The Influence of Green Investment and Media Exposure on Carbon Emission Disclosure (Case Study on Oil, Gas and Coal Energy Subsector Companies Listed on the Indonesia Stock Exchange in 2021-2023)

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Abstract: Climate change is an increasingly urgent environmental issue, driven by global warming due to rising carbon emissions and greenhouse gases. This study aims to explore the impact of green investment and media exposure on carbon emissions disclosure by companies. This research uses a quantitative approach that relies on data collection through literature review and documentation. The focus of the study is on companies in the oil, gas, and coal subsector listed on the Indonesia Stock Exchange during the period of 2021-2023. A purposive sampling method was used, involving 28 companies over a period of 3 years, resulting in 84 observation data points. Data analysis was conducted using classical assumption tests, multiple linear regression, autocorrelation tests, coefficient of determination, t-tests, and f-tests, processed with IBM SPSS version 25. The findings reveal that green investment does not have a significant effect on carbon emissions disclosure. In contrast, media exposure has a negative impact, where greater media attention to the issue correlates with a lower tendency for companies to disclose carbon emissions transparently. These findings emphasize the need for policies that support transparency in carbon emissions disclosure, as well as more effective communication strategies to encourage companies to be more transparent about their carbon emissions.

**Keyword:** Green Investment, Media Exposure, Carbon Emission Diclosure

INTRODUCTION

Global warming and climate change due to greenhouse gas emissions from human activities have become a global challenge, including in Indonesia. The Intergovernmental Panel on Climate Change explains that greenhouse gas and carbon emissions are the primary causes of global warming (IPCC, 2021). Energy sector companies, particularly those in the oil, gas, and coal subsectors, are among the largest contributors to carbon emissions (Tana & Diana, 2021). High carbon emissions from this sector have triggered extreme weather events, including heatwaves, heavy rainfall, and droughts, which have significant impacts on human life and the environment (IPCC, 2023). Therefore, the disclosure of carbon emissions in this

sector demands mitigation measures, including the implementation of green investments and increased media exposure to promote transparency and accountability in how companies manage carbon emissions.

The Indonesian government targets a reduction of 358 million tons of CO2 emissions by 2030 through the transition to renewable energy, energy efficiency, clean coal technologies, and the use of low-carbon fuels (Adi, 2023). The energy sector is one of the main contributors to global greenhouse gas emissions, accounting for up to 75%, with nearly 90% of this coming from carbon dioxide emissions. To address climate change, the energy sector must urgently decarbonize by implementing effective environmental policies to significantly reduce carbon emissions (Amanda & Amaliyah, 2023). To support the achievement of this target, the Minister of Environment and Forestry Regulation No. 21 of 2022 on the Implementation of Carbon Emission Values and Presidential Regulation No. 98 of 2021 on the Implementation of Carbon Economic Values were issued. These regulations demonstrate the government's commitment to reducing carbon emissions, including those arising from corporate activities (Tsuroyya & Ratmono, 2024).

