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Analysis of Factors Affecting Carbon Emission Disclosure in Indonesia

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Abstract
This study aims to analyze what factors affect the disclosure of carbon emissions in carbon-intensive companies listed on the Indonesia Stock Exchange in the period 2016-2020 years. The method used in this study is a quantitative research method with literature studies both on the company's website and on the Indonesian stock exchange. The collection technique the data used is purposive sampling to determine the sample in this study. The sample used as many as 138 companies with data processing methods using analysis descriptive statistics, classical assumption test, hypothesis testing, and coefficient of determination test. Results of the research show that firm size, profitability, managerial ownership, and ownership institutions have a positive influence on the disclosure of carbon emissions. In addition, can it is known that the company's leverage harms the disclosure of emissions carbon while total asset turnover, environmental performance, regulators, and media exposure do not affect the disclosure of carbon emissions.
Keywords: Carbon Emission Disclosure, Carbon Intensive Industry

INTRODUCTION

Many natural disasters, climate change, and environmental problems are important issues and are the center of attention at this time. These three problems are a form of environmental pollution, one of which is caused by the development of industrial activities in each country. Environmental pollution is an interesting topic to be discussed in the business world, especially regarding the occurrence of climate change in each country. Climate change is one of the consequences of the existence of emissions that continue to increase from industrial activities carried out by humans. The emissions that are of concern to the world, both developed and developing countries, today are greenhouse gas (GHG) emissions and the use of Ozone-Depleting Substances (BPO). The use of these two emissions is strictly restricted in accordance with the Kyoto Protocol agreement which has been ratified by Indonesia through Law No. 17 of 2004 which contains an agreement on GHG reduction on a global scale (Sekretariat Website JDIH BPK RI, 2004).

Greenhouse gases (GHGs) include direct and indirect GHGs. The most important direct GHGs are carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O), while the most important indirect GHGs are sulfur dioxide (SO2), nitrogen oxides (NOx), and non-methane volatile organic compounds (NM-VOCs) (Badan Pusat Statistik, 2015). Carbon dioxide (CO2) is the main contributor to GHG-causing factors because this gas content is most commonly found in the atmosphere. Starting from 2011 to 2019, carbon dioxide is the most commonly encountered substance in the atmosphere so that it can cause greenhouse gas effects. This is in accordance with the data shown from the chart below:

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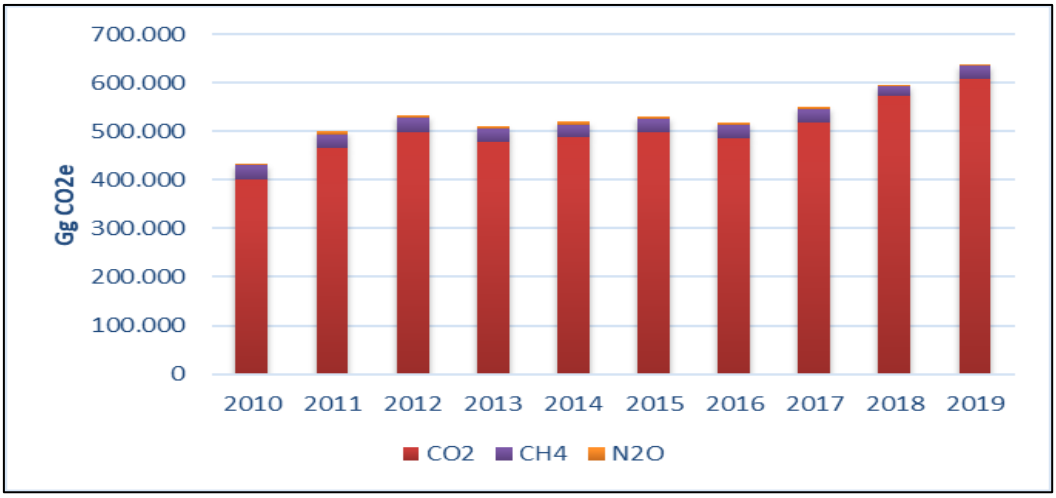

Figure 1. GHG Emissions By GHG Type (Pusat Data dan Teknologi Informasi ESDM, 2020)

PP No. 61 of 2011 article 4 states that actors (companies) also take part in efforts to reduce GHG emissions (including carbon emissions). Companies as business actors can contribute to reducing greenhouse gas emissions by disclosing carbon emissions. In addition, disclosure of carbon emissions can increase legitimacy in the eyes of society because it is responsible for the environment (Pratiwi, 2018). Disclosure of carbon emissions can alert companies to threats, especially to companies that produce greenhouse gases such as increasing operating costs, reducing demand, reputational risks, legal process as well as fines and penalties (Cahya, 2017).

Indonesia itself Carbon emission disclosure is still voluntary disclosure and its practice is still rarely carried out by business entities. Meanwhile, disclosure of carbon emissions is an issue that has developed in recent years. Moreover, there is a discourse that regulations will be applied to impose taxes on carbon emissions in Indonesia, which of course requires prior disclosure by companies. Companies that disclose carbon emissions can make it easier for stakeholders to make decisions about the state of the company's carbon emission performance, and pressure companies to contribute to reducing carbon emissions (Pratiwi, 2018). This is also stated in Law No. 32 of 2009, that companies must be more active in reporting information and disclosure of carbon emissions.

