of information asymmetry between the stakeholders and the company so that the information that is communicated is deemed as relevant and dependable. Finally, the main gist behind this process of signaling is to transfer knowledge that is not only precise but it is useful to assist other parties particularly the investors to make informed investment decisions.

2.2. Agency Theory

The agency theory is mostly preoccupied with the contract that exists between a principal and an agent (Jensen & Meckling (1976)). In this relationship, the two sides come into a contract in which the agent is supposed to act on behalf of the principal. Such a set-up, however, necessarily brings about the risk of conflicts of interest because the principal and the agent have divergent interests and interests. This conflict of objectives usually develops into the seat of the agency problems, therefore, the alignment of goals between the two parties is the main point of the application of agency theory.

2.3. Carbon Emission Disclosure (CED)

Carbon Emission Disclosure (CED) is an important element of environmental responsibility reporting since it implies that a particular company discloses the specific details concerning the carbon emission of this company, which is regarded as a controlled practice (Rusmana & Purnaman, 2020). In its entirety, such disclosure generally involves a quantified summary of emissions, description of the procedures adopted to mitigate them, and how they have been measured. The methodology of calculating CED used in the scope of the current study is conditioned by three disclosure items

described in the GRI-205 standard that complies with the Global Reporting Initiative 305 framework, i.e., direct GHG emissions (Scope 1), indirect GHG emissions related to energy use (Scope 2), and other indirect GHG emissions (Scope 3). All these are scored by awarding:

$$CED \frac{\text{Number of items disclosed}}{\text{Total disclosure items}} \times 100\%$$

2.4. Audit Committee

The audit committee is significant in the context of Good Corporate Governance, basing on the fact that its work is aimed at guaranteeing that the functioning of the company is organized efficiently and complies with the standards. Such a committee consists of a number of directors and its key role is to enhance independence of an external auditor instead of the company management, which increases strength of supervision and responsibility (Effendi & Ulhaq, 2021). Under the scope of this research, the audit committee variable will be measured in the following measurement scale which reflects on its composition and effectiveness in carrying out these governance roles:

$$\text{Audit Committee} = \Sigma \text{Members of Audit Committee}$$

2.5. Independent Commissioners

An independent commissioner is defined as one who belongs to a board of commissioners but is not affiliated with the other powerful internal parties such as the company management, other commissioners and huge shareholders. The objectivity is also maintained in business or personal relationships, which may affect their objectivity. Therefore, the task of an independent commissioner is mainly to protect the interests of the company by making sure that nothing except the benefit of the organization could influence the making of decisions (Salsabila & Widiatmoko, 2022). The variable used in the analysis to measure the presence of independent commissioners is based on the formula given below, as it would capture the essence of this impartiality.

$$\text{Independent Commissioners} = \frac{\Sigma \text{Independent Board of Commissioners}}{\Sigma \text{Total Board of Commissioners}} \times 100\%$$

2.6. Firm Size

The size of a firm entails the actual size of the firm defining whether it is large or one that is small. As stated by Hartono (2022), the trait is measurable based on several indicators, including company stock market value, total assets and the logarithm value of the firm. In the actual research, the natural logarithm of total assets is use to serve as a representation of firm size and will be a standardized measure to explain the contrasts between firms. The calculation of this measure is done by the following formula and assures the contemporariness and feasibility of the set:

$$\text{Firm Size} = \text{LN (Total Assets)}$$

2.7. Influence of Carbon Emission Disclosure on Firm Value (PBV)

In the view of signaling theory, CED offers a significant role in influencing the perception of investors because it is expected to lower the cost of a firm through improved perception of the firm among the investors signalling a lower risk of investment. By availing such transparency, a company can increase its reputation not just on social responsibility but also as an entity worthy of operations and development in long-term operations. This statement is confirmed by the findings of the earlier research by Kurnia et al. (2021), Kim et al. (2021), and Wahyuningrum et al. (2022), which prove the ability of CED to mitigate the concerns of investors through the lens of environmentality, improve the

corporation reputation, and enhance the likelihood of a firm to receive financial resources and attract more investors.