The increase in greenhouse gas emissions is considered a serious threat to the environment and humanity, driving companies to disclose and reduce CO2 emissions as well as address climate change. Carbon disclosure includes the recording, measurement, and reporting of a company's CO2 emissions (Yuliandhari et al., 2023). In Indonesia, companies are not legally obligated to disclose their carbon emissions. However, many businesses voluntarily include this information as part of their annual or sustainability reports. The primary objective of such disclosure is to offer relevant information to stakeholders, enabling them to evaluate and ensure the company's long-term sustainability and environmental responsibility. By providing this data, companies aim to demonstrate their commitment to addressing climate change and fostering transparency in their environmental practices, thereby enhancing their credibility and accountability to the public, investors, and other key stakeholders (Bahriansyah & Ginting, 2022). By disclosing carbon emissions, companies can enhance their credibility regarding environmental responsibility.
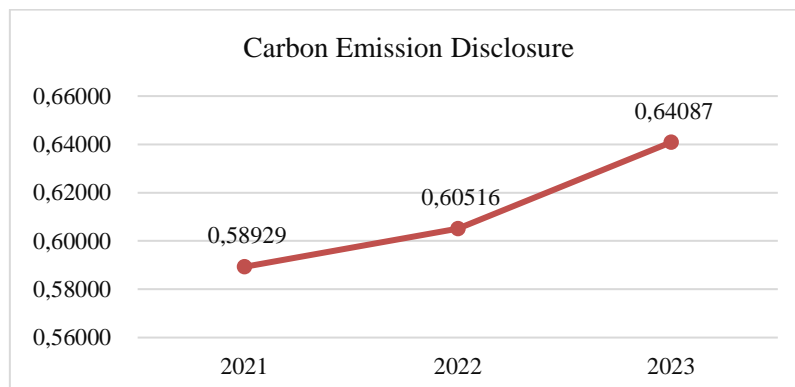
Figure 1. Carbon Emission Disclosure Case Study on Oil, Gas, and Coal Energy Subsector Companies Listed on the Indonesia Stock Exchange in 2021-2023
Sumber: Research Results in 2024
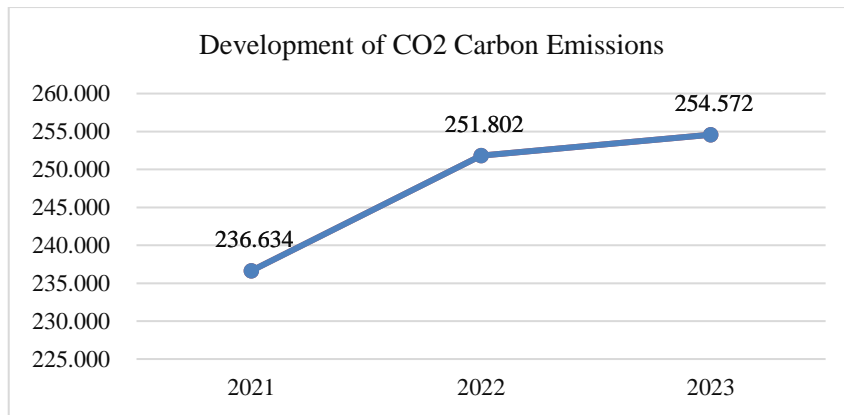
Figure 2. CO$_2$ Emission Development Case Study on Oil, Gas, and Coal Energy Subsector Companies Listed on the Indonesia Stock Exchange in 2021-2023
Sumber: Research Results in 2024

The trend observed, where companies in the oil, gas, and coal sub-sectors listed on the Indonesia Stock Exchange from 2021 to 2023 demonstrated a 3.57% increase in their carbon emission disclosures, as depicted in Figure 1, highlights a significant concern. If this phenomenon continues unchecked, it may contribute to severe environmental consequences, such as intense heatwaves, heavy rainfall, and prolonged droughts, all of which are indicative of the growing unpredictability of weather patterns and climate instability. Meanwhile, figure 2 shows the highest carbon emission level in 2023 at 254.572 MtCO2eq, equivalent to 254.572 million tons of carbon dioxide. This increase is partly due to the exploitation of fossil energy sources carried out by the energy sector in mining, production, and processing activities. The high level of business activities, such as the use of fossil energy sources and coal for power generation, as well as supporting the needs of other sectors like transportation and industry, has made the energy sector the main contributor to the highest emissions in Indonesia. Therefore, increasing environmental awareness must be implemented by companies in the energy sector by regulating carbon emission outcomes, leading to the creation of a green environment.

According to PSAK No. 1 (revised 2019) paragraph 14, one of the company's environmental responsibilities is to report on Corporate Social Responsibility, including disclosing efforts to reduce greenhouse gas emissions. Even though the disclosure of carbon emissions in Indonesia remains optional, the government also plays a role in social responsibility through the enactment of Law No. 17 of 2013. In 2004, the Kyoto Protocol was adopted to reduce greenhouse gas emissions. Therefore, there is currently no mandatory standard regarding the percentage of carbon emission disclosure for each Indonesian company, as participation in carbon emission reduction remains voluntary.

Carbon emissions are gases produced from the combustion of carbon-based compounds, such as CO2, diesel, and hydrocarbon fuels. Activities with negative environmental impacts include pollution, climate change, and global temperature rise (Yesiani et al., 2023). Carbon emission disclosure refers to the practice of reporting the volume of carbon emissions produced by a company, along with the strategies it employs to mitigate these emissions, as part of its responsibility in addressing climate change. In Indonesia, while disclosing carbon emissions is not a mandatory requirement under Presidential Regulation No. 61 of 2011, companies are still obligated to annually report their greenhouse gas emissions in accordance with Presidential Regulation No. 71 of 2011. This helps stakeholders assess corporate emission performance and encourages carbon emission reduction (Angelina & Handoko, 2023). One aspect of a sustainability report is the environment, including carbon emission indicators that inform the public about the environmental impact of corporate operations. A sustainability report is a non-financial report covering economic, social, and

environmental performance to support sustainable business practices (Putra & Subroto, 2022). One of the indicators in a sustainability report is carbon emission disclosure, which serves to inform the public about the company's dedication to environmental conservation and its efforts in minimizing its ecological impact (Daromes et al., 2023).