Based on the background of the phenomenon and inconsistency of previous research that caused research gaps, this research is interesting to be retested from previous research and will make the carbon-intensive industrial sector a list of companies to be studied. Based on the explanation above, this study takes the title "Analysis of Factors Affecting Carbon Emission Disclosure in Indonesia (Study on Companies Classified as Carbon-Intensive Industry on the Indonesia Stock Exchange for the Period 2016 - 2020)". The difference between this study and other studies is the use of the Carbon-Intensive Industry sector because carbon emissions are not only produced by the mining sector, but are produced by many sectors such as the cement industry, steel industry, paper industry, textile industry, ceramics, petrochemicals, food and also certain beverages. This research also does not include industry type variables because it only focuses on the type of carbon intensive industry.

This study used several variables that had been used by previous researchers and then combined into nine free variables. In addition, this study was carried out with a longer and most recent period of time, namely 5 years starting from 2016 to 2020 in accordance with the suggestions in previous studies.

Legitimacy Theory

Dowling and Pfeffer (1975) as the originators of the legitimacy theory explained that in the theory of legitimacy the organization seeks to create harmony between the social values that exist in the activities of the organization and the norms that exist in the social environment where the organization is part of the social environment. The theoretical basis of legitimacy is the "social contract" that occurs between the company and the society in which the company operates (Imam Ghozali, 2014). When there is an misalignment between the two systems, there will be a threat to the legitimacy of the company.

Stakeholder Theory

The theory of stakeholders was first initiated by Robert Edward Freeman in 1984 and states that this theory is a theory regarding organizational management and business ethics that discusses morals and values in regulating organizations. Stakeholder theory is a theory that states that companies are not entities that only operate for their own interests (Imam Ghozali, 2014). The company must provide benefits to all its stakeholders (shareholders, creditors, consumers, suppliers, government, society, analysis, and other parties). The main purpose of stakeholder theory is to assist company management in increasing value creation as a result of the activities carried out and minimize losses that may arise for stakeholders. Stakeholders have the ability to control the company in carrying out their activities, including in making disclosures.

RESEARCH METHODS

This study used two variables consisting of dependent and independent variables. The dependent variables of this study are carbon emission disclosure and independent variables consist of company size, profitability, leverage, total asset turnover, managerial ownership, institutional ownership, environmental performance, regulators and media exposure. The population of this study is all carbon-intensive industry companies listed on the Indonesia Stock Exchange (IDX) in 2016-2020. Companies classified as carbon intensive industries are companies that are classified into 8 sub-sectors that have been explained by the Ministry of Environment and Forestry and the Ministry of Industry and then grouped into 3 sectors, namely the mining sector, the basic industry and chemical sectors, and the consumer goods sector.

The sample selection method uses the purposive sampling method, which is to take samples with certain criteria in accordance with the purpose and objectives of the study. The criteria used in this study are as follows:

1. Carbon-intensive industry companies are listed on the Indonesia Stock Exchange which are included in 8 sub-sectors according to the Ministry of Environment and Forestry.
2. The company was listed on the Indonesia Stock Exchange successively during the research period, namely 2016 – 2020.
3. The Company publishes an annual report or sustainability report in full available during the 2016-2020 research period both on the Indonesia Stock Exchange and on the websites of each company.
4. The company is not delisted and is not being suspended with a special notation by the IDX during the research period, namely 2016 – 2020. Based on the predetermined criteria, there are 138 companies with the observation year used in this study is 5 consecutive years so that the number of observations in this study is 5 years of research x 138 company samples, then 690 observation samples were obtained.

The data analysis methods used in this study are statistical descriptive analysis, correlation test between variables (pearson correlation), classical assumption test, multiple linear regression analysis, and hypothesis testing with F and t tests.

RESULTS OF RESEARCH AND DISCUSSION

Research Results

Table 1. Descriptive Statistical Analysis Results

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
SIZE	690	19,436	24,027	21,840	,842
ROA	690	,000	,101	,034	,024
LEVERAGE	690	,0495	,988	,460	,214
TATO	690	,000	2,158	,820	,479
KEP_MAN	690	,000	,126	,027	,037
KEP_INS	690	,139	,997	,661	,211
PROPER	690	,000	5,000	3,153	,625
REGULATOR	690	,000	1,000	,065	,247
MED_EXP	690	,000	1,000	,630	,483
CED	690	,000	,944	,445	,281
Valid N (listwise)	690				

Based on the above, it can be described that the number of data used in this study was 690 research data according to what is in the table above section N. Of all the variables, both dependent and independent, the data used as a whole is valid and there is no missing data. The company size variable (SIZE) measured using the natural log of total assets shows the result that the minimum value of 19,436 owned by the company PT Mitra Investindo Tbk. in 2020 with total assets of RP 276,060,000,000. As for the maximum value of 24,027 owned by the company PT Ratu Prabu Energi Tbk. in 2018 with total assets of Rp 27,225,930,000,000. As for the average value, it was obtained 21.840 with a standard deviation of 0.842.

