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Does carbon emissions disclosure affect Indonesian companies?

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Abstract. This research aims to examine the factors that influence the disclosure of carbon emissions. The factors tested are PROPER rating, company size, profitability, leverage, and audit committee. The population in this study comprises high profile companies listed on the Indonesia Stock Exchange (IDX) in 2016-2020. Purposive sampling is used in order to obtain 18 companies with 90 units of analysis. Multiple linear analysis was used to test the effects the variables have on each other. The quantity determination of carbon emission disclosure is measured using the GRI Standards 2016 index checklist by comparing the total items disclosed with the maximum total disclosed. The results of this study indicate that company size has a positive effect on carbon emission disclosure, while PROPER rating, profitability, leverage, and audit committee do not affect the disclosure of carbon emissions.

1. Introduction

Environmental issues related to global warming are being hotly discussed in many countries around the world. The global warming phenomenon has been caused by an increase in carbon emissions from human activities over the last 50 years. The increase in emissions has resulted in the global average temperature increasing by 1.2 degrees Celsius compared to pre-industrial levels (1850-1900). One of the measures that companies can employ to contribute to efforts to reduce carbon emissions is by disclosing information about their own emissions.

In 2016, the Financial Services Authority (OJK) issued regulations concerning the obligation to submit information about corporate social and environmental responsibility or sustainability. OJK Regulation No.29/POJK.04/2016 concerning Annual Reports of Issuers and Publicly-Listed Companies, Chapter II, Article 4, states that information about a company's social and environmental responsibilities is something that must be disclosed in its annual report. Regarding the Implementation of Sustainable Finance for Financial Service Institutions, Issuers, and Public Companies, OJK released POJK No. 51/POJK.03/2017 in 2017. This regulation mandates the creation of sustainability reports for financial service providers, issuers, and publicly traded businesses. This means that companies listed on the Indonesia Stock Exchange (IDX) are required to provide information on carbon emissions in their sustainability reports.

The Global Reporting Initiative (GRI) is a set of standards that apply to the drawing up of a sustainability. These standards are used to measure the disclosures about social activities that have been made by companies. The measurement of disclosures about carbon emissions uses the aspect of aspect emission in the environmental category. GRI is divided into two groups of standards, namely universal

standards and topic-specific standards. The topic-specific standards consist of economic, environmental, and social standards. Materials, Energy, Water, Biodiversity, Emissions, Liquid and Solid Waste, Environmental Compliance, and Supplier Performance Assessment for Environmental Aspects are a few of the disclosure themes for the environmental standards. [1].

Wahyuningrum et al. (2019) conducted research on companies in Indonesia [2]. According to their research, institutional ownership and the PROPER grade both had a favourable effect on the disclosure of carbon emissions, however company size had no effect. According to the findings of a similar study, PROPER ratings and industry type had a positive effect on carbon emission disclosure. Meanwhile, the disclosure of carbon emissions is unaffected by profitability, leverage, or company age [3].

The disclosure of carbon emissions can be influenced more by factors such as media exposure, business success, company size, and leverage [4]. Meanwhile, the type of industry and environmental performance have no effect on the disclosure of carbon emissions. Irwhantoko and Basuki (2016) obtained the results that indicate that company size, profitability, competition, growth, and reputation of the public accounting firm used have no effect on carbon emission disclosures [5]. Meanwhile, the ratio of debt to equity has a negativeeffect.

Institutional ownership and audit committee can increase the disclosure of carbon emissions [6]. Meanwhile, environmental performance, managerial ownership, independent commissioners, board of directors, the age of the members of the board of directors, and the education level of the members of the board of directors have no effect on the disclosure of carbon emissions. Results from a related study indicated that firm visibility, profitability, managerial ownership, and audit committee have a positive impact on disclosure of carbon emissions [7]. Meanwhile, environmental performance, financial distress, and the proportion of commissioners who are independent have no effecton the disclosure of carbon emissions.

Several previous studies on carbon emission disclosure produced inconsistent results. Therefore, the purpose of this study is to investigate the factors that can influence carbon emission disclosure. These factors consist of PROPER rating, company size, profitability, leverage, and audit committee.

Legitimacy theory suggests that companies will make efforts to conform to the value system adopted by society. Choi et al. (2013) added that there is a social contract that occurs between the company and the community [8]. Companies must strive to meet community expectations in accordance with the social contract in order to gain legitimacy in the eyes of the community [9].

According to stakeholder theory, a company tries to align its activities with the expectations of stakeholders [10]. A company's operations are inextricably linked to the functions played by its stakeholders. A company's success depends on its relationships with stakeholders, thus it must keep such relationships positive to avoid impeding the achievement of its objectives.

Agency theory suggests that there is a relationship between the management as agents and shareholders as principals which is called the agency relationship. This relationship is a cooperation contract between one or more people (principal) and another person (agent) in order to authorize the agent to make the best decisions [11].