Green investment is an investment focused on environmental preservation, such as reducing pollution and promoting the sustainable use of natural resources (Ramadhani & Astuti, 2023). In Indonesia, this concept is regulated under Law No. 25 of 2007 on Investment, with government support through sustainable development projects. Public awareness of climate change and excessive emissions encourages companies to shift to renewable energy, reduce fossil fuel use, and promote resource conservation and waste management (Yesiani et al., 2023). Green investment offers funding for the private sector that focuses on climate issues while considering environmental threats and associated costs (Dani & Harto, 2022) Its primary goal is to preserve the Earth and support economic sustainability with a focus on social, management, and environmental aspects.

Media exposure is a means for companies to disclose information about the company to be seen by the media. It addresses environmental and social issues to strengthen the company's image and relationship with the public (Yuliandhari & Angraini, 2022). Media exposure allows the public to express opinions, both positive and negative, based on the information presented by the media, so companies must strive to conduct their activities responsibly with regard to social and environmental matters (Sandi et al., 2021). Media exposure provides information about the company's carbon emission levels and reduction efforts, typically found in annual reports, sustainability reports, and the company's website (Florencia & Handoko, 2021). Media exposure can be used to showcase the company's position, strengthen its reputation, and build closer relationships with the public. A positive company reputation can provide benefits, so companies seeking to achieve a good image must meet the needs of stakeholders by transparently disclosing information about the company.

Previous studies show differing results, as research conducted by (Retnowati & Cahyani Putri, 2024), (Mulyati & Darmawati, 2023), and (Syabilla et al., 2021) indicates that green investment has a positive and significant effect on carbon emission disclosure. In other words, when companies spend money to reduce the environmental damage, they tend to disclose carbon emissions more effectively each year. This contrasts with the findings of studies by (Muslih & Mitha Caesaria, 2024), (Ramadhani & Astuti, 2023), and (Dani & Harto, 2022) which show that green investment does not have an impact on carbon emission disclosure.

According to studies by (Muslih & Mitha Caesaria, 2024), (Loru, 2023), and (Susilo et al., 2022) it has been revealed that media exposure plays a significant positive role in increasing the disclosure of carbon emissions. This suggests that when companies use media platforms to communicate their environmental practices and conditions, they can enhance their trustworthiness and credibility with both the public and other stakeholders. Additionally, the media serves as an important driver, encouraging companies to disclose their carbon emissions, a practice that often results in positive reactions from stakeholders. However, these findings contrast with the results of (Rosyid & Immawati, 2022), which found a negative impact, and (Mulyati & Darmawati, 2023) who concluded that media exposure has no significant effect on carbon emissions disclosure.

The purpose of this study is to investigate and assess the influence of green investment and media exposure on the transparency of carbon emissions disclosure by companies in the oil, gas, and coal energy subsector. The companies targeted in this research are those listed on the Indonesia Stock Exchange during the period from 2021 to 2023. In this research, green investment is considered a type of sustainable investment that motivates companies to adopt more environmentally responsible practices. On the other hand, media exposure is recognized as a key factor in amplifying information to stakeholders. Consequently, this study aims to

offer a more profound understanding of how these two elements impact corporate transparency in the disclosure of carbon emissions, while also contributing to the promotion of more ethical and sustainable business practices in the energy industry.

The legitimacy theory, first proposed by Dowling & Pfeffer in 1975, highlights the gap between a company's values and those of the broader society. This misalignment can put the company in a precarious situation, potentially threatening its ability to thrive and endure in the long term. Companies must ensure that their actions align with social norms to continue growing (Salehuddin Wahab et al., 2023). Based on this theory, organizations strive to demonstrate that they operate according to social norms in order to be valued by stakeholders as environmentally responsible companies (Almuaromah & Wahyono, 2022). Companies that gain legitimacy can continue to operate because they have adhered to norms and taken into account the conditions of society and the environment (Alfayerds & Setiawan, 2021).