The profitability variable (ROA) measured using the company's return on assets shows the result that the minimum value is 0.004 percent of the company PT Perdana Karya Perkasa Tbk. in 2020. As for the maximum value of 0.101 or 10.1 percent of the company PT Mitra Investindo Tbk. in 2016. As for the average value obtained 0.034or 3.4 percent with a standard deviation of 0.024. The third variable is Leverage (LEV) which is measured by dividing the total debt by the company's total assets showing the result that the minimum value was 0.049 or 4.9 percent of the company PT SMR Utama Tbk in 2017. As for the maximum value of 0.988 or 98.8 percent of the company PT Alumindo Light Metal Industry Tbk. in 2020. As for the average value, it is 0.460 or 46 percent and the standard deviation is 0.214.

The fourth variable is total asset turnover (TATO) which is measured by the ratio between sales and total assets of the company. The results in the table show that the minimum value of 0.000 from PT Magna Investama Mandiri in 2020. The company has a TATO value of 0.000 based on records on MGNA's 2020 financial statements the company has no revenue or sales due to stopping its operational activities and has sold some of its fixed assets to PT Wilmar Padi Indonesia on May 15, 2020 to repay debts. Meanwhile, the maximum value obtained 2,158 times owned by the company PT Lotte Chemical Titan Tbk. in 2017. As for the average value, it is 0.820 or 0.82 times the turnover and the standard deviation is 0.479.

The fifth variable is managerial ownership (MAN) which is measured by the ratio between the number of managerial shares and the number of shares outstanding. In this variable, the result is obtained that the minimum value is 0.000 or managerial ownership of 0 percent of several companies such as PT Astrindo Nusantara Infrastruktur Tbk, PT Elnusa Tbk, PT Aneka

Tambang (Persero) Tbk, PT Bumi Resources Minerals Tbk, and PT Vale Indonesia Tbk. While the maximum value is obtained by 0.126 or 12.6 percent from the company PT Mayora Indah Tbk. As for the average value is 0.027 or 2.7 percent and the standard deviation is 0, 037. The sixth variable is institutional ownership (INS) which is measured by the ratio between the number of institutional shares and the number of shares of the company outstanding. In this variable, the result was obtained that the minimum value was 0.139 or 13.9 percent of the company PT Arwana Citramulia Tbk. As for the maximum value, the maximum value was obtained 0.997 or 99.7 percent from the company PT Fajar Surya Wisesa Tbk. As for the average value, it was 0.661 or 66.1 percent and the standard deviation was 0.211.

The seventh variable is environmental performance (PROPER) which is measured by a ranking carried out by the Ministry of Environment and Forestry called PROPER. From the table, it can be seen that the minimum value is 0, which means that the company did not obtain a rating in the ranking carried out by the Ministry of Environment and Forestry such as pt J Resources Asia Pacific Tbk and PT SMR Utama Tbk. While the maximum value is 5 which means that the company obtained the highest gold rating based on assessments from the Ministry of Environment and Forestry such as the company PT Adaro Energy Tbk. in 2019-2020, PT Semen Indonesia (Persero) Tbk. in 2019-2020, and PT Industri Jamu Sido Muncul Tbk. in 2020. As for the average value on this environmental performance variable, it is 3.153 and the standard deviation is 0.625.

The eighth variable is the regulator (REG) which is measured by the dummy variable where the value is 1 for STATE-OWNED companies and 0 for non-SOE companies. The minimum value obtained is 0 and the maximum value is 1. As for the average value, it is 0.065 and the standard deviation is 0.247. The ninth variable is media exposure (MED) which is measured by a dummy variable where the value of 1 for a company that discloses its environmental activities through various media and a value of 0 for a non-disclosing company. The minimum value obtained is 0 and the maximum value is 1. As for the average value, it is 0.630 and the standard deviation is 0.483.

The next variable is the dependent variable, namely Carbon Emission Disclosure (CED) which is measured by the Carbon Emission Disclosure Checklist, which marks the items that must be disclosed by the company in accordance with the provisions and then divides them by 18. For this dependent variable, a minimum value of 0 is obtained, which is a company that does not disclose at all about the carbon emissions produced. The company that has a disclosure value of 0 is PT Mitrabara Adiperdana Tbk. in 2016-2018. As for the maximum value is 0.944 which means that the company revealed 17 of the 18 items and this company is PT Semen Indonesia (Persero) Tbk. As for the average value obtained 0.445 and the standard deviation is 0.281.

Table 2. Pearson Correlation Test Results Table

Correlations											
		SIZE	ROA	LEV	TATO	MAN	INS	PROPER	REG	MED	CED
SIZE	Pearson Correlation	1	-,182**	-,049	-,097*	-,102**	-,017	,194**	,171**	,121**	,463*
	Sig. (2-tailed)		,000	,195	,010	,007	,662	,000	,000	,001	,010
	N	690	690	690	690	690	690	690	690	690	690
ROA	Pearson Correlation	-,182**	1	-,003	,020	,042	-,061	-,011	-,030	-,018	,532*
	Sig. (2-tailed)	,000		,939	,605	,272	,112	,772	,431	,642	,041
	N	690	690	690	690	690	690	690	690	690	690
LEVERAGE	Pearson Correlation	-,049	-,003	1	-,030	,013	,052	-,010	,075*	,100**	-,585*