H1: Carbon Emission Disclosure has a positive effect on Firm Value (PBV).

2.8. Influence of the Audit Committee on Firm Value (PBV)

In the light of the agency theory, the existence of a well-working and independent audit committee acts as an important means of enhancing control over the work of the managers. With proper supervision, the audit committee can build shareholder trust on the reliability and the accuracy of the financial figures in company accounts, a possibility that has a positive perception among investors. This enhanced image will tend to result in the face of an improvement in the image of the company as well as the value that the company has. The theoretical correlation between the effectiveness of the audit committee and the performance of the company is also confirmed by empirical data; in particular, Pratiwi et al. (2023), established that a powerful audit committee does not only exert a positive effect directly on the company performance but also serves as the mediating effect affecting the links between asset growth, capital structure, financial distress, and firm value. It is in view of this theoretical and empirical ground that the following hypothesis is advanced.

H2: The Audit Committee has a positive effect on Firm Value (PBV).

2.9. Influence of Independent Commissioners on Firm Value (PBV)

In the context of an agency theory, independent commissioner is shown as performing a high degree of an internal control role and the directive obligation is watch over and assess the management policies. It is recommended that the influence function of oversight can be enhanced by having a larger number of independent members on the board, hence, which in turn prevents practitioner behaviors like opportunism of management and consequently leads to firm value growth. The above theoretical line of argument is confirmed by the findings of Nugroho & Aini (2023), which showed that having independent commissioners positively affects the firm value in terms of the effectiveness of governance and promoting investor confidence. On this basis, it was hypothesized that:

H3: Independent Commissioners have a positive effect on Firm Value (PBV).

2.10. Influence of Firm Size on Firm Value (PBV)

As it was stated by signaling theory, small abnormal returns can be viewed as the signal of a market size of a company. Generally, bigger establishments are believed to be associated with more security, having better performance, and showing better prospects as compared with smaller institutions. This belief is due to the fact that bigger firms can access resources easily, their risk management processes are effective and their competitive dexterity is greater. The above factors may work to bolster investor confidence collectively which in turn facilitated the rise in firm valuation. Such an argument is confirmed by empirical data provided by Novelia (2020), who found that firm size significantly and positively affects investors since they consider large firms to be more stable and promising. Going by this argument, the last hypothesis of the study is hereby proposed as follows:

H4: Firm Size has a positive effect on Firm Value (PBV).

3. Methods

In this research, a quantitative research design method with descriptive and associative methods is used. The research dwells upon the coal subsector listed on the Indonesia Stock Exchange in the period between 2019 and 2023. There was a sample population size of 44 with 11 firms selected as a final sample using purposive sampling technique. Published material was used to collect data through the

review of documentation associated with websites such as the IDX, official annual and sustainability reports, and existing literature. The analysis was conducted in Eviews software through panel data regression, and it involves descriptive statistics, tests of the classical assumptions, test of model fit and hypothesis testing. Inclusion criteria. The following inclusion criteria guided the selection of the sample to be used

- The rise of consecutive stock summary reports was offered by the company to the 2019-2023 period.
- The company has been regular in posting its annual and sustainability reports over the research period on the researched topic

4. Results and Discussion

The final sample for this study comprises 11 companies that satisfied all the specified selection criteria. With an observation period of 5 years, the panel dataset consists of 55 firm-year observations for the analysis.

4.1. Results

4.1.1. Descriptive Statistical Analysis

The data on the characteristics of the data obtained as a result of carrying out descriptive statistical studies are presented in the table below:

Table 1. Descriptive statistics

| Measurement | Y | X ₁ | X ₂ | X ₃ | X ₄ |
|--------------------|---------|----------------|----------------|----------------|----------------|
| Mean | 2,553 | 0,224 | 2,878 | 0,347 | 28,409 |
| Median | 1,036 | 0 | 3 | 0,33 | 28,68 |
| Maximum | 103,93 | 1 | 6 | 0,83 | 33,86 |
| Minimum | -72,611 | 0 | 0 | 0 | 0 |
| Standard Deviation | 11,39 | 0,342 | 1,15 | 0,168 | 4,125 |