The Influence of Green Investment on Carbon Emission Disclosure

Green investment focuses on preserving natural resources, reducing pollution, and promoting eco-friendly business practices. It ensures that a company's operations align with environmental and social values, enhances legitimacy, and supports profitability (Ramadhani & Astuti, 2023). Environmental costs are often seen as reducing profits, making companies hesitant to disclose environmental and social issues. However, public support for norm-aligned activities can encourage transparency, while financial performance reflects business outcomes. Positive financial performance can drive companies to adopt eco-friendly machinery to reduce carbon emissions (Muthola'ah et al., 2023). Based on legitimacy theory, organizations with minimal green investment but significant carbon emission disclosures may do so to maintain their legitimacy. This can lead the public to demand stronger alignment between transparency and environmental responsibility (Florencia & Handoko, 2021).

Previous research by (Syabilla et al., 2021), (Mulyati & Darmawati, 2023), and (Retnowati & Cahyani Putri, 2024) concluded that green investment has a positive impact on carbon emission disclosure. Companies that disclose carbon emissions tend to attract more investors as they are seen as being responsible for environmental preservation. Based on this research, a hypothesis can be formulated.

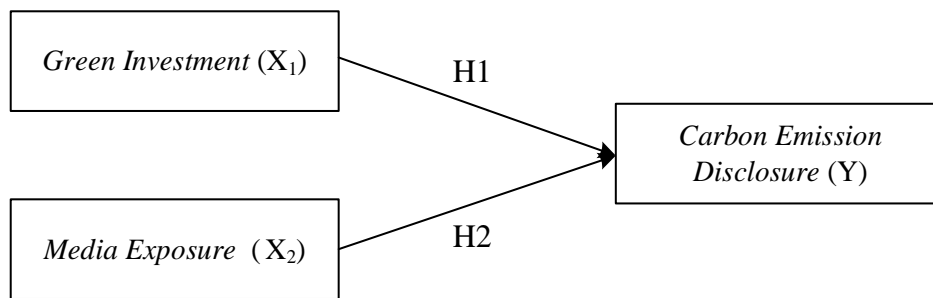H_1: Green investment has a positive and significant impact on carbon emission disclosure.

The Influence of Green Investment on Carbon Emission Disclosure

Media exposure is a tool that can lead the public to give positive or negative opinions based on the information conveyed by the media. The media plays a role in overseeing company activities to ensure social and environmental responsibility (Sandi et al., 2021). Publication through the media can help shape a positive image of the company in the eyes of stakeholders, which in turn can increase the company's value. By offering clear and pertinent information, companies can enhance their relationships with stakeholders, which in turn can positively influence their reputation and market performance (Saraswati & Yuniarta, 2023). In the context of legitimacy theory, the media plays a pivotal role in shaping the public's perception of a company, particularly by improving the transparency of its social responsibility initiatives. Research on the effects of media exposure on the disclosure of carbon emissions has garnered growing interest from both scholars and industry professionals.

Studies on media exposure, as conducted by (Muslih & Mitha Caesaria, 2024), (Sukmawati, 2023), and (Susilo et al., 2022) indicate that media exposure significantly contributes to the positive impact on and plays a crucial role in the disclosure of carbon emissions. Drawing from these prior findings, a hypothesis can be developed.

H_2: Media exposure has a positive and significant impact on carbon emission disclosure.

Figure 3. Conceptual Framework
Sumber: Research Results in 2024

Explanation:
H_1: Green investment has a positive and significant impact on carbon emission disclosure.
H_2: Media exposure has a positive and significant impact on carbon emission disclosure.

METHOD

This study utilizes a quantitative method to examine the connections between variables within a causal structure, integrating both descriptive and associative problem definitions to offer a comprehensive analysis. The hypothesis serves as a preliminary proposition that requires validation through further testing to confirm its accuracy (Sugiyono, 2024).

Research Location

This research was conducted in October-November 2024. The research location is companies in the oil, gas, and coal energy subsector listed on the Indonesia Stock Exchange during the 2021-2023 period.

Population and Sample

The population for this research comprises all companies within the oil, gas, and coal energy subsector that are listed on the Indonesia Stock Exchange during the period from 2021 to 2023. To select the sample, this study employs a purposive sampling technique, with the following specific criteria applied:

Table 1. Sampling Selection with Purposive Sampling

No.	Criteria	Total of Companies	Total of Data
1	Companies in the oil, gas, and coal energy subsector listed on the Indonesia Stock Exchange during 2021-2023.	81	243
2	Companies in the oil, gas, and coal energy subsector listed on the Indonesia Stock Exchange that conducted an Initial Public Offering (IPO) after 2021-2023.	(15)	(45)
3	Companies in the oil, gas, and coal energy subsector listed on the Indonesia Stock Exchange that did not issue a sustainability report and annual report consecutively in 2021-2023.	(19)	(57)
4	Companies that did not disclose their carbon emissions for 3 consecutive years, based on the sustainability report and annual report (at least disclosing one item of carbon emission disclosure).	(10)	(30)
5	Companies in the oil, gas, and coal energy subsector that did not disclose environmental expenditure costs in the annual report or sustainability report during 2021-2023.	(9)	(27)
	Total	28	84

