



Effect of Profitability on Carbon Emission Disclosure



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Abstract

The current study aims at obtaining empirical evidence regarding the profitability that affects voluntary carbon emission disclosure and to analyze the effect of profitability on the disclosure of carbon emissions using Media Exposure as a Moderation Variable. Measurement of the level of disclosure of carbon emissions using content analysis. There are 18 items to detect the level of carbon emission disclosure. The population of this study is all financial data of non-service industry companies listed on the IDX for the 2016-2018 period. The sampling method used in this research is purposive sampling method. The samples used in this study are companies that publish annual and financial reports during the observation period and disclose carbon emissions. The total sample used in this study were 27 companies so that the total data of this study were 81 data. The data used is secondary data from the IDX. The analysis technique used is multiple linear regression analysis. The results of this study indicate that the profitability variable (ROA) has no effect on Carbon Emission Disclosure with a significance value of 0.420, while Media Exposure is able to moderate Profitability on Carbon Emission Disclosure with a significance value of 0.021.

1. Introduction

The issues that have recently been developing regarding global warming are closely related to company activities (Griffith et al., 2007). One of them is the environmental issue of manufacturing companies which produce waste and can cause environmental pollution (Permana and Raharja, 2012). Environmental pollution causes many negative impacts on the earth, including increasing temperature, rising sea level, flooding, the availability of a lot of water but not evenly, erosion and

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melting snow, especially in arctic areas (Suhardi, 2015). In addition, changes in weather patterns that are getting more extreme are also not immune from the negative impacts of climate change. One of the causes of climate change is carbon emission. Carbon emissions are gases released from the combustion of compounds containing carbon. Carbon emissions usually come from coal, oil and transportation resulting from human activities. Based on data from WRI (World Resources Institute), Indonesia produces 15-20 million carbon emissions per day or more than America, which reaches 14 million tons per day (Field et al., 2016). In addition, Indonesia also ranks 6th out of 10 countries contributing carbon gas emissions in the world.

Disclosure of carbon emissions in Indonesia is still voluntary (voluntary disclosure), so that there are still companies that are found to have not disclosed the amount of carbon emissions produced by these companies. Setiowati (2009) states that the attention of stakeholders to the company's environmental performance is increasing, which is due to the increasingly popular issue of global warming. This condition also changes the views of stakeholders on the company's operational activities. Over time, stakeholders began to realize that the company's operational activities in achieving maximum profit had an environmental impact, and this environmental impact was felt to be getting bigger and harder to control. This is what causes the demands of stakeholders to the company to change drastically. This demand is getting higher, especially in recent years because of the increasing number of cases of pollution or environmental destruction committed by companies, such as cases of forest burning in several Provinces.

Profitability shows the level of success of the company in generating profits. Companies with high profitability tend to be more concerned with the environment and more capable of social disclosure than companies with low profitability (Lorenzo et al., 2009). Companies that are profitable will provide sufficient resources to pay for environmental disclosure costs while companies that are less profitable cause companies to be more likely to focus on achieving financial goals, thus limiting their ability to do business.

The disclosure of carbon emissions has been researched by many previous studies, including research by Ridwan (2017) which found that Stakeholder Pressure, company characteristics and Media Exposure have an effect on the disclosure of carbon gas emissions. Choi, Lee, & Psaros (2013), and Pratiwi & Sari (2016) found that there was a positive influence on the type of industry on carbon disclosure. Hidayah (2019) found the results of Environmental Certification, Company Size and profitability have a positive effect on disclosure of carbon emissions. In addition, media exposure is a moderating variable to strengthen the relationship between profitability on carbon emissions' disclosures and the relationship between company size and carbon emissions' disclosures.