Source: Eviews 12 Output Results, 2025

The dependent variable in the study, Firm value, is measured as the price-earnings (PBV) ratio, and with the mean (2.553) and median (1.036) as the indicators of skewness, the distribution is skewed to the positive values. This can be observed where the maximum value attains 103.93 and the minimum 72.611. The variance of BV is rather high (11.39). Carbon emission disclosure mean is 0.224 and median is 0 which implies that the majority of the coal subsector companies have not disclosed information regarding carbon emission, but some companies have done so completely. The average number of audit committee members per firm is 2.878 and median is 3 indicating that most coal subsector firms have 3 audit committee members with little variation as standard deviation is 1.15. The percentage of Independent Commissioners has a mean of 0.347 which is near the median of 0.33 suggesting the percentages of most of the companies in the coal subsector are very similar but differ in small proportions as indicated by a standard deviation of 0.168. The average of firm size is 28.409, whereas the median is 28.68, the difference between its minimum value of 0 and maximum value of 33.86 is 33.86. Finally, the standard deviation of firm size is 4.125.

4.1.2. Panel Data Regression Estimation

Three panel data panel models were closely considered in this analysis; they include; Common Effect Model (CEM), Fixed Effect Model (FEM), and the Random Effect Model (REM). All these models have a different approach to the relationship between variables, thus one should identify what is most suitable to the data at hand. A sequence of statistical tests were used to deduce the best model, they

include the Chow Test, the Hausman Test and the Lagrange Multiplier test. The results of these tests were later used to choose the regression model that best fits the nature of the data and the results are shown as follows.

1) Chow Test

Table 2. Chow Test Results

| Effect Test | Statistic | Degrees of Freedom | Probability |
|--------------------------|-----------|--------------------|-------------|
| Cross-section F | 6,3307 | (40;119) | 0,000 |
| Cross-section Chi-square | 187,0228 | 40 | 0,000 |

Source: Eviews 12 Output Results, 2025

The Redundant Fixed Effect Test, or Chow test, indicates a Cross-section Chi-square probability value of 0.000 as depicted in Table 2. The probability value is quite small which indicates strongly statistical evidence with respect to the selection of the model. This finding makes the Fixed Effect Model more suitable to be used in this analysis than the Common Effect Model because it is able to capture the variations that are evident in the data.

2) Hausman Test

Table 3. Hausman Test Results

| Effect Test | Statistic | Degrees of Freedom | Probability |
|----------------------|-----------|--------------------|-------------|
| Cross-section random | 8,0238 | 4 | 0,0907 |

Source: Eviews 12 Output Results, 2025

Given the cross-section probability of 0.0907 as presented in Table 3, the Hausman test was significant. This probability value is above the significance level of 0.05 and this shows that the null hypothesis cannot be rejected and the differences between the two models (fixed effect and random effect) are not statistically significant. Resting on this finding, the random effect model can be regarded as more suitable and must be chosen as the most viable tool in the current research.

3) LM Test

Table 4. Lagrange Multiplier (LM) Test Results

| Test | Cross-section | Time | Both |
|---------------|--------------------|--------------------|--------------------|
| Breusch-Pagan | 67,9339 (0,000) | 0,4098 (0,5221) | 68,3437 (0,000) |

Source: Eviews 12 Output Results, 2025

The cross-section probability value of the Lagrange Multiplier test that is given in Table 4 shows that this value is very significant with p-value =0.000. This statistical result makes it clear that the probability value will be far much lower than the usual minimum significance level of 0.05, hence sufficient evidence against the null hypothesis. On this finding, it can be deducted that the Random Effect Model best suits this study as it appreciates variation in the panel data more than other models.

4.1.3. Classical Assumption Test

1) Normality Test

Table 5. Normality Test Results

| | Statistic | Probability |
|-------------|-----------|-------------|
| Jarque-Bera | 1,1977 | 0,5459 |

Source: Eviews 12 Output Results, 2025

The data based on this study were discussed in terms of their normality using the JarqueBera test that is widely applied to test the normality of data. The test yielded a t-statistic of 1.1977 and its probability value of 0.5459 (as presented in Table 5). This probability value exceeds 0.05 (a threshold of significance), and thus the data are not normally distributed significantly. As a result of this finding, it can be deduced that the normality assumption is met, and hence the proposed analysis can follow wherever it is necessary to assume the normally distributed data.