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Correlations											
		SIZE	ROA	LEV	TATO	MAN	INS	PROPER	REG	MED	CED
	Sig. (2-tailed)	,195	,939		,434	,724	,173	,786	,049	,008	,025
	N	690	690	690	690	690	690	690	690	690	690
TATO	Pearson Correlation	-,097*	,020	-,030	1	-,018	,120**	,046	-,069	,060	,053*
	Sig. (2-tailed)	,010	,605	,434		,633	,002	,230	,070	,117	,163
	N	690	690	690	690	690	690	690	690	690	690
KEP_MAN	Pearson Correlation	-,102**	,042	,013	-,018	1	-,345**	-,080*	-,139**	,018	,454*
	Sig. (2-tailed)	,007	,272	,724	,633		,000	,036	,000	,636	,049
	N	690	690	690	690	690	690	690	690	690	690
KEP_INS	Pearson Correlation	-,017	-,061	,052	,120**	-,345**	1	-,005	,047	,162**	,550*
	Sig. (2-tailed)	,662	,112	,173	,002	,000		,889	,216	,000	,016
	N	690	690	690	690	690	690	690	690	690	690
PROPER	Pearson Correlation	,194**	-,011	-,010	,046	-,080*	-,005	1	,367**	,073	,072*
	Sig. (2-tailed)	,000	,772	,786	,230	,036	,889		,000	,056	,144
	N	690	690	690	690	690	690	690	690	690	690
REGULATOR	Pearson Correlation	,171**	-,030	,075*	-,069	-,139**	,047	,367**	1	,154**	,024*
	Sig. (2-tailed)	,000	,431	,049	,070	,000	,216	,000		,000	,523
	N	690	690	690	690	690	690	690	690	690	690
MED_EXP	Pearson Correlation	,121**	-,018	,100**	,060	,018	,162**	,073	,154**	1	,074*
	Sig. (2-tailed)	,001	,642	,008	,117	,636	,000	,056	,000		,065
	N	690	690	690	690	690	690	690	690	690	690
CED	Pearson Correlation	,463*	,532*	-,585*	,053*	,454*	,550*	,072*	,024*	,074*	1
	Sig. (2-tailed)	,010	,041	,025	,163	,049	,016	,144	,523	,065	
	N	690	690	690	690	690	690	690	690	690	690
**. Correlation is significant at the 0.01 level (2-tailed).											
*. Correlation is significant at the 0.05 level (2-tailed).											

The table above presents pearson correlation results for the entire sample with a total of 690 study samples. In the table, it can be seen that the variables of company size, profitability, leverage, managerial ownership, and institutional ownership have a sig value. (2-tailed) < 0.05 so it can be concluded that the variable has a correlation. On the contrary, in the variables total asset turnover, environmental performance, regulators, and media exposure have a sig value. (2-tailed) > 0.05 so it can be concluded that the variable has no correlation. Based on the pearson correlations value, all variables in the CED have a positive correlation direction except for the leverage variable which has a negative correlation direction. The variables of company size, profitability, leverage, managerial ownership, and institutional ownership have a strong degree of correlation closeness at intervals of 0.41 – 0.70 while the other variables are total asset turnover, environmental performance, regulators and media exposure have a very weak level of correlation tightness at intervals of 0.00 – 0.20.

Furthermore, it is known that the study with data of 690 samples had an r-table value of 0.075 for a significance level of 5% and of 0.098 for a significance level of 1%. In the variables of company size, profitability, leverage, managerial ownership, and institutional ownership with a significance level of 5% have an r-calculated value (pearson correlation) greater than r-table or > 0.075 so there is a correlation between variables. In contrast, in the variables of total asset turnover, environmental performance, regulators, and exposure media have a smaller r-

count value than the r-table or < 0.075 so it can be concluded that there is no correlation between the linked variables.

Table 3. Kolmogorov Smirnov Normality Test Table (K-S)

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		690
Normal Parameters[a,b]	Mean	,0000000
	Std. Deviation	,27638800
Most Extreme Differences	Absolute	,087
	Positive	,087
	Negative	-,058
Test Statistic		,087
Asymp. Sig. (2-tailed)		,200[c]
a. Test distribution is Normal.		
b. Calculated from data.		
c. Lilliefors Significance Correction.		

Source: Data processed by researchers using SPSS 26 (2022)

From the table, it can be seen that the asymptotic significance (2-tailed) value of 0.200 or greater than the α value of 0.05, this indicates that the residual value in this data is distributed normally. So that the regression model can be continued in the next test. To be more convincing, researchers again conducted a normality test using another method, namely by looking at the histogram. Data can be said to be normal if the data graph follows the shape of a curved line centered in the middle so as to form a bell. The following are presented the results of the normality test using a histogram.