This study also makes media exposure a moderating variable because it is considered capable of strengthening or weakening the effect of profitability on carbon emissions' disclosures. Media exposure is expected to assist companies in disclosing carbon emissions, considering that media has an important role in communicating information to the public. Alertness to the impact generated by news from the media is needed because it relates to the company's values and reputation (Jannah and Muid, 2014). The media not only plays a passive role in the form of institutional norms, but also plays an active role by providing a reporting history to describe the value of a company (Widiawan et al, 2017).

Based on the above background, the problem formulations of this research are (1) Does Profitability affect Carbon Emission Disclosure; (2) Can media exposure moderate the profitability of carbon emissions' disclosures?

2. Materials and Methods

Legitimation Theory

According to Pellegrino & Lodhia (2012), legitimacy theory can be used to explain the motivation for voluntary environmental disclosure. This disclosure is an attempt by the company to gain legitimacy from the community groups where the company is located and to maximize the company's strength from a long-term financial perspective. This is supported by the views of Deegan, Rankin, & Tobin (2002), which state that companies can gain community legitimacy if there is a common outcome between the company and the community that is expected to reduce the long-term risk of demands from the community.

Legitimacy theory is based on a social contract between the company and the community when the company uses economic resources (Ghozali and Chairi, 2007). If there is a difference between the values held by the company and those held by the community, the legitimacy of the community will be in a position that is threatened. The difference between the values adopted by the company and the social values of the community is often called the Legitimacy Gap. Legitimacy Gap can affect the survival of the company.

Stakeholder Theory

Stakeholder theory explains that a company is not an entity that only operates for its own interests but must provide benefits to its stakeholders. This means that the existence of a company is strongly influenced by the support provided by stakeholders to the company (Ghozali and Chairi 2007). This support must be sought by the company itself. The more powerful the stakeholders, the greater the efforts made by the company to adapt.

Carbon Emission Disclosures

Carbon Emission Disclosure is one of the environmental disclosures which is part of the additional report stated in PSAK No. 1 (revised 2009) paragraph two, namely: "An entity may also present, separate from financial reports, reports on the environment and value added statements, especially for industries where environmental factors play an important role and for industries that consider employees as a group of report users who play an important role. The additional report is outside the scope of Financial Accounting Standards."

Disclosure is one of the factors that are considered 37 related to concern for the company (Jamaluddin, 2018). Meanwhile, carbon emission disclosures are developed as an accounting treatment for issues, by presenting the company's approach to carbon generated from the company's operational activities in an annual report or sustainability report. Disclosure of carbon emissions is one of the ways companies take to legitimize their activities. Companies are responsible for environmental performance, one of which is the disclosure of greenhouse gas emissions in company reports. Transparency is important for a company in facing various business competitions. One form of transparency that is carried out as a form of disclosure of the company's environmental activities is disclosure of emissions (Febriani and Davianti, 2018: 74).

Profitability

Profitability is a ratio that shows how much the company's ability to generate profits (profit) in a certain period. Like the main goal of a company, which is to make a profit. The better the

profitability ratio, the better it describes the ability to make high profits (Kasim, 2016). This means that the company will find it easier to determine the company's activities due to the availability of funds. In line with the research of Luo et al. (2013) that companies with good financial performance have the ability financially to make environmental decisions. Firms with good financial conditions can afford the additional resources required for voluntary reporting and better disclosure of carbon emissions (Choi et al., 2013).

Media Exposure

Media exposure has an important role in social mobilization movements, for example groups interested in the environment. The media also plays an important role in communicating information to the public. Communication through the media will improve the company's reputation in the eyes of the public (Ahzar, 2018). Furthermore, information about company activities is also included in information that can be communicated to the public. Companies need to be aware of the media that supervises their activities because they are related to the company's values and its reputation (Pratiwi and Sari, 2016: 830).

The more the media actively monitors the environment of a country, the more motivated companies will be to disclose their activities (Nur and Priantinah, 2012). Regarding the issue of climate change and reducing carbon emissions, the media also plays a role in monitoring the activities of companies that can affect climate change. With the news through the media, stakeholders can understand more quickly about the environment and take a stand on the news (Linggarsari, 2015). Media exposure proves that the tendency to disclose a company accountability report is viewed on the use of appropriate media or promotional tools to the public (Widiawan et al, 2017).