2) Multicollinearity Test

Table 6. Multicollinearity Test Results

| | X ₁ | X ₂ | X ₃ | X ₄ |
|----------------|----------------|----------------|----------------|----------------|
| X ₁ | 1 | 0,403036 | 0,322067 | 0,361117 |
| X ₂ | 0,403036 | 1 | 0,603708 | 0,453986 |
| X ₃ | 0,322067 | 0,603708 | 1 | 0,357793 |
| X ₄ | 0,361117 | 0,453986 | 0,357793 | 1 |

Source: Eviews 12 Output Results, 2025

The correlation coefficients between all the independent variables were checked diligently to determine the existence of multicollinearity in the data (see Table 6). The necessity of this step boils down to the fact that the high correlations between the independent variables may potentially make a distortion to the accuracy of the regression estimates and undermine the presence of reliability of the model. Upon making the analysis, it was realized that, none of the correlations were above the generally accepted ranges of 0.8. On the basis of this finding, it can be determined that the assumption of no multicollinearity is satisfied meaning that the multicollinearity issue does not raise any concern in this study.

3) Heteroscedasticity Test

Table 7. Glejser Test Results

| Variable | Coefficient | Standard Error | t-Statistic | Probability |
|----------------------------|-------------|----------------|-------------|-------------|
| Constant | 1,4647 | 0,5491 | 2,6675 | 0,0084 |
| Carbon Emission Disclosure | -0,3021 | 0,2053 | -1,4713 | 0,1432 |
| Audit Committee | 0,0333 | 0,0654 | 0,5090 | 0,6115 |
| Independent Commissioners | -0,3567 | 0,4191 | -0,8512 | 0,3959 |
| Firm Size | -0,0161 | 0,0202 | -0,7947 | 0,4280 |

Source: Eviews 12 Output Results, 2025

In order to investigate whether heteroscedasticity existed on the model the Glejser test was used as method of analysis. The results of this test as given in Table 7 reveal that the probability values of all independent variables are more than the 0.05 significant level. The values of the standard error exceed the required mark, so it is possible to conclude that the model represents a constant variance, or, in other words, a homoscedastic one. This observation also indicates that the model does not experience considerable problems of heteroscedasticity, which validates the stability of the regression findings.

4) Autocorrelation Test

Table 8. Durbin-Watson Test Results

| K | N | dL | dU | dW | 4-dU | Conclusion |
|---|-----|--------|--------|--------|--------|--------------------|
| 4 | 205 | 1,7279 | 1,8094 | 1,8443 | 2,9106 | No Autocorrelation |

Source: Eviews 12 Output Results, 2025

As part of the diagnostic testing, the Durbin-Watson test was undertaken to detect whether there was an autocorrelation in the model. The results of this test conveyed in Table 8 show a Durbin-Watson (dW) statistic of 1.8443. Comparing with the rule $dU < dW < 4 - dU$, the obtained statistic can be found being placed between the permissible boundaries since the critical upper $dU = 1.8094$ is lower than its value and the critical lower $dW = 4 - dU = 1.2094$ is bigger than the statistic. The location of the statistic between the two endpoints is also indicative enough to prove that there exist no significant autocorrelation issues in the regression model, thus validating its credibility on this aspect as well.