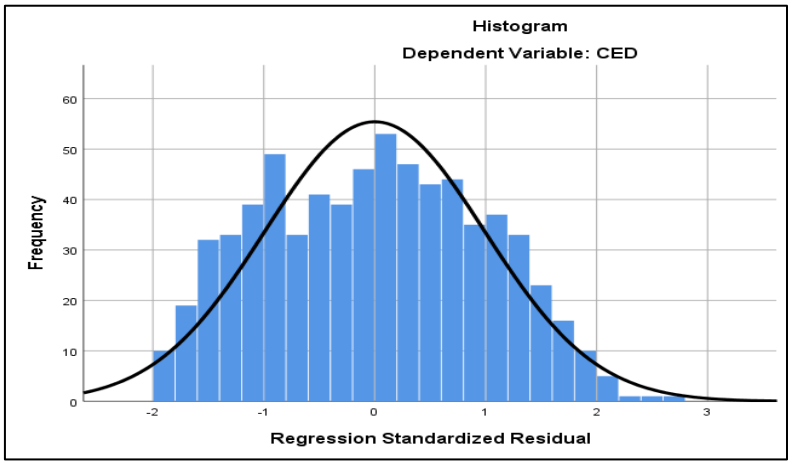

Figure 2. Normality Test with Histogram Graph

The picture above is the result of a normality test using a histogram. It can be known that in the histogram above the data has been distributed normally because the existing data chart follows a curved line and is centered in the middle so that it forms a bell. The last normality test, the researcher will conduct a test by looking at the P-Plot graph generated from processing data on SPSS. For decision making, data can be said to be normally distributed when the data spreads around diagonal lines and follows the direction of diagonal lines. Conversely, data is said to be not normally distributed when the data spreads far from the direction of the line or does not follow the existing diagonal line.

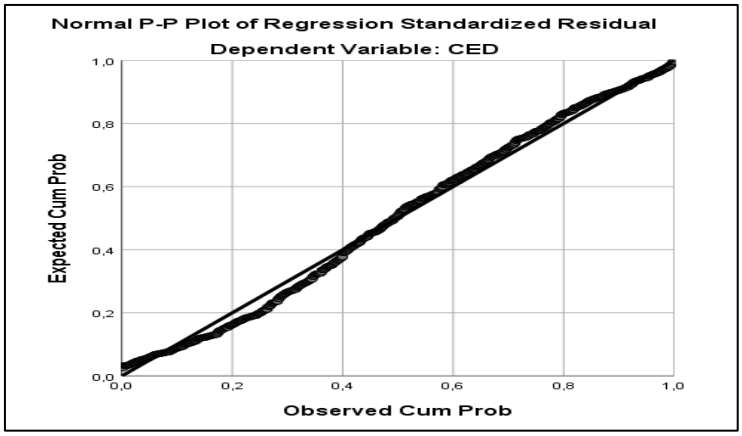

Figure 3. Normality Test with P-Plot

In the picture above, it can be seen that the research data has been distributed normally because based on the figure, the data has spread evenly around the diagonal line and has followed the direction of the diagonal line.

Table 4. Multicholinearity Test

Coefficients[a]				
Model		Collinearity Statistics		Conclusion
		Tolerance	VIF	
1	(Constant)			
	SIZE	,887	1,127	No multicholinearity occurs
	ROA	,962	1,040	No multicholinearity occurs
	LEVERAGE	,977	1,024	No multicholinearity occurs
	TATO	,959	1,043	No multicholinearity occurs
	KEP_MAN	,846	1,183	No multicholinearity occurs
	KEP_INS	,832	1,203	No multicholinearity occurs
	PROPER	,838	1,194	No multicholinearity occurs
	REGULATOR	,818	1,223	No multicholinearity occurs
	MED_EXP	,919	1,088	No multicholinearity occurs
a. Dependent Variable: CED				

Source: Data processed by researchers using SPSS 26 (2022)

In the results of the multicholinearity test that has been presented in the table above, it is known that the Variance Inflation Factor (VIF) value in each independent variable is at a value of less than 10 and has a tolerance value above 0.1 so that it can be concluded that there is no multicholinearity disorder in this study.

Table 5. Autocorrelation Test with Durbin Watson

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,642[a]	,413	,291	,27821	1,963
a. Predictors: (Constant), MED_EXP, ROA, KEP_MAN, TATO, LEVERAGE, PROPER, SIZE, KEP_INS, REGULATOR					
b. Dependent Variable: CED					

Source: Data processed by researchers using SPSS 26 (2022)

Based on the table above, a durbin watson number of 1.963 was obtained with a table value using 5% significance, 690 research data, and the number of independent variables of 9, the durbin watson table value obtained is as follows.

Table 6. Durbin-Watson (DW) Test Results Table

K = 9-1 = 8					
N	d	dL	dU	4 – dL	4 – dU
690	1,963	1,85566	1,89604	2,14434	2,10396

Source: Data processed by researchers using SPSS 26 (2022)

Based on the table, the durbin watson value is obtained that the corresponding value and avoided from the autocorrelation test is d > dL where 1.963 > 1.85566 or dU ≤ d ≤ 4 – dU where 1.89604 ≤ 1.963 ≤ 2.10396 so it can be concluded that in the preparation of this regression there is no autocorrelation.

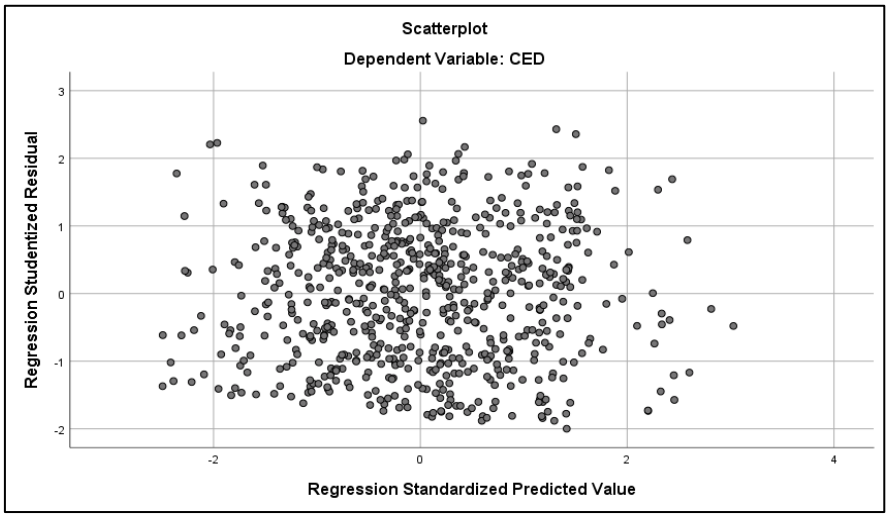

Figure 4. Heterochedasticity Test with Scatterplot
Source: Data processed by researchers using SPSS 26 (2022)

