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Determinants of Disclosure of Carbon Emissions in Manufacturing Companies

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Abstract

This study examines the determinants of company size, leverage, industry type, and institutional ownership variables on the disclosure of carbon emissions. The quantitative research method is obtaining documentary data through annual reports and financial reports of manufacturing companies listed on the IDX for the 2017-2021 period. Sampling using purposive sampling with a total acquisition of 80 companies.

Testing the research data using multiple regression analysis tests with SPSS 26 software. The study's results using multiple regression analysis tests show that companysize, leverage, and industry type affect the disclosure of carbon emissions. Meanwhile, institutional ownership does not affect the disclosure of carbon emissions.

Keywords: Company Sizes, Leverage, Industry Types, Institutional Ownership, Disclosure of Carbon Emissions.

INTRODUCTION

Today's competitive business environment requires a company to focus not only on achieving high profitability but also on the assessment and disclosure of corporate environmental impacts, which have taken on enormous dimensions over the decades (Ofoegbu et al., 2018). Management in a company must have special expertise to solve problems that arise in the company (Aditya, 2022). Conditions in developing countries show that economic growth has a positive correlation with environmental damage (Solikhah et al., 2020). In recent years, environmental management issues have become a global concern, especially the issue of climate change, which causes geothermal temperatures to rise. Solikhah & Maulina (2021) stated that the increase in greenhouse gas emissions into the atmosphere, namely carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and other gases, has caused the earth's temperature to increase. Forests in Indonesia are gradually being converted into land that produces carbon dioxide gas (Apriliana et al., 2019).

Efforts were made to prevent the impact of large economic losses due to environmental damage, namely the existence of the Kyoto Protocol, Irwhantoko & Basuki (2016) stated that with the Kyoto Protocol, the term carbon accounting emerged, which became a guideline for companies in disclosing, recording, and presenting, as well as acknowledging carbon emissions. Carbon emissions produced in Indonesia have an impact on climate change, so in the ratification of Law No. 17 of 2004, Indonesia agreed to participate in reducing emissions (Astiti & Wirama, 2020). The law is a form of corporate management guidance in the form of external activities that pay attention to government regulations (Praditha et al., 2020).

Disclosure of carbon emissions is a means for companies to carry out their responsibility to society to reduce environmental damage arising from operating activities carried out by companies (Dewayani & Ratnadi, 2021). Disclosure of carbon emissions in Indonesia is relatively low for corporate entities. Voluntary disclosure of carbon emissions is a factor inwhy not all companies disclose emissions in their annual reports (Anisa et al., 2020). Voluntary disclosure is a free choice for management to provide information about companies that are related to report users (Hanifah & Wahyono, 2018). Disclosure of carbon emissions can benefit companies because investors tend to invest in companies with sound business ethics, care about the environment, and have social responsibility (Daromes et al., 2020). Dewi & Yasa (2017) stated that these factors were influenced by business culture, environmental performance, company ownership structure, industry type, leverage, company size, GCG, and profitability. This study examines the impact of company size, leverage, type of industry, and institutional ownership on the disclosure of carbon emissions.

Several theories explain environmental disclosures related to the disclosure of carbon emissions, including the legitimacy theory and the stakeholder theory. Legitimacy theory is fundamental for companies in disclosing reports as a form of social and environmental responsibility (Astiti & Wirama, 2020). The company wants legitimacy from the public's point of view that all the company's operating activities have been carried out under applicable norms. The community environment shows that companies are expected to adjust social values that continue to develop from time to time with values that exist in the community so that there is no legitimacy gap between the company and the community (Suhardi & Purwanto, 2015). Stakeholder theory says that a company is not an entity that only operates for its own sake but must benefit its stakeholders (shareholders, creditors, consumers, suppliers, the government, the community, analysts, and other parties) (Jannah & Muid, 2014). Responding to pressure from stakeholder groups, companies tend to engage in environmentally responsible practices and express them through communication channels (Iswati & Setiawan, 2020). The concept of this stakeholder theory is the importance of the role and support of stakeholders in the sustainability of the company (Anisa et al., 2020).

HYPOTHESIS OF RESEARCH

Company size influences the disclosure of carbon emissions.

Company size is a scale to determine the company's size (Sari, 2012). Companies that have a large size get more encouragement from investors and the public to disclose social responsibility information. The larger the scale of a company, the higher the opportunity for the company to express responsibility for the environment. Legitimacy theory explains that large companies receive more pressure from society regarding environmental problems where they operate (Astiti & Wirama, 2020). It is assumed that companies with a large size have a large source of funds to disclose their social responsibility compared to small companies that experience limited funds (Sudirman et al., 2020). Company size can describe the number of operational activities, and large companies certainly have more activities where operational activities tend to be directly related to the environment (Kholmi et al., 2020). Thus, the hypothesis proposed is as follows:

H1: Company size has a positive effect on the disclosure of carbon emissions.