1.1. PROPER Rating

The companies that get a high PROPER rating proves that they have good achivements in terms of the environment. High PROPER ratings are good news for stakeholders because of the companies achivements. Company performance inclusing good achievements in terms of the environment will increase carbon emission disclosure. Studies by Wahyuningrum et al. (2019), Milawati and Yulianto (2020), and Prasetya Yulianto (2018) demonstrate that PROPER rating has a favorable effect on carbon emission disclosure [2, 3]. Meanwhile, there are findings that state that PROPER ratings do not affect carbon emission disclosure [4].

H1 = PROPER rating is positively related to carbon emission disclosure.

1.2. Company Size

The size of a company has a positive effect on carbon emission disclosure since large companies can provide more information because they have more resources [12]. Several previous studies has explicitly compared large companies to small companies in terms of planning and implementing carbon emission reduction programs that are supported by healthy financial conditions [4, 13]. Meanwhile, other research showsthat company size has and no influence on carbon emission disclosure [5, 14].

H2 = Company size is positively related to carbon emission disclosure.

1.3. Profitability

Good company performance in financial terms will exhibit commitment to pay close attention to the environment especially carbon emission reduction through CED. Disclosure of carbon emissions is significantly influenced positively by profitability [2,4,7]. Meanwhile, other studies have shown that profitability has no bearing on the disclosure of carbon emissions [3,5,14].

H3 = Profitability is positively related to carbon emission disclosure.

1.4. Leverage

Choi et al. (2013) state that a company with high leverage will choose to focus on paying all debts held as opposed to making voluntary disclosures [8]. Leverage significantly harms the disclosure of carbon emissions, according to prior studies [13,14]. Other research revealed that the disclosure of carbon emissions is not much impacted by leverage [3].

H4 = Leverage is negatively related to carbon emission disclosure.

1.5. Audit Committee

The presence of an audit committee has a strong influence on the disclosure of carbon emissions (Figure 1). Some prior research has stated that an audit committee is very important for controlling and monitoring activities such as CED practices. According to several studies, the audit committee has a very positive effect [6,7,15]. Meanwhile, there is another research that has not found an effect between audit committee and carbon emission disclosure [16].

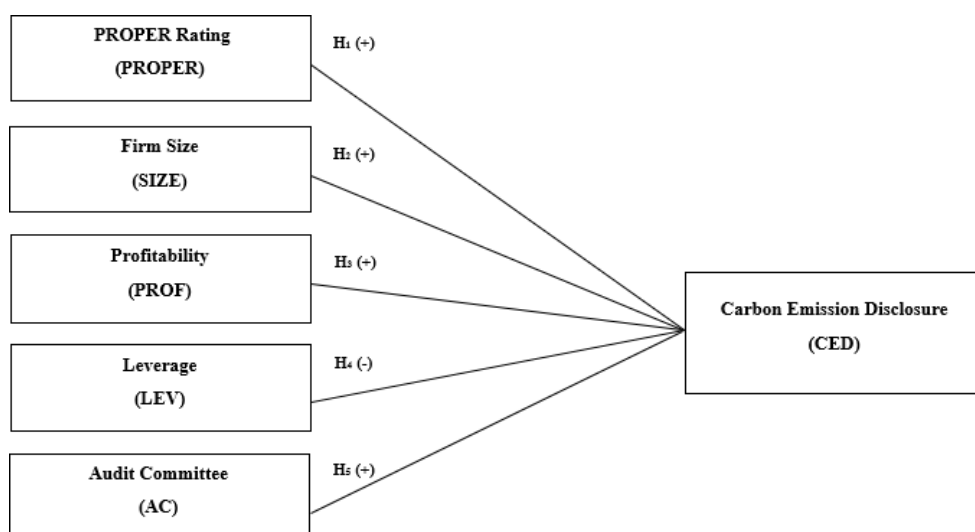**H5 = Audit committee is positively related to carbon emission disclosure.**

Figure 1. Theoretical framework

2. Methodology

This study used high profile companies in Indonesia as the population of its sample. All companies had to be listed on the Indonesia Stock Exchange (IDX) during the 2016-2020 period and also had to provide information on their carbon emission. The information are given in annual reports, sustainability reports, and/or on the company's official websites. Purposive sampling was the method of sampling that was used. The research sample consisted of 90 units of analysis in total. In this study, SPSS version 24 was used for the multiple linear regression analysis (Table 1). A multiple linear regression equation is presented in equation (1).

$$CED = \alpha + \beta_1\, PROPER_i + \beta_2\, SIZE_i + \beta_3\, PROF_i - \beta_4\, LEV_i + \beta_5\, AC_i + e_i \qquad (1)$$

Table 1. Measurement variables.

Variables	Codes	Measurements
Carbon Emission Disclosure	CED	By comparing the total items disclosed with the maximum total disclosed x 100% using the GRI Standards 2016 index checklist.
PROPER Rating	PROPER	Based on PROPER color classification by the company. 1 = black/very bad, 2 = red/bad, 3 = blue/good, 4 = green/very good, 5 = gold/very good indeed.
Company Size	SIZE	Log of total assets
Profitability	PROF	Net income / total assets, or return on assets (ROA)
Leverage	LEV	Ratio debt to assets (DAR) total liabilities/ total equity
Audit Committee	AC	Dummy variable "1" total meetings in a year ≥ 4, "0" total meetings in a year < 4.