Based on the picture above, the results of the heterochedasticity test can be seen which shows the dots spreading randomly and scattered both above and below the number 0 on the Y axis, and there is no specific regular pattern. The results of this test can be concluded that the model of the regression equation obtained does not occur heterochedasticity.

Table 7. Multiple Linear Regression Analysis Results Table

Coefficients[a]			
Model		Unstandardized Coefficients	
		B	Std. Error
1	(Constant)	,828	,301
	SIZE	,014	,013
	ROA	,308	,438
	LEVERAGE	-,119	,050
	TATO	,036	,023
	KEP_MAN	,628	,305
	KEP_INS	,137	,055
	PROPER	,029	,019
	REGULATOR	,032	,047
	MED_EXP	,044	,023
a. Dependent Variable: CED			

Source: Data processed by researchers using SPSS 26 (2022)

Based on the calculation results in the Unstandardized Coefficients column in column B, the following multiple linear regression equations are obtained.

CED = 0,828 + 0,014SIZE + 0,308ROA – 0,119LEV + 0,036TATO + 0,628MAN + 0,137INS + 0,029PROPER + 0,032REG + 0,044MED

Based on the equation above that has been made where numbers are obtained from the table of the results of multiple linear regression analysis, several points can be explained, namely as follows:

1. The constant of 0.828 states that if the independent variables of company size, profitability, Leverage, total asset turnover, managerial ownership, institutional ownership, environmental performance, regulators, and media exposure are zero value then carbon emission disclosure will be worth 0.828.
2. The value of the coefficient of regression of the variable company size to carbon emission disclosure is 0.014 where this value indicates that the size of the company by one unit of prediction will increase (+) carbon emission disclosure by 0.014.
3. The value of the coefficient of regression of the profitability variable to carbon emission disclosure is 0.308 where this value indicates that the profitability of one predicted unit will increase (+) carbon emission disclosure by 0.308.
4. The value of the coefficient of regression of the variable Leverage to carbon emission disclosure is -0.119 where this value indicates that leverage of one unit of prediction will reduce (-) carbon emission disclosure by 0.119.
5. The value of the coefficient of regression of the variable total asset turnover against carbon emission disclosure is 0.036 where this value indicates that the total asset turnover of one unit of prediction will increase (+) carbon emission disclosure by 0.036.
6. The value of the coefficient of regression of the managerial ownership variable to carbon emission disclosure is 0.628 where this value indicates that managerial ownership of one unit of prediction will increase (+) carbon emission disclosure by 0.628.
7. The value of the coefficient of regression of institutional ownership variables to carbon emission disclosure is 0.137 where this value indicates that institutional ownership of one unit of prediction will increase (+) carbon emission disclosure by 0.137.
8. The value of the coefficient of regression of environmental performance variables to carbon emission disclosure is 0.029 where this value indicates that the environmental performance of one unit of prediction will increase (+) carbon emission disclosure by 0.029.
9. The value of the regulator variable regression coefficient to carbon emission disclosure is 0.032 where this value indicates that the regulator by one predictive unit will increase (+) carbon emission disclosure by 0.032.
10. The value of the coefficient of regression of the media exposure variable to carbon emission disclosure is 0.044 where this value indicates that the media exposure of one unit of prediction will increase (+) carbon emission disclosure by 0.044.

Table 8. Statistical Test Results F

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1,863	9	,207	2,674	,005[b]
	Residual	2,648	680	,077		
	Total	4,511	689			
a. Dependent Variable: CED						
b. Predictors: (Constant), MED_EXP, ROA, KEP_MAN, TATO, LEVERAGE, PROPER, SIZE, KEP_INS, REGULATOR						

Source: Data processed by researchers using SPSS 26 (2022)

In the table above, it can be seen that the calculated F has a value of 2.674 with a probability of 0.005. The calculated F value of 2.674 > F of table 1.8936 indicates that there is a significant influence between the independent variable and the dependent variable simultaneously. Meanwhile, the probability value of significance was obtained by 0.005 where the value was smaller than 0.05 so that the conclusion could be drawn that the regression model in this study was fit for use in the study.