Leverage affects the disclosure of carbon emissions.

Leverage is the ratio used to determine how much debt or credit a company has as a source of capital. Companies that produce emissions with high or low levels of leverage must pay attention to aspects of their environmental performance. The level of leverage that affects the disclosure of carbon emissions is in line with stakeholder theory, which emphasizes the importance of considering the interests and needs of the various parties involved. Mujiani et al. (2019) explained that stakeholder theory refers to the economic resources used in disclosing carbon emissions that can be controlled and influenced by company stakeholders. Pranasyahputra et al. (2020) stated that a high level of leverage indicates high creditor power as one of the stakeholders to put pressure on the company; thus, the hypothesis is proposed as follows:

H2: Leverage has a positive effect on the disclosure of carbon emissions.

The type of industry influences the disclosure of carbon emissions.

The industry type is a company's characteristics related to business fields, risks, employees, and the environment (Pratiwi & Ismawati, 2019). Industry-type variables are grouped into high-profile and low-profile industries. On average, organizations that disclose carbon emissions come from industries whose business activities significantly impact the environment (Ramadhan et al., 2021). High-profile companies, such as mining and manufacturing, which produce environmental damage and high carbon emissions, are more severe than low-profile companies, such as those engaged in services, trade, and so on(Jannah & Muid, 2014). In legitimacy theory, companies engaged in emission-intensive industries generally receive public attention and are under pressure from the government because their operational activities can deal with broad interests (Hapsari & Prasetyo, 2020). Thus, the hypothesis proposed is as follows:

H3: Industry type has a positive effect on the disclosure of carbon emissions.

Institutional ownership influences the disclosure of carbon emissions.

Institutional ownership is the ownership by institutions of all outstanding shares. Institutional ownership describes the relationship between the company and its stakeholders. This relationship can encourage management to be more transparent in disclosing all company activities (Maqfirah & Fahrianta, 2022). Significant institutional ownership will increase stakeholder oversight of the company, thereby increasing the company's image when disclosing environmental activities (D. N. Pratiwi, 2017). With openness in environmental disclosure, the company's value will also increase, which can help companies in sustainable development. Thus, the hypothesis proposed is as follows:

H4: Institutional ownership has a positive effect on the disclosure of carbon emissions.

METHODOLOGY

This study uses a quantitative approach to test the hypothesis. The population in this study consists of all manufacturing companies listed on the Indonesia Stock Exchange in 2017–2021. Sampling used purposive sampling with the following criteria:

1. Manufacturing sector companies listed on the IDX starting from the 2017-2021 period.
2. Companies publish annual reports or sustainability reports
3. Annual reports and/or sustainability reports are available on the Indonesia StockExchange and the respective company websites
4. Companies that explicitly or implicitly disclose carbon emissions (at least one policy related to carbon emissions of carbon emission disclosure items)
5. Annually profitable company.

Based on the aforementioned criteria, sixteen manufacturing companies serve as research samples from 80 companies that made up the entire sample from 2017 to 2021. This study collects secondary data through annual reports or sustainability reports accessed through the company's website and annual reports obtained from the Indonesia Stock Exchange's www.idx.co.id page.

The SPSS 26 software was used to test the data. The relationship between the dependent variable and the independent variable is explained through multiple regression analysis testing. Based on the proposed hypothesis, the regression equation has the following formula:

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$

Where:

Y = Carbon Emission Disclosure
α = Constant
β1 - β4 = Regression Coefficient
X1 = Company Size
X2 = Leverage

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X3 = Industry Type

X4 = Institutional Ownership

e = Error

RESULT AND DISCUSSION

Relationship between company size, leverage, industry type, and institutional ownership.