Effect of ROA on Carbon Emission Disclosure

Companies that have good financial performance are considered financially capable of carrying out more detailed disclosures because this certainly will not burden the company. The results of research conducted by Pratiwi & Sari (2016) state that ROA has no effect on disclosure of carbon emissions. Meanwhile, the results of research conducted by Majid (2015), Jannah (2014), Suhardi (2015), Choi et al (2013) and Le Luo (2013) show that ROA affects the disclosure of carbon emissions. This means that the higher the profit value generated by a company, the greater the opportunity for the company to disclose carbon emissions.

H1: ROA affects the disclosure of carbon emissions

Effect of Profitability on Carbon Emission Disclosure in Media Exposure Moderation

Media exposure is expected to assist companies in disclosing carbon emissions, considering that the media has an important role in communicating information to the public (Jannah and Muid, 2014). Based on the theory of legitimacy, the community always exerts pressure on companies to always exert pressure on companies to care about environmental problems, companies with high profitability find it easier to respond to these pressures because they have more resources that can be used to disclose carbon emissions compared to companies with high profitability. has low profitability (Jannah and Muid, 2014). Environmental disclosure can make it easier for companies to gain legitimacy from the community.

H2: Media exposure is able to moderate the effect of Profitability on carbon emission disclosure

Research Model

The research model regarding the relationship between the variables that has been described can be described as follows:

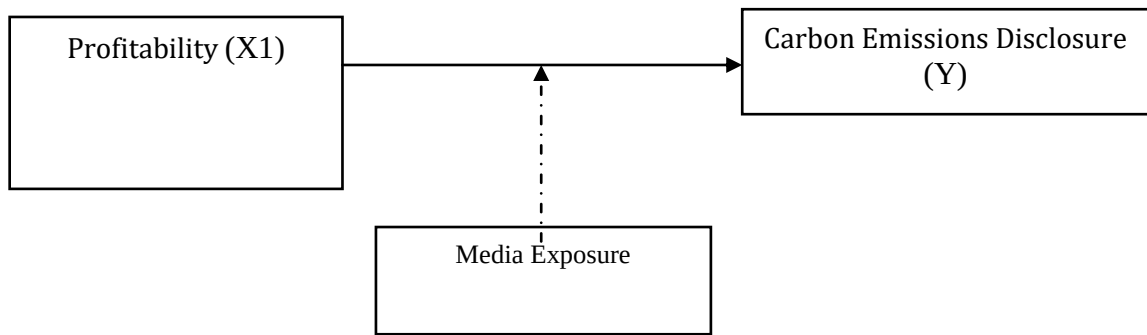


Figure 1
Model of research about Profitability effect on Carbon Emission Disclosure
using Exposure Media as Moderation Variable

Types of research

This research is classified as a causal research, which is a study conducted to examine the effect of one or more variables on other variables. In this study, the independent variable (X) is ROA and the Moderation variable, namely Media Exposure. Meanwhile, the dependent variable (Y) is the carbon emissions' disclosure.

Population and Research Sample

The population in this study are non-service industry companies listed on the Indonesia Stock Exchange from 2016-2018. The sampling method used in this research is purposive sampling method. The sample in this study was based on the following criteria:

- Non-industrial service companies listed on the IDX from the 2016-2018 period.
- Provide an annual report during 2016-2018.
- Companies that disclose carbon emissions implicitly or explicitly (covering at least one policy related to carbon / greenhouse gas emissions or disclosing minimum disclosure of carbon emissions), respectively.
- Companies that use Rupiah currency.
- Companies that use positive Profit and equity.

Types and Sources of Data

The type of data used in this research is quantitative data, while the source of the data used in this study is secondary data obtained from the annual reports of non-service industry companies listed on the IDX in 2016-2018.