4.1.4. Partial (t) Test and Simultaneous (F) Test

1) Partial Test (t-Test)

Table 9. Partial Test (t-Test) Results

| Variable | Coefficient | Standard Error | t-Statistics | Probability |
|----------------------------|-------------|----------------|--------------|-------------|
| Constan | 0,8271 | 0,1133 | 7,2996 | 0,0000 |
| Carbon Emission Disclosure | -0,0271 | 0,0683 | -0,3976 | 0,6914 |
| Audit Committee | -0,0945 | 0,0193 | -4,8993 | 0,0000 |
| Independent Commissioner | -0,2405 | 0,1417 | -1,6969 | 0,0913 |
| Firm Size | 0,0016 | 0,0041 | 0,3926 | 0,6950 |
| Adjusted R-squared | 0,2192 | | | |
| F-statistic | 15,3180 | | | |
| Prob(F-statistic) | 0,0000 | | | |

Source: Eviews 12 Output Results, 2025

The findings of the partial t-test that was used to determine the impact of the individual independent variables indicate that only audit committee significantly contributes to the sale of the firm (PBV) with a probability of 0.000. What is surprising is that there is a negative relationship between the size of the audit committee and the value of a firm as denoted by the co-efficient ($t = -4.8993$), showing that the values of firms diminish in relation to the size of an audit committee. Contrary to them, all other variables, which are carbon emission disclosure ($p = 0.6914$), independent commissioners ($p = 0.0913$), and firm size ($p = 0.6950$) were found to have insignificant effect as their probability values exceed 0.05 alpha level. When placed together, these results lead one to conclude that H_1 , H_3 , and H_4 are not defensible, and despite the finding that the impact of the audit committee on firm value is statistically significant, it is opposite to the stated expectation in H_2 .

2) Simultaneous Test (F-Test)

Table 10. Simultaneous Test (F-Test) Results

| Information | Value |
|--------------------|----------|
| R-squared | 0,234515 |
| Adjusted R-squared | 0,219205 |
| S.E. of regression | 0,183351 |
| F-statistic | 15,31803 |
| Prob (F-statistic) | 0,000000 |

Source: Eviews 12 Output Results, 2025

The findings of the F-test indicate that the probability (F-statistic) value obtained through model is 0.000 with the corresponding F-statistic being 15.318. Since this probability value is less than the level of significance 0.05, it is evident that the overall regression is significant. In practical terms this implies that the independent variables applied in the analysis cumulatively explain the change in the dependent

variable. This would affirm that the study is working with a significant model which describes the relationship it is examining.

3) Coefficient of Determination (R^2)

In this model the coefficient of determination (R-squared) is 0.234515 which implies that about 23.45% of variance of dependent variable Y can be attributed to the independent variables contained in the regression. This value is an initial indication on how effectively the model fits the association between variables. In addition, Adjusted R-squared when the number of explanatory variables is considered is 0.219205. This modified measure indicates that the model can explain variation in Y with around 21.92 percent regardless of correction done to the number of predictors used.

4.2. Discussion

4.2.1. Hypothesis 1: The Effect of Carbon Emission Disclosure on Firm Value (PBV)

The results show that CED would not show meaningful impact on the firm value (PBV) of Indonesian coal companies in the 2019-2023 period. This finding means that the degree of carbon disclosure given by companies in their corporate reports cannot be used as a determinant to reflect on the decision of the investors. This result can be compared with 4 previous studies by Anggita & Nugroho (2022) and Asyifa & Burhany (2022) who found a weak correlation between disclosure practices and firm value. Insignificance of influence in that regard may be attributed to the regulatory conditions in Indonesia, where disclosing a comprehensive carbon is not enforced yet. In addition, during the study period significant policy relating to carbon like carbon taxes and carbon trading systems were not yet determined and ready to be used. Therefore, Carbon Emission Disclosure has not been at the centre of investor assessment of their investment decisions and this is the reason why the findings of this study reflect its limited significance.

4.2.2. Hypothesis 2: The Effect of Audit Committee on Firm Value (PBV)

Amongst the most revealing aspects of this study is the fact that there is a great negative impact placed by the audit committee on the value of a firm in terms of value that can be shown in prices given as Price to Book Value (PBV) among the companies belonging to coal companies observed. Such result reveals that an increased audit committee does not enhance governance but in fact which is paradoxical is that, the bigger the audit committee the lower the market valuation. This outcome can be a consequence of the view held by investors that a more expanded committee is not always efficient and may even be symptomatic of inefficiencies in decision-making or oversight. Moreover, it can be seen that investors have focused more on financial ratios and other quantitative measures of business performance in evaluating the future prospects of a company instead of focusing on governance issues like the number of members on the audit committee. This finding might be counterintuitive; however, it aligns with the findings reported in earlier studies, in particular, those by Khoirunnisa & Aminah (2022) and Mardianingsih & Kamil (2020).