Table 1 Multiple Regression Analysis Test

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.042	.197		-5.292	000
Company size	.038	.007	.483	5.649	000
1 Leverage	.174	.060	.261	2.895	005
Industry types	.321	.075	.376	4.302	000
Institutional ownership	-.055	.048	-.095	-1.130	262
$R^2 = 0.519$ Adjusted $R^2 = 0.493$ F = 20,241 (Sig 0,000)					

a. Dependent Variable: CED

Hypotheses H1, H2, H3, and H4 are tested using multiple regression analysis, which measures the effect of company size, leverage, type of industry, and institutional ownershipon carbon emission disclosure. From the table above, it is known that the Adjusted R Square value is 0.493. This shows that the variables of company size, leverage, type of industry, and institutional ownership can affect the carbon emission disclosure variable by 49.3%. The remaining (100% minus 49.3% = 50.7%) is influenced by other variables not included in this study. The table above shows that the calculated F is 20.241 with a significance of 0.000, which is less than 0.05. The calculated F value obtained is greater than F table 2.34, which is obtained from df1 = 6-1 = 5 and df2 = 80-6 = 74. The results of this calculation indicate that the variables of company size, leverage, type of industry, and institutional ownership simultaneously have a positive and significant effect on the disclosure of carbon emissions.

Table 1 from the results of multiple linear regression testing found the estimation model as follows:

CED = -1,042 + 0,038 X_1 + 0,174 X_2 + 0,321 X_3 - 0,055 X_4 + e

The equation above shows a constant value of -1.042, indicating that if the variables of company size, leverage, type of industry, and environmental performance are zero, then the disclosure of carbon emissions will occur at -1.042. Suppose the company's size has a regression coefficient of 0.038 and a significance level of 0.000 <0.05. In that case, the variable company size positively affects the disclosure of carbon emissions. Leverage, with a regression coefficient value of 0.174 and a significance level of 0.005 <0.05, positivelyaffects the disclosure of carbon emissions. The industry-type variable with multiple linear regression coefficient values of 0.321 and a significance level of 0.00–0.05 means that the industry-type variable influences the disclosure of carbon emissions. An institutional ownership variable with a regression coefficient of -0.055 and a significance level of 0.262 > 0.05 means that the institutional ownership variable does not affect the disclosure of carbon emissions.

The test results show that company size positively affects the disclosure of carbon emissions, so H1 is accepted. The results of this study support the legitimacy theory, which explains that companies with large sizes have more significant pressure on environmental issues than the surrounding community. This encourages companies to voluntarily disclose carbon emissions to gain legitimacy. Large-scale companies will be in the spotlight in the eyes of society compared to small-scale companies. Large-scale companies have adequate resources to disclose the corporate environment. This is corroborated by research by Probosari & Kawedar(2019), which states that large companies have many resources, making them more flexible indisclosing environmental issues than small-scale companies.

The test results show that leverage positively affects the disclosure of carbon emissions, soH2 is accepted. The results of this study support the stakeholder theory, which indicates that the level of corporate leverage will be under pressure in terms of considering stakeholder interests. Stakeholder theory shows that stakeholders can influence the company's funding sources (Jannah & Muid, 2014). Companies with high levels of leverage tend to disclose more total emissions in order to fulfil their responsibilities towards the environment. These efforts can encourage investors to invest their capital, resulting in lower pressure exerted by investors and creditors, reducing agency costs, and responding to conflicts between shareholders and creditors (Winarsih & Supandi, 2020).

The test results show that the type of industry positively affects the disclosure of carbon emissions, so H3 is accepted. The results of this study support the legitimacy theory, which explains that companies with a high profile, such as manufacturing companies, tend to impact the environment. Legitimacy theory encourages companies with high profile levels to make more environmental disclosures because their activities tend to be directly related to the surrounding environment and are also limited by law (Dewi & Yasa, 2017). The high-profile industry is included in the group that produces emissions intensively, so it is under pressure from the public and the government to disclose emissions (Aprilia et al., 2019). The high-profile industry has higher consumer visibility and political risk compared to the low-profile industry, so the manifestation of high-profile companies is to respond to this pressure by disclosing carbon emissions (Hapsari & Prasetyo, 2020).

The test results show that institutional ownership positively affects the disclosure of carbon emissions, so H4 is rejected. The institution that invests its shares in a company has adifferent policy. Institutions that do not have policies on companies to encourage companiesin terms of disclosure of emissions are one of the factors that cause institutional ownership to not affect the disclosure of carbon emissions significantly. This is reinforced by research by Yanti et al. (2021), which shows that the level of institutional ownership does not affect the extent of corporate social responsibility disclosure. This study's results align with the researchof Mustar et al. (2020) and Maqfirah & Fahrianta (2022), which show that institutional ownership does not affect the disclosure of carbon emissions.

CONCLUSION

Based on multiple linear regression analysis and the absolute difference value test, it is shown that during the five-year research period with a total of eight hypotheses proposed, three were accepted and five were rejected. Testing multiple regression analyses shows that company size, leverage, and industry type positively affect the disclosure of carbon emissions. Meanwhile, the institutional ownership variable does not affect the disclosure of carbon emissions.

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