Table 9. Partial Effect Test Results Table (t Test)

Variable	Hypothesis Direction	Coefficient Value β	T-count value	Sig Value.	Conclusion
Constant	-	,828	2,753	,006	-
SIZE	+	,014	2,027	,035	H_1 Supported
ROA	+	,308	2,703	,042	H_2 Supported
LEV	-	-,119	-2,374	,018	H_3 Supported
TATO	+	,036	1,607	,109	H_4 Not Supported
MAN	+	,628	2,058	,040	H_5 Supported
INS	+	,137	2,499	,013	H_6 Supported
PROPER	+	,029	1,554	,121	H_7 Not Supported
REG	+	,032	,673	,501	H_8 Not Supported
MED	+	,044	1,931	,054	H_8 Not Supported

Source: Data processed by researchers using SPSS 26 (2022)

The first variable is that the size of the company has a calculated t value of 2.027 where the value is higher than the table t value of 1.963 (2.027 > 1.963) and its significance is 0.035 < 0.05, it can be concluded that hypothesis 1 is supported where the size of the company has a positive effect on carbon emission disclosure. The projected size of the company with a natural log of the company's total assets so that it shows how much wealth the company has. This research shows that the size of the company has a positive influence on carbon emission disclosure so that it supports research conducted by Fransisca (2020), Nurdiawansyah et al., (2018), Sari (2016), Setiawan (2015), Suhardi & Purwanto (2015) and Jannah & Muid (2014).

The results of data analysis in this study stated that the size of the company proxied with the variable size affects carbon emission disclosure. There is a cause that makes the size of the company affect carbon emission disclosure, namely that larger companies, especially in the carbon intensive industry company sector, are more likely to disclose more information than small companies. Larger companies have enough resources to pay all the costs of information production for users of annual reports. This is done by the company to maintain its image even though the company has to sacrifice resources for the sake of these activities because the company considers the importance of legitimacy from society.

Based on the output of the table above, it can be explained that hypothesis 2 is supported which states that the profitability variable has a positive effect on carbon emission disclosure. This can be seen from the calculated t value for profitability is 2.703 > t table 1.963 and also the significance value is 0.042 < 0.05.

The results of this study show that profitability has a positive effect on carbon emission disclosure. The results of this study support research that has been carried out by Ardini (2019), Nurdiawansyah et al (2018), Cahya (2017), Suhardi & Purwanto (2015), and Jannah & Muid (2015) which revealed that the research results support the theory of legitimacy which states that people always put pressure on companies to care about environmental problems, companies with high profitability will be easier to answer these pressures.

A company with high profitability can be said that the company's finances are in good shape. This will help companies to be more encouraged in disclosing carbon emissions. Companies will find it easier to manage their finances or funds will be spent to disclose carbon

emissions because they require large funds. In addition, if the company makes environmental disclosures, the company will gain more trust from the public. This is in accordance with the theory of legitimacy where the company has complied with and paid attention to the norms prevailing in society and the company has demonstrated its contribution to the environment through the disclosure of carbon emissions.

Leverage has a calculated t value of 2.374 where the value is higher than the table t value of 1.963 (2.374 > 1.963) and the significance is 0.018 < 0.05 and the value of t is negative, it can be concluded that Hypothesis 3 is supported where leverage negatively affects carbon emission disclosure. The results of this study support the results of previous studies that have been conducted by Setiawan (2015) and Jannah & Muid (2014) which obtained that Leverage has a significant negative effect. When it comes to carbon emission disclosures, companies with greater obligations to repay debt and interest will limit the company's ability to execute carbon reduction strategies and their disclosures. Companies with high leverage will be more cautious in taking actions related to expenditures including prevention and reduction of carbon emissions. Total assets turnover has a calculated t value of 1.607 which is lower than the table t value of 1.607 (1.607 < 1.963) and the significance is 0.109 > 0.05 then it can be concluded that hypothesis 4 is not supported where total asset turnover does not have a positive influence on carbon emission disclosure.

This certainly supports previous research conducted by Setiawan (2015). The greater the value of the company's total asset turnover ratio, the higher the company's level of efficiency in using its assets. Allegations of higher efficiency show that the company can optimize asset-related resources so that Carbon Emission Disclosure is not needed to be disclosed. The hypothesis that the higher the efficiency of a company in using its assets can increase the disclosure of the carbon emissions produced by the company is not supported based on the results of this study. Managerial ownership has a calculated t value of 2.058 where the value is higher than the table t value of 1.963 (2.058 > 1.963) and the significance is 0.040 < 0.05, it can be concluded that hypothesis 5 is supported where managerial ownership has a positive effect on carbon emission disclosure.

These results do not support previous research that has been carried out by Gusman (2020) which states that managerial ownership has a negative influence on the disclosure of carbon emissions. In high managerial ownership, the likelihood of the manager's opportunistic behavior will decrease because the manager will feel the direct impact of every decision taken. Every decision taken by the manager will determine the impact received by the shareholders so that the manager and shareholders will always try to increase the value of the company in order to create prosperity for himself as a shareholder, one of which is regarding carbon emission disclosure policy. By disclosing the carbon emissions produced by the company, the value of the company will also increase both by investors and the public so as to create prosperity for all parties in the company.

Institutional ownership has a calculated t value of 2.499 where the value is higher than the table t value of 1.963 (2.499 > 1.963) and the significance is 0.013 < 0.05, it can be concluded that hypothesis 6 is supported where institutional ownership has a positive effect on carbon emission disclosure. This is in contrast to the results of research conducted by Fransisca (2020) where it has the result that institutional ownership has no influence on the disclosure of carbon emissions. Meanwhile, this research supports the results of research conducted by Pratiwi (2018) and Gusman (2020) which states that institutional ownership has an influence on the disclosure of carbon emissions.