Sumber: Research Results in 2024

Data Collection Technique

This study uses secondary data obtained indirectly from annual reports and sustainability reports. The data sources include the annual and sustainability reports of companies in the oil, gas, and coal energy subsector listed on the Indonesia Stock Exchange during the 2021-2023 period, which can be accessed through www.idx.co.id or the company's official website.

Operational Variables
Dependent Varible

In this research, the primary variable being analyzed is the reporting of carbon emissions. The researcher has established specific criteria for this variable, which are detailed in the table below:

Table 2. *Carbon Emission Disclosure Item*

Kategori	Keterangan
Climate Change: Risks and Opportunities	CC-1: Assessment of climate change risks (regulatory, physical, general) and management actions.
	CC-2: Evaluation of financial and business impacts of climate change, along with potential opportunities.
Greenhouse Gas (GHG)	GHG-1: Description of the methodology applied to quantify greenhouse gas (GHG) emissions, referencing established frameworks such as the GHG Protocol or ISO standards.
	GHG-2: Independent verification to ensure the accuracy of GHG emissions data.
	GHG-3: Total greenhouse gas emissions reported in metric tons of CO2 equivalent, representing the overall carbon footprint.
	GHG-4: Breakdown of GHG emissions by category, including Scope 1 (direct emissions from owned or controlled sources), Scope 2 (indirect emissions from purchased electricity or energy), and Scope 3 (indirect emissions from the supply chain and other activities).
	GHG-5: Identification of the key contributors to GHG emissions, such as coal, electricity, fuel consumption, and other energy sources.
	GHG-6: Reporting of GHG emissions at the facility or business unit level.
	GHG-7: Comparison of current GHG emissions with previous years to show trends and progress.
Energy Consumtion (EC)	EC-1: Total energy consumption expressed in large-scale units like terajoules (TJ) or petajoules (PJ).
	EC-2: Proportion of total energy consumption derived from renewable energy sources, reflecting a company's commitment to sustainability.
	EC-3: Further disclosure on energy use, including types of energy and consumption breakdowns by facility or business unit.
Reduction and Cost (RC)	RC-1: Strategies or plans to reduce GHG emissions, including implemented or planned actions.
	RC-2: Establishment of GHG emission reduction targets and the target year.
	RC-3: Achievements in GHG emission reductions, with details on associated costs or savings.
	RC-4: Consideration of emission-related costs in capital expenditure planning for long-term investments.
Accountability of Emission Carbon (AEC)	AEC-1: Identification of the board or executive body responsible for overseeing climate-related actions.

AEC-2: Methods implemented by the board or executive leadership to track, assess, and evaluate progress in achieving climate management objectives.

Sumber: (Choi et al., 2013)

The disclosure of carbon emissions is assessed using a carbon emission disclosure index, which relies on the data presented in annual reports or sustainability reports issued by companies. This index includes 18 items across 5 categories related to climate change (Choi et al., 2013). Each disclosed item is assigned a score of 1, with the total possible score ranging from a minimum of 0 to a maximum of 18. The company's score is calculated by dividing the number of disclosed items by the total number of items, then multiplying the result by 100 to derive the disclosure index ratio. This procedure is carried out for every company, with the individual outcomes being aggregated. The total is then divided by the overall number of disclosures, and the result is multiplied by 100 to determine the final disclosure index ratio (Ramadhani & Astuti, 2023). The carbon emission disclosure is quantified using the formula outlined below:

$$CED = \frac{Total\ Disclosed\ Item}{Total\ Item\ Overall} \times 100\%$$

Independent Varible

The independent variables used by the researchers are as follows:

Green Investment refers to the costs for research and development of technology, industrial waste management, environmentally friendly and renewable construction, as well as ecosystem restoration and reforestation (Chen & Ma, 2021). Green investment can be measured using the GI calculation in line with previous research (Riyanti & Murwaningsari, 2023), which is calculated by dividing the total environmental expenditure by the total assets of the company at the end of the year and multiplying it by 100. The total environmental expenditure is reported by the company in its sustainability report. GI is an indicator to measure how far a company has used green investment in its business activities. The green investment is measured using the following formula:

$$GI = \frac{Total\ Environmental\ Expenditure}{Total\ Assets} \times 100\%$$

The media plays an important role in controlling business operations, including in carbon emission disclosures. Companies tend to use the media to protect their value and prevent the development of negative issues that may affect public perception (Nastiti & Hardiningsih, 2022). In this study, media exposure is quantified using a dummy variable proxy, where a score of 1 is given to companies that report carbon emissions in at least two of the company's media, including the sustainability report, annual report, and website. If a company discloses in fewer than 2 of these media, it will be given a score of 0 (Loru, 2023).

Data Analysis Techniques

This research utilizes multiple linear regression as the data analysis method, carried out using IBM SPSS Statistics version 25.0 for Windows to ensure accuracy and reliability in processing the data.

RESULTS AND DISCUSSION
Results

Table 3. Results of Descriptive Statistical Test

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Green Investment	84	.00002	.85963	.0395881	.13316943
Media Exposure	84	.00	1.00	.7381	.44231
Carbon Emission Disclosure	84	.44444	.77778	.6129635	.08873552
Valid N (listwise)	84				

Sumber: IBM SPSS Version 25

Based on table 3 above, the outcomes of the descriptive statistical analysis reveal that the green investment variable has an average value of 0.39588, accompanied by a standard deviation of 0.13317. This suggests that, on average, each indicator for the green investment variable tends to have a higher value. Meanwhile, the test for the media exposure variable results in a mean value of 0.73810 and a standard deviation of 0.44231, indicating that the average for the indicator is higher for the media exposure variable.

Table 4. Results of Data Normality Test
One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		84
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.08646538
Most Extreme Differences	Absolute	.094
	Positive	.094
	Negative	-.091
Test Statistic		.094
Asymp. Sig. (2-tailed)		.066[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Sumber: IBM SPSS Version 25

Based on table 4 above, the results of the One-Sample Kolmogorov-Smirnov (K-S) analysis show that the research data is normally distributed. This is evidenced by the significance value or Asymp. Sig. (2-tailed) probability > 0.05, which is 0.066, indicating it is greater than the threshold of 0.05.

Table 5. Results of Multicollinearity Test

Coefficients[a]

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	T	Sig.	Collinearity Statistics Tolerance	VIF
1 (Constant)	.627	.019		33.310	.000		
Green Investment	.125	.072	.188	1.732	.087	.999	1.001
Media Exposure	-.026	.022	-.128	-1.186	.239	.999	1.001

a. Dependent Variable: Carbon Emission Disclosure

Sumber: IBM SPSS Version 25

Based on table 5 above, it is evident that the tolerance value for the green investment variable stands at 0.999, and similarly, the media exposure variable also exhibits a tolerance value of 0.999. This indicates that both independent variables, namely Green Investment (X_1) and Media Exposure (X_2), have tolerance values > 0.10 and VIF < 10. Therefore, it can be concluded that there is no multicollinearity between the two independent variables in this study.
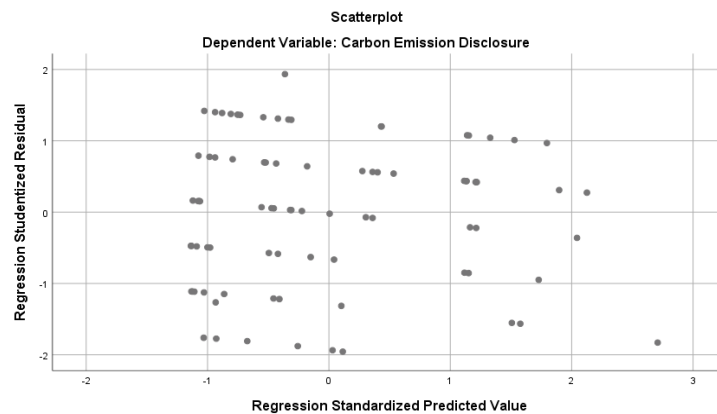
Figure 4. Heteroscedasticity Test Results.
Sumber: IBM SPSS Version 25

Based on figure 4 above, the outcome of the heteroscedasticity test reveals a scatterplot in which the data points are dispersed both above and below the zero (0) mark on the Y-axis, suggesting no clear pattern or tendency toward a specific direction. It can be concluded that the hypothesis (H_0) is accepted, as there is no heteroscedasticity among the variables.