4.2.3. Hypothesis 3: The Effect of Independent Commissioners on Firm Value (PBV)

The test outcomes indicate that independent commissioners are having no influence on firm value measuring it by PBV. This observation indicates that the existence of independent commissioners has little distinction to the value of the company in the market. This can be attributed by the distinct role of the independent commissioners since they are more of oversight and appears to be differentiated with that of the management and controlling shareholders. The presence of their activities is not a significant driver of the firm value and the market, so, views them as not an immediate component of the decision-making that influences performance. The same conclusion can be made regarding the

research carried by Gosal et al. (2018) and Mardiyarningsih & Kamil (2020) which revealed the same results.

4.2.4. Hypothesis 4: The Effect of Firm Size on Firm Value (PBV)

The results of the present study indicate that a firm size does not have a statistically significant effect on the values of the firms within the coal subsector (PBV). It is commonly assumed that larger firms may be more valuable due to the scale but the analysis demonstrates that this does not happen in a statistically significant meaning. One possible justification is that high volume of assets which may be used as an indicator of firm size does not necessarily imply an increase in the level of profitability. Consequently, size of firm can no longer be viewed as an effective measure of higher firm worthiness in market aspect. This finding falls in line with the results established in another study by Mahardikari (2021), Akbar & Fahmi (2020), and Utami et al. (2024) hence supporting the statement that the size of firms does not adequately determine the value of firms.

5. Conclusion

This study explored the impact of carbon emission disclosure, audit committee, independent commissioners and the firm size on firm value on coal subsector companies in the period between 2019-2023. The results indicate that audit committee in this subsector has a strong negative influence on the firm value, which indicates that the existing duties of the audit committee may still not be maximized to achieve investor confidence. On the other hand, carbon emission disclosure, the existence of independent commissioners or firm size showed no significant effect alone on firm value. However, taken together, these four variables proved useful as the combination thereof had a significant effect, emphasizing that the interaction between these aspects of corporate governance mechanisms, environmental disclosure, and company features still remains relevant in creating perceptions of companies in the market. On the basis of these findings, the companies operating in coal subsectors are advised to improve or emphasise on the effectiveness of audit committees, improve and make carbon emission more transparent and strengthen their corporate governance. It is of critical importance not only to retain investor confidence but also to pursue a sustainable growth of firm value consistent with overall objectives of SDGs related to transparency, good governance, and sustainability.

6. References

- Adityaputra, S. A., & Perdana, D. (2024). Pengaruh Struktur Modal Dan Ukuran Perusahaan Terhadap Nilai Perusahaan Dengan Profitabilitas Sebagai Variabel Mediasi. *Jesya (Jurnal Ekonomi Dan Ekonomi Syariah)*, 7(1), 472–488.
- Akbar, F., & Fahmi, I. (2020). Pengaruh ukuran perusahaan, profitabilitas dan likuiditas terhadap kebijakan dividen dan nilai perusahaan pada perusahaan manufaktur yang terdaftar di bursa efek Indonesia. *Jurnal Ilmiah Mahasiswa Ekonomi Manajemen*, 5(1), 62–81.
- Anggita, W., Nugroho, A. A., & Suhaidar. (2022). Carbon Emission Disclosure And Green Accounting Practices On The Firm Value. *Jurnal Akuntansi*, 26(3), 464–481. <https://doi.org/10.24912/ja.v26i3.1052>
- Apriliani, L., Kadir, & Hifni, S. (2024). Sustainability Accounting : Nilai Perusahaan dan Carbon Emission Disclosure Pendahuluan. *Gorontalo Accounting Journal*, 7(1), 91–102. <https://doi.org/10.32662/gaj.v7i1.3306>
- Asyifa, D. A., & Burhany, D. I. (2022). Carbon emission disclosure and environmental performance effect on firm value. *Carbon*, 5(7).