Definition and Measurement of Research Variables

Dependent Variable

The dependent variable of this study is the company's carbon emission disclosure. Carbon Emission Disclosure is a voluntary disclosure of carbon emissions resulting from a company's production process (Cotter et al, 2011). To measure the extent of carbon disclosure, develop a checklist based on the information request sheet provided by the CDP (Carbon Disclosure Project). A checklist is created to determine the level of voluntary disclosure related to climate change and carbon emissions available in the report. Choi et al (2013) define five broad categories relevant to climate change and carbon emissions. Within these five categories, 18 items were identified. Each carbon item disclosed will be assigned a value of 1, and a value of 0 if not disclosed

$$CED = \frac{\text{Total Overall}}{\text{maximum Item Total Score}}$$

Independent Variable

The independent variable used in this study is Return on assets. ROA is one of the profitability ratios which is considered important to determine the size of the company's effectiveness in generating profits by utilizing its assets. The greater the ROA, the company is considered financially capable of incorporating a carbon emission disclosure strategy. In this study, profitability is measured using ROA (Return on Assets).

$$ROA = \frac{\text{"Profit After Tax"}}{\text{Total Asset}}$$

Moderation Variables

The moderating variable in this study is Media Exposure. Media is a means that can be used by an entity or various parties to convey information to the public. Media exposure is measured using a dummy variable where the value of 1 is for companies that disclose more information related to carbon emissions through the company's website, as well as various disclosure media such as annual reports, sustainability reports, newspapers, and various other media. While the value of 0 is the opposite.

Data analysis method

Descriptive statistics

Descriptive statistics are used to explain data descriptions of all variables that will be included in the research model as seen from the maximum, minimum, standard deviation and average values.

Classic assumption test

The classical assumption test is conducted to determine which data is suitable for analysis. Testing data in this study are:

Normality test

The normality test aims to test whether in the regression model, confounding or residual variables have a normal distribution or not.

Multicoloneration Test

Multicolonierity test aims to test whether the regression model found a correlation between independent variables (independent).

Heteroscedasticity Test

Heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residuals of one observation to another. If the residual variance from one observation to another is constant, it is called homoscedasticity and if it is different it is called heteroscedasticity.

Autocorrelation Test

The autocorrelation test aims to test whether in the linear regression model there is a correlation between confounding error in period t and confounding error in period t-1 (previous). If there is a correlation, it is called an autocorrelation problem.

Multiple Regression Model

This study uses multiple regression. The form of the equation in this study:

$$CED = a + b_1X_1 + e \dots\dots\dots(1)$$

CED : Carbon Emissions Disclosure

X1 : Profitability

X2 : Media Exposure

α : Constant

β : Regression Coefficient

e : Error

Moderated Regression Analysis (MRA)

The method of analysis to determine the independent variables that significantly influence the value of equity in manufacturing companies is conservatism using regression analysis equations to analyze the effect of independent variables on the dependent variable. Regression analysis is a study of the dependence of the dependent variable with one or more independent variables with the aim of estimating the population average or the average value of the dependent variable based on the known value of the independent variable (Ghozali, 2013). Moderated Regression Analysis (MRA) or interaction test is a special application of linear multiple regression where the regression equation contains elements of interaction (multiplication of two or more independent variables) with the following equation;

$$CED = a + b_1X_1.X_2 + e \dots \dots \dots (2)$$

Hypothesis test

Coefficient of Determination (R^2)

The coefficient of determination (R^2) The coefficient of determination (R^2) essentially measures how far the model's ability to explain the variation in the dependent variable.

Partial Test (t Statistical Test)

The t-statistical-test basically shows how far or not one explanatory / independent variable individually explains the variation in the dependent variable.