Table 6. Results of Autocorrelation Test

			Model Summary[b]		
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.270[a]	.073	.050	.04520	1.841
a. Predictors: (Constant), Media Exposure, Green Investment					
b. Dependent Variable: ABRESID					

Sumber: IBM SPSS Versi 25

Based on table 6 above, the results of the autocorrelation test are shown by the Durbin-Watson (d) value of 1.841. Based on this, it can be concluded that the null hypothesis (H0) is accepted, meaning there is no autocorrelation present. This is because the d value satisfies the condition of dU < d < 4 - dU, which is 1.6942 < 1.841 < 4 - 1.6942.

Table 7. Results of Multiple Linear Regression Analysis Test

		Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model		B	Std. Error	Beta	T	Sig.	Tolerance	VIF
1	(Constant)	.627	.019		33.310	.000		
	Green Investment	.125	.072	.188	1.732	.087	.999	1.001
	Media Exposure	-.026	.022	-.128	-1.186	.239	.999	1.001
a. Dependent Variable: Carbon Emission Disclosure								

Sumber: IBM SPSS Versi 25

Based on table 7 above, the regression equation is expressed as $Y = a + b_1x_1 + b_2x_2 + \epsilon$. In the context of this study, the specific regression equation is formulated as follows:
$$Y = 0.627 + 0.125\ x_1 + (0.026)\ x_2 + \epsilon$$
The findings from this multiple regression analysis allow for the interpretation of the impact of each variable as follows:

1. The value of a, which is 0.627, represents the constant or the situation when the carbon emission disclosure variable (Y) is not influenced by the other variables, namely green investment (X$_1$) and media exposure (X$_2$).
2. $b1x1$ (the regression coefficient of X$_1$) is 0.125, suggesting that a 1% increase in the green investment variable will lead to an increase of 0.125 in the carbon emission disclosure.
3. $b2x2$ (the regression coefficient of X$_2$) is -0.026, implying that a 1% rise in media exposure will result in a 0.026 decrease in carbon emission disclosure.
4. ϵ is another factor, aside from the green investment (X$_1$) and media exposure (X$_2$) variables, that affects carbon emission disclosure (Y) as the dependent variable.

Table 8. Results of Multiple Linear Regression Analysis Test

Correlations

			Green Investment	Media Exposure	Carbon Emission Disclosure
Spearman's rho	Green Investment	Correlation Coefficient	1.000	-.079	.061
		Sig. (2-tailed)	.	.477	.578
		N	84	84	84
	Media Exposure	Correlation Coefficient	-.079	1.000	-.116
		Sig. (2-tailed)	.477	.	.294
		N	84	84	84
	Carbon Emission Disclosure	Correlation Coefficient	.061	-.116	1.000
		Sig. (2-tailed)	.578	.294	.
		N	84	84	84

Sumber: IBM SPSS Versi 25

Based on table 8 above, the correlation coefficient value for the green investment variable (X$_1$) is 0.061. According to the correlation interpretation guidelines, the value of 0.061 falls within the "0.00 - 0.199" range, indicating a very weak relationship between the green investment variable (X$_1$) and the carbon emission disclosure variable (Y). The positive correlation coefficient value suggests that every increase in green investment will be followed by an increase in carbon emission disclosure. Meanwhile, the correlation coefficient value for the media exposure variable (X$_2$) is -0.116. Referring to the correlation guidelines, a value of -0.116 falls within the "0.00 - 0.199" range, meaning the relationship between media exposure (X$_2$) and carbon emission disclosure (Y). The negative direction of this correlation coefficient suggests that as media exposure rises, there is a tendency for the level of carbon emission disclosure to decline. This suggests an inverse relationship between the two variables, where heightened media attention is associated with a lower likelihood of companies disclosing their carbon emissions.

Table 9. Results of Determination Coefficient (R²) Test

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.270ᵃ	.073	.050	.04520

a. Predictors: (Constant), Media Exposure, Green Investment

Sumber: IBM SPSS Versi 25

Based on table 9 above, the Coefficient of Determination (R^2) obtained is 0.073 or 7.3%. To verify the R^2 value, the calculation is performed using the Coefficient of Determination (R^2) formula as follows:

$$\begin{aligned} Kd &= R^2 & x & \quad 100\% \\ &= (0,270)^2 & x & \quad 100\% \\ &= 0,0729 & x & \quad 100\% \end{aligned}$$

=   7,29%

The calculation results show the same Coefficient of Determination (R²) value, whether using statistical tools or manual calculations. This implies that the independent variables, specifically green investment and media exposure, account for 7.29% of the variance in carbon emission disclosure. In contrast, the remaining 92.71% is determined by other factors that are not captured within the scope of this research model.