- Dewi, F. M., & Sembiring, F. M. (2022). Pengaruh Debt To Equity Ratio, Return On Assets, Return On Equity, dan Ukuran Perusahaan Terhadap Nilai Perusahaan pada Sub Sektor Makanan dan Minuman yang Terdaftar di Bursa Efek Indonesia Periode 2015-2019. *Portofolio: Jurnal Ekonomi, Bisnis, Manajemen, Dan Akuntansi*, 19(1), 1-19. <https://doi.org/10.54783/portofolio.v19i1.238>
- Effendi, E., & Ulhaq, R. D. (2021). Pengaruh audit tenure, reputasi auditor, ukuran perusahaan dan komite audit terhadap kualitas audit. *Jurnal Ilmiah Manajemen, Ekonomi, & Akuntansi (MEA)*, 5(2), 1475-1504.
- Gosal, M. M., Pangemanan, S. S., & Tielung, M. V. J. (2018). The influence of good corporate governance on firm value: Empirical study of companies listed in IDX30 index within 2013-2017 period. *Jurnal EMBA: Jurnal Riset Ekonomi, Manajemen, Bisnis Dan Akuntansi*, 6(4).
- Gusriandari, W., Rahmi, M., & Putra, Y. E. (2022). Pengaruh Good Corporate Governance Terhadap Nilai Perusahaan Pada Perusahaan Pertambangan Yang Terdaftar Di Bursa Efek Indonesia Tahun 2017-2020. *Jurnal Pundi*, 06(01), 181-196. <https://doi.org/10.31575/jp.v6i1.406>
- Hardianti, T., & Mulyani, S. D. (2023). Pengaruh Carbon Emission Disclosure Dan Ukuran Perusahaan Terhadap Nilai Perusahaan Dengan Kinerja Lingkungan Sebagai Variabel Moderasi Tanti. *Jurnal Ilmiah Wahana Pendidikan*, 9(9), 275-291.
- Hardiyansah, M., Agustini, A. T., & Purnamawati, I. (2021). The effect of carbon emission disclosure on firm value: environmental performance and industrial type. *The Journal of Asian Finance, Economics and Business*, 8(1), 123-133.
- Hartono, J. (2022). *Teori portofolio dan analisis investasi*. UGM Press.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360. [https://doi.org/10.1016/0304-405X\(76\)90026-X](https://doi.org/10.1016/0304-405X(76)90026-X)
- Khoirunnisa, S., & Aminah, I. (2022). Pengaruh Ukuran Dewan Komisaris, Dewan Direksi dan Komite Audit Terhadap Nilai Perusahaan Pada Indeks Kompas100 Bursa Efek Indonesia (BEI) Periode 2018-2020. *Seminar Nasional Akuntansi Dan Manajemen PNJ*, 3.
- Kim, E., Kim, S., & Lee, J. (2021). Do foreign investors affect carbon emission disclosure? Evidence from South Korea. *International Journal of Environmental Research and Public Health*, 18(19), 10097.
- Kurnia, P., Nur, D. P., & Putra, A. A. (2021). Carbon emission disclosure and firm value: A study of manufacturing firms in Indonesia and Australia. *International Journal of Energy Economics and Policy*, 11(2), 83-87.
- Mahardikari, A. K. W. (2021). Pengaruh profitability, liquidity, leverage, dividend policy, firm size, dan firm growth terhadap nilai perusahaan. *Jurnal Ilmu Manajemen*, 9(2), 399-411.
- Mardiyaningsih, M., & Kamil, K. (2020). Pengaruh Komisaris Independen, Komite Audit, Kualitas Audit Terhadap Nilai Perusahaan (Studi Empiris Perusahaan Perbankan yang Terdaftar di Bursa Efek Indonesia Tahun 2015-2019)/The Influence of Independent Commissioners, Audit Committees, Audit Quality on Company Value (Empirical Study of Banking Companies Listed on the Indonesia Stock Exchange Year 2015-2019). *Pengaruh Komisaris Independen, Komite Audit, Kualitas Audit Terhadap Nilai Perusahaan (Studi Empiris Perusahaan Perbankan Yang Terdaftar Di Bursa Efek Indonesia Tahun 2015-2019)*.
- Nazwa, N., & Fitri, F. A. (2022). Can Carbon Emission Disclosure, Environmental Performance, and Corporate Social Responsibility Improve Firm Value in Indonesia? 2022 *International Conference on Decision Aid Sciences and Applications (DASA)*, 1163-1167.
- Nirjayanti, A., & Machdar, N. M. (2024). Transformasi Nilai Perusahaan Melalui Corporate Social Responsibility, Green Accounting, Dan Carbon Emission Disclosure. *Jurnal Neraca Manajemen, Ekonomi*, 12(9), 1-13. <https://doi.org/10.8734/musyitari.vii2.365>