3. Results and Discussions

Descriptive Research Objects

The number of initial population for the companies studied was 214. From the results of the data collection process used by researchers, a sample of 27 companies was obtained from 2016-2018. The data was generated from a sample selection consisting of several stages, namely 32 companies that did not have a complete annual report. The two companies that did not disclose their emission reports were 129 companies respectively. The three companies that did not use rupiah were 13 companies. The four companies that did not use positive profit totaled 13 companies. From the research sample selection, 27 companies that fit the criteria in this study were obtained, so that the total research data was $27 \times 3 \text{ years} = 81$ research data.

Descriptive statistics

Descriptive statistical analysis is a description or description of data seen from the average or mean value, standard deviation, variance, maximum value, minimum value, sum, range, kurtosis and skewness or slope of distribution (Ghozali, 2006). The minimum and maximum values indicate the lowest and highest values of the variables studied. Then the average value of the studied variable is indicated by the mean, while the distribution of research data is indicated by the standard deviation value

Table 1
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
CED	81	,064	,76	,26581	,21722
ROA	81	,014	,422	,1193	,08073
ME	81	,00	1,00	,5185	,50277
Valid N (list wise)	81				

*Classic Assumption Testing**Normality test*

Based on the results in Table 2, it shows the Assumption value. Sig of 0.172 is greater than 0.05, it can be concluded that the residual value in this study is normally distributed.

Table 2
One-Sample Kolmogorov-Smirnov Test

			Unstandardized Residual
N			81
Normal Parameters ^{a,b}	Mean		,0000000
	Std. Deviation		,16921249
Most Extreme Differences	Extreme	Absolute	,123
		Positive	,123
		Negative	-,056
Kolmogorov-Smirnov Z			1,107
Asymp. Sig. (2-tailed)			,172

a. Test distribution is Normal.

b. Calculated from data.

Multicollinearity Test

Based on Table 3, it is concluded that the independent variable does not occur multicollinearity because all independent variables have a VIF value less than 10 and a tolerance greater than 0.1.

Table 3
Multicollinearity Test

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
ROA	,887	1,127
ME	,898	1,114
ROA_ME	,987	1,013

Heteroscedasticity Test

Based on Figure 1, it can be concluded that the data used in this study do not contain heteroscedasticity or randomly spread data and are scattered above or below the number 0 on the Y axis.

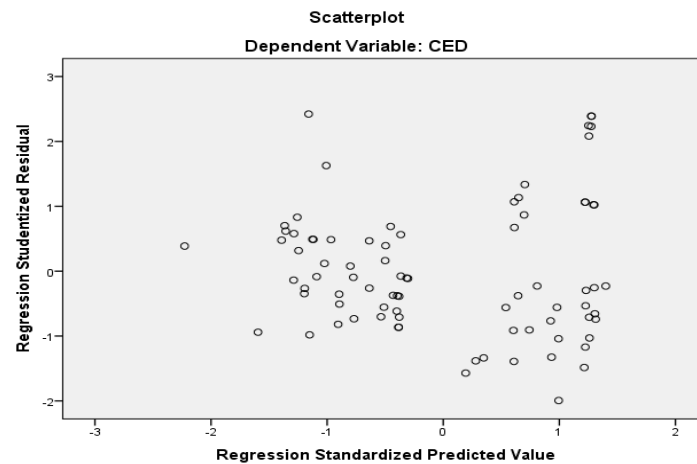


Figure 1
Heteroscedasticity Test

Autocorrelation Test

Based on the runtest table, it shows that the significance probability value is 0.069. Because the probability is more than 0.05, it can be concluded that this study does not occur from autocorrelation problems.

Table 4
Autocorrelation Test

	Unstandar dized Residual
Test Value ^a	-,03871
Cases < Test Value	40
Cases >= Test Value	41
Total Cases	81
Number of Runs	31
Z	-1,347
Asymp. Sig. (2-tailed)	,069

a. Median

Data analysis

Determination Coefficient Test (R^2)

The value of Adjusted R Square (R^2) is 0.195 which indicates that only 19.5% of the variation in the dependent variable (CED) can be explained by the independent variable (profitability). While the rest (100% - 19.5% = 81.5%) is explained by other variables outside the research model.