Large institutional ownership will increase monitoring of the company so as to reveal all activities carried out by the company to obtain a positive image from stakeholders. With

environmental disclosures, institutional shareholders feel that they will increase the value of the company and help in the development of the company's sustainability. Moreover, this research takes the object of carbon-intensive companies such as mining, textiles, and food factories which tend to be often seen damaging the environment, producing waste, and producing smoke in their operational activities.

Environmental performance has a calculated t value of 1.554 where the value is lower than the table t value of 1.963 (1.554 < 1.963) and its significance is 0.121 > 0.05 it can be concluded that hypothesis 7 is not supported where environmental performance has no positive influence on carbon emission disclosure. This supports previous research conducted by Ardini (2019), Cahya (2017), Suhardi & Purwanto (2015), and Jannah & Muid (2014). Environmental performance has no influence because companies that have obtained PROPER do not necessarily disclose carbon emissions clearly and specifically. In addition, disclosure of carbon emissions is a disclosure that is still voluntary so that there are still many companies that do not disclose carbon emissions optimally even though they already have a good rating.

The regulator has a calculated t value of 0.673 where the value is lower than the table t value of 1.963 (0.673 < 1.963) and its significance is 0.501 > 0.05 then it can be concluded that hypothesis 8 is not supported where the regulator has no positive influence on carbon emission disclosure. The results of this study support the results of previous research that has been carried out by Pratiwi (2018). The results of the data analysis in this study concluded that regulators have no effect on carbon emission disclosure because companies, both state-owned and private, view environmental reporting as voluntary disclosure or voluntary disclosure compared to mandatory disclosure even though the government and private parties have the power to pressure companies to be responsible for the environment and have made regulations and laws on emission reduction carbon.

The last variable is the exposure medium which has a calculated t value of 1.931 where the value is lower than the table t value of 1.963 (1.931 < 1.963) and its significance is 0.054 > 0.05, it can be concluded that hypothesis 9 is not supported where the exposure media does not have a positive influence on carbon emission disclosure. This result is supported by previous research, namely Fransisca (2020) and Cahya (2017). This may be due to excessive concerns regarding the company's environmental supervision if it is exposed openly to the media. Where this tends to cause a negative stigma from public opinion towards the company if it is known that environmental control is not running well and optimally. The coefficient of determination (R2) aims to measure how far the model's ability to explain dependent variations is. Based on the results of the assessment, the value of the coefficient of determination is obtained in the following table below.

Table 10. Determination Coefficient Test Results

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	,642[a]	,413	,291	,27821	1,963
a. Predictors: (Constant), MED_EXP, ROA, KEP_MAN, TATO, LEVERAGE, PROPER, SIZE, KEP_INS, REGULATOR					
b. Dependent Variable: CED					

Source: Data processed by researchers using SPSS 26 (2022)

Based on the table above, an R value of 0.642 is obtained which means that the dependent variable that can be explained by the independent variable is 64.2 percent where it can be concluded that the variance of the bound variable is quite high. The coefficient of determination (R square) of 0.413 shows that 41.3 percent of carbon emission disclosure is influenced by nine existing variables, namely company size, profitability, Leverage, total asset turnover,

managerial ownership, institutional ownership, environmental performance, regulators, and media exposure while the remaining 0.587 or 58.7 percent is influenced by other variables.

CONCLUSION

Based on the results of data analysis using the SPSS version 26 application and the discussion of this study, the following conclusions can be drawn: The size of the company has a positive influence on carbon emission disclosure. This proves that the size of the company influences the company to disclose carbon emissions. Large companies will certainly have sufficient resources to carry out disclosure activities of carbon emissions that have been generated in the company's activities. Profitability has a positive influence and on carbon emission disclosure. This shows that a company with high profitability can be said that the company's finances are in good shape. This will help companies to be more encouraged in disclosing carbon emissions.

Leverage has a negative influence and on carbon emission disclosure. This suggests that companies with greater obligations to repay debt and interest will limit the company's ability to execute carbon reduction strategies and their disclosures. Companies with high leverage will be more cautious in taking actions related to expenditures including prevention and reduction of carbon emissions. Total asset turnover does not have a positive influence on carbon emission disclosure. This shows that the higher the efficiency, the company can optimize asset-related resources so that the company feels that carbon emission disclosure is not needed to be disclosed.

Managerial ownership has a positive influence on carbon emission disclosure. This shows that managerial ownership is high, the possibility of managers' opportunistic behavior will decrease because managers will feel the direct impact of every decision made, especially decisions regarding carbon emission disclosure. Institutional ownership has a positive influence on carbon emission disclosure. This shows that large institutional ownership will increase monitoring of the company so as to disclose all activities carried out by the company to obtain a positive image from stakeholders. With environmental disclosures, institutional shareholders feel that they will increase the value of the company and help in the development of the company's sustainability.

Environmental performance does not have a positive influence on carbon emission disclosure. This shows that companies that have obtained PROPER do not necessarily disclose carbon emissions. In addition, disclosure of carbon emissions is a disclosure that is still voluntary so that there are still many companies that do not disclose carbon emissions optimally even though they already have a good rating. Regulators do not have a positive influence on carbon emission disclosure. This shows that companies, both state-owned and private, view environmental reporting as a voluntary disclosure compared to mandatory disclosure even though the government and private parties have the power to pressure companies to be environmentally responsible. Media exposure does not have a positive influence on carbon emission disclosure. This shows that there are excessive concerns regarding the supervision of the company's environment when exposed openly to the media.

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