- Novelia, H. (2020). *Pengaruh profitabilitas dan ukuran perusahaan terhadap nilai perusahaan pada perusahaan manufaktur yang terdaftar di bursa efek indonesia tahun 2018*. Universitas Negeri Jakarta.
- Nugroho, J. P., & Aini, A. N. (2023). Pengaruh Corporate Governance, Ukuran Perusahaan, Dan Leverage Terhadap Nilai Perusahaan. *ProBank*, 8(2), 195–205.
- Octavia, R. D., & Yuniati, T. (2024). Pengaruh Good Corporate Governance Terhadap Nilai Perusahaan Pada Perusahaan Pertambangan Di Bursa Efek Indonesia Periode 2018-2022. *Jurnal Ilmu Dan Riset Manajemen (JIRM)*, 13(5).
- Pratiwi, D. O., Ratnawati, T., & Maqsudi, A. (2023). The Effect of Asset Growth, Sales Growth and Capital Structure on Financial Distress and Value of the Firm in Sub-Sector Food and Beverage with Good Corporate Governance as Moderation. *IJEED (International Journal of Entrepreneurship and Business Development)*, 6(1), 53–69. <https://doi.org/10.29138/ijebd.v6i1.2140>
- Rusmana, O., & Purnaman, S. M. N. (2020). Pengaruh pengungkapan emisi karbon dan kinerja lingkungan terhadap nilai perusahaan. *Jurnal Ekonomi, Bisnis, Dan Akuntansi*, 22(1), 42–52.
- Salsabila, A., & Widiatmoko, J. (2022). Pengaruh green accounting terhadap nilai perusahaan dengan kinerja keuangan sebagai variabel mediasi pada perusahaan manufaktur yang terdaftar di BEI tahun 2018-2021. *Jurnal Mirai Management*, 7(1), 410–424.
- Spence, M. (1973). Job market signaling the quarterly journal of economics, 87 (3). *MIT Press, August*, 355, 374.
- Susandya, A., & Suryandari, N. N. A. (2021). Dinamika Karakteristik Komite Audit Pada Audit Report Lag. *Media Riset Akuntansi, Auditing & Informasi*, 21(2), 175–190. <https://doi.org/10.25105/mraai.v21i2.9048>
- Utami, N. P., & Paramita, S. (2024). Pengaruh Good Corporate Governance, Firm Size Dan Investment Opportunity Terhadap Nilai Perusahaan (Tobin's Q) Pada Perusahaan Yang Terdaftar Di Indeks Investor 33 Periode 2018-2022. *Equilibrium : Jurnal Ilmiah Ekonomi, Manajemen Dan Akuntansi*, 13(1), 58. <https://doi.org/10.35906/equili.v13i1.1879>
- Valencia, K. (2019). Pengaruh Profitabilitas, Financial Distress, Dewan Komisaris Independen Dan Komite Audit Terhadap Nilai Perusahaan Dimediasi Oleh Tax Avoidance (Studi Empiris Pada Perusahaan Sektor Industri Barang Konsumsi Yang Terdaftar Di Bursa Efek Indonesia Periode 2. *Jurnal Akuntansi*, 9(1), 47–62.
- Wahyuningrum, I. F. S., Oktavilia, S., Setyadharma, A., Hidayah, R., & Lina, M. (2022). Does carbon emissions disclosure affect Indonesian companies? *IOP Conference Series: Earth and Environmental Science*, 1108(1), 12060.