Tabel 10. Hasil Uji Hipotesis Secara Parsial (Uji t)

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.627	.019		33.310	.000
Green Investment	.125	.072	.188	1.732	.087
Media Exposure	-.026	.022	-.128	-1.186	.239

a. Dependent Variable: Carbon Emission Disclosure

Sumber: IBM SPSS Versi 25

Based to table 10 above, the outcomes of the t-test statistical hypothesis testing for each independent variable in relation to the dependent variable are as follows:
1. For the Green Investment variable (X_1) on Carbon Emission Disclosure (Y), the significance value is 0.087 > 0.05, and the calculated t-value is 1.732 ≤ the critical t-value of 1.990. As a result, it can be inferred that Green Investment does not have a statistically significant impact on Carbon Emission Disclosure.
2. For the Media Exposure variable (X_2) on Carbon Emission Disclosure (Y), the significance value is 0.239 > 0.05, and the calculated t-value is -1.186 < the critical t-value of -1.990. This indicates that Media Exposure has a negative influence on Carbon Emission Disclosure.

Tabel 11. Hasil Uji Hipotesis Secara Simultan (Uji F)

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.013	2	.006	3.176	.047^b
Residual	.165	81	.002		
Total	.178	83			

a. Dependent Variable: ABRESID

b. Predictors: (Constant), Media Exposure, Green Investment

Sumber: IBM SPSS Versi 25

Based on table 11 above, the significance value is 0.047 < 0.05, and the F-value is 3.176 > the critical F-value of 2.72. This suggests that the null hypothesis (H0) is rejected, while the alternative hypothesis (H$_a$) is accepted. This means that the variables Green Investment (X_1) and Media Exposure (X_2) collectively exert a positive and significant impact on Carbon Emission Disclosure (Y).

The Influence of Green Investment on Carbon Emission Disclosure

The SPSS analysis results indicate that green investment does not affect carbon emission disclosure in energy sub-sector companies (oil, gas, and coal) listed on the Indonesia Stock Exchange during 2021-2023. The regression test shows a t-value of 1.732 ≤ the critical t-value of 1.990 and a significance value of 0.087 > 0.05, meaning that the null hypothesis (H$_0$) is accepted, and the alternative hypothesis (H$_a$) is rejected. This implies that an increase in green investment does not influence carbon emission disclosure. Environmental expenditures do not have a significant impact, indicating that green investment is more likely to influence external factors, such as public attention, rather than carbon emission disclosure. Additionally,

Indonesia's cultural context, which has not fully embraced social and environmental issues, contributes to this outcome. This research aligns with previous studies by (Muslih & Mitha Caesaria, 2024), (Miselda et al., 2024), and (Dani & Harto, 2022) which also concluded that green investment does not have a significant effect on carbon emission disclosure.

The Influence of Media Exposure on Carbon Emission Disclosure

The results from the SPSS analysis indicate that the media exposure variable has a t-value of -1.186 < the critical t-value of -1.990 and a significance value of 0.239 > 0.05, indicating that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_a) is accepted, with a negative effect. The regression analysis indicates that increased media exposure leads to a decrease in the disclosure of carbon emissions. This negative effect can likely be attributed to the limited media attention given to environmental initiatives that could otherwise motivate companies to report their carbon emissions more transparently. As media exposure rises, companies seem less inclined to provide detailed information about their emissions, reflecting a trend where higher media attention correlates with lower levels of disclosure. These results align with the study by (Rosyid & Immawati, 2022), which also found that media exposure negatively affects carbon emission disclosure.

CONCLUSION

This research seeks to examine the impact of green investment and media exposure on the disclosure of carbon emissions, focusing on companies within the oil, gas, and coal energy subsector that are listed on the Indonesia Stock Exchange during the 2021-2023 period. The results show that, partially, green investment does not affect carbon emission disclosure, while media exposure has a negative effect on carbon emission disclosure. However, simultaneously, these two variables have a significant positive effect on carbon emission disclosure. The factors influencing carbon emission disclosure consist of only two variables, green investment and media exposure, which explain 7.29% of the variation, while the remaining 92.71% is influenced by other factors. These findings highlight the need to include additional independent variables with a stronger influence on carbon emission disclosure, as well as to use different analytical methods to obtain more comprehensive results.

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