3. Results and Discussion

According to Table 2, the average value of the descriptive statistical analysis of the carbon emission disclosure is 60.265, and the standard deviation is 22.015. The data distribution is quite good if the average value is more than the standard deviation. However, the lowest value of CED is evident, indicating that a number of businesses fail to declare CED.

Table 2. Results of destructive statistics

Variables	N	Minimum	Maximum	Mean	Std. Dev
PROPER	90	3	5	3.38	0.592
SIZE	90	15.76	18.54	16.913	0.608
PROF	90	-7.39	46.66	6.529	9.546
LEV	90	12.64	76.84	44.052	19.198
AC	90	0	1	0.99	0.105
CED	90	0	100	60.265	22.015

One-Sample Kolmogorov-Smirnov was used to test the normality of the regression model. The data was normally distributed, with a level of significance of approximately $0.0185 > 0.05$. The multicollinearity test showed a tolerance value of > 0.10 and VIF value < 10, meaning that the regression model of this study was free from multicollinearity symptoms. The white test was used to test heteroscedasticity. The R-Squared value is 0.357, meaning that the arithmetic Chi Squared value was lower than the table Chi Square value(32,13 < 112,02199) meaning that the data was free from

heteroscedasticity. The autocorrelation test was conducted using the Durbin-Watson two-step approach. Since the DW value of 1.960 was found at dU < DW < 4-dU (1.7676 < 1.960 < 2.2324), the data were not autocorrelative. The simultaneous ANOVA test yields a significant value of 0.025, indicating that PROPER, SIZE, PROF, LEV, and AC all impact CED at the same time.

Table 3 displays the findings of the individual parametric statistical test used in the research to assess the hypothesis (t-test). The first hypothesis (H1) is rejected because the PROPER rating has a significance level of 0.729, which shows that PROPER has no meaningful impact on carbon emission disclosure. Companies that have a high PROPER rating will choose not to disclose carbon emissions. This is because these companies have already demonstrated that their environmentalperformance is good. So, these companies only need to include information about the PROPER rating they have obtained in their annual reports. Research by Jannah and Muid (2014) [4] corroborates this result.

Table 3. Results of a statistical test.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig
	β	Std. Error	Beta		
(Constant)	-94.081	64.991		-1.448	.151
PROPER	-1.335	3.844	-.036	-.347	.729
SIZE	11.322	3.723	.312	3.041	.003
PROF	-.338	.236	-.146	-1.432	.156
LEV	-.036	.117	-.031	-.306	.760
AC	-29.178	21.238	-.140	-1.374	.173

SIZE showed a significance value of 0.003 < 0.05. This finding indicated that the size of the company had an impact on carbon emission disclosure. **The second hypothesis (H2) is accepted**. Companies that arelarge have excess resources, so they are able to respond effectively to demands directed at them that arerelated to caring for the environment. Jannah and Muid (2014) and Selviana and Ratmono (2019) conducted studies that support this finding [4,13].

As for the third hypothesis (H3), with a significance value of > 0.05 (0.156 > 0.05), the findings show that profitability has no discernible effect on the disclosure of carbon emissions, which means that **H3is rejected**. The results of this study do not support legitimacy theory because the pressure exerted by the community on a company is not able to have a significant impact on it. The benefits obtained from disclosure activities are not proportional to the costs incurred by the company when they reduce the carbon emissions that result from their activities. According to several researchers, the disclosure of carbon emissions is not much impacted by profitability [3,5,14].

Leverage had a significance value of 0.760 > 0.05 which means the fourth hypothesis (H4)—which posited there is a negative effect of leverage on carbon emission disclosure—is rejected. Companies with high leverage will prefer to allocate profits to repaying debt used to finance their operations. Research by Prasetya et al., (2018) [3] corroborates this result.

The fifth hypothesis (H5) is rejected, as shown by the AC significance value of 0.173 > 0.05. The audit committee has no substantial impact on carbon emission disclosure. The establishment of an audit committee has no bearing on disclosures about carbon emissions since there is no law requiring them. This goes against the stakeholder theory, which contends that organizations must be completely transparent in order to win the support of their stakeholders. This is supported by Sari and Susanto's (2021) [16] research.

4. Conclusions

This study looks at the variables that influenced the disclosure of carbon emissions in high-profile companies listed on the Indonesia Stock Exchange between 2016 and 2020. The GRI Standards 2016 index checklist is used to assess carbon emission disclosure by comparing the total items disclosed to the maximum total disclosed. According to the findings, company size significantly improves the

disclosure of carbon emissions. To show that they care about the environment, big companies disclose their carbon emissions. Meanwhile, there is no discernible effect of PROPER rating, profitability, leverage, or audit committee on carbon emission disclosure.

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