Table 5
Determination Coefficient Test (R^2)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,474 ^a	,225	,195	,17248

T test (partial test)

In Table 6, the t statistical test basically shows how far the influence of one independent variable individually (partially) in explaining the variation of the dependent variable (Ghozali, 2006). The t test can be done by looking at the probability value. To be able to interpret the coefficient of the independent variable, this study uses the unstandardized coefficient value

Table 6
T-statistical test

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	,402	,033		12,104	,000
1 ROA	,066	,082	,086	,811	,420
ME	,147	,040	,385	3,632	,001
ROA_ME	-,588	,250	-,237	-2,349	,021

Table 6 shows that of the independent variables entered into the regression model. It can be seen that the Profitability variable has no effect on the disclosure of carbon emissions with a significance value of 0.420 which means >0.05 . In this study, the authors used Moderate Regression Analysis with sub-group analysis. Based on the hypothesis equation, the type of moderation in this study is Quasi Moderation because the significance value of equation 1 and equation 2 are different. (Ghozali, 2013).

Hypothesis Discussion

Effect of Profitability (ROA) on Carbon Emission Disclosure (H1: rejected)

Profitability does not affect the disclosure of carbon emissions because the significant value of 0.420 is greater than 0.05, so H2 is rejected. This is probably because the costs incurred to reduce carbon emissions by using equipment that can reduce emissions are not proportional to the profits earned by the company. Dewi et al. (2019) stated that an increase in environmental costs is considered not to provide greater environmental benefits or benefits for the company.

The results of this study are in line with the research of Pratiwi (2018), Irwhantoko & Basuki (2016) and Pratiwi & Sari (2016) which state that profitability has no effect on disclosure of carbon emissions. In addition, according to Hidayah's research (2019), it shows that the level of a good company's financial performance cannot always be taken into consideration in making carbon

emission disclosures, this is because the benefits and costs of disclosure are irrelevant. The results of this study are supported by the research of Cahya and Hanifah (2017) that there is no relationship between profitability and carbon emission disclosures due to high profits and assets owned by debt, so the company will decide not to pay for voluntary disclosures but rather more. choose to pay to lenders as a form of obligation that must be done.

Effect of Profitability on Carbon Emission Disclosure in Media Exposure Moderation (H2: accepted)

Media exposure is a variable that is able to moderate the relationship between profitability and carbon emissions' disclosure with a significance value of $0.021 < 0.05$, so it can be said that the second hypothesis is accepted. This shows that in the news through the media, the stakeholders of a company can understand the environment more quickly and take a stand on the news. These results are also in line with stakeholder theory in which companies with high profitability have the ability to adopt strategies that seek to influence the relationship between their organization and stakeholders that are considered important. Companies with high profitability have an influence on disclosing carbon emissions. The better the profitability ratio, the better it describes the ability to make high profits (Kasmir, 2016).

The existence of environmental disclosures can make it easier for companies to gain legitimacy from the community. This means that the company will find it easier to determine the company's activities due to the availability of funds. This study is also in line with the research of Luo et al. (2013) that companies with good financial performance have the ability financially to make environmental decisions. The results of this study are relevant to the results of research conducted by Dawkins and Fraas (2011) who found that media coverage has an important impact on voluntary environmental disclosure.

4. Conclusion

The conclusion in this study is that profitability has no effect on disclosure of carbon emissions and media exposure can moderate the effect of profitability on disclosure of carbon emissions. The limitations of this study are (1) the study period was too short, namely three years from 2014-2016, this indicates the possibility that the results of this study cannot be used to predict trends in the long term; (2) The coefficient of determination is low, namely 19.5%.

As the suggestions, further researchers are suggested to be conducted in order to expand the sample population by using all companies on the Indonesia Stock Exchange and to extend the observation period to get better test results. And it is expected to add other variables such as proper assessment, regulator, and others.

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