

Original Paper

Determinant of Carbon Emission Disclosure on Manufacturing Companies Listed in Indonesia Stock Exchange

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Abstract

Disclosure of carbon emissions is one part of corporate social responsibility which is closely related to good corporate governance. Social and environmental responsibility is oriented to stakeholders, which is in line with the main principles of good corporate governance, namely the principle of responsibility. In this study, the determinants of carbon emission disclosure are institutional choice, government ownership, leverage and profitability.

This research aims to examine and investigate the determinant factors affecting the carbon emission disclosure such as the institutional ownership, government ownership as well as the financial performance, which comprises of leverage and profitability. The measuring method used in this research was developed and adopted from the Carbon Disclosure Project, while the population is the manufacturing companies listed on the Indonesia Stock Exchange during three years. Furthermore, the purposive random sampling method was used to select samples, while the multiple regression analysis was used to test for the hypothesis. The result shows that the leverage has a significant and negative impact on carbon emission disclosure, while other factors such as institutional, government ownership, and profitability experienced none. The study is limited by the number of sample and observation period.

Keywords: Carbon emission disclosure, institutional ownership, government ownership, financial performance

JEL Codes: F64, G32, G38, L25, M41

1. Introduction

Background of Study

Global warming is a problem which arises due to the presence of greenhouse gases in the atmosphere. It covers the earth and reflects the heat radiation to its surface (Hmtl ITB, 2015). According to Law Number 71 of 2011, these gasses are contained in the natural and anthropogenic atmosphere, and capable of absorbing and re-emitting infrared radiation. It includes carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydro fluorocarbons (HFC_s), per fluorocarbons (PFC_s), and sulfur hexafluoride (SF₆). However, out of these various compounds, carbon dioxide stands the most significant risk in climate change because it continues to accumulate in the atmosphere in large quantities.

The international political commitment that was universally agreed upon in Rio de Janeiro, Brazil in 1992, created an idea of a new economic era aimed at realizing the concept of sustainable economic development and fulfilling the needs supported by an effective funding system based on the United Nation Framework Convention on Climate Change (UNFCCC). To prevent massive economic losses, the UNFCCC created an international amendment known as the Kyoto Protocol as an effort to reduce greenhouse gas emissions (Irwhantoko, 2016).

The first period which was from 2008 to 2012, reduced the 1990 emissions level report by 5%. This was achieved by 39 advanced industrial countries committed to reducing the emission level. These countries were poised to ensuring that they controlled the concentration level of greenhouse gas emissions in such

a way that the average temperature of the earth's surface does not exceed the maximum limit, thereby not endangering the Earth's climate system.

Climate change is caused by human activities, which lead to adjustments in atmospheric composition and natural climate variability across the globe. The Indonesian government has passed a law on ratification of the Kyoto Protocol through Law Number 17 of 2004, and in the same year, a program was implemented to reduce greenhouse gas emissions. This protocol regulates the three mechanisms based on the United Nations Framework Convention on Climate Change. The first is known as the Joint Implementation, cooperation between developed countries to reduce greenhouse gas emissions. The second is Emission Trading where developed countries invest in projects capable of reducing the effect in developing countries. Thirdly, it is the Emission Trading between developed countries (Dwijayanti, 2011).

In the second period, the Kyoto Protocol was held in Doha, Qatar, in 2012. The committed countries were willing to reduce the greenhouse gas emissions by 18 percent over 8 years starting from 2013 to 2020. Indonesia ratified this protocol on September 30, 2014, and its mechanism is similar to the previous period (Irwhantoko, 2016).

Indonesia's commitment to reduce carbon emissions can also be seen from the existence of Presidential Regulation Number 61 of 2011 concerning the national action plans. In general, it regulates the efforts to reduce emissions in the agricultural, forestry, peatland, energy and transportation sectors, as well as a waste management, and other supporting activities. There is also the Presidential Regulation Number 71/2011 concerning the implementation of a national greenhouse gas inventory which aims to provide information on carbon levels, status, and trends in emissions and uptake of greenhouse gases including carbon deposits at the national, provincial, district or city level.

Furthermore, there are two types of disclosures, namely, mandatory and voluntary declarations. The compulsory disclosure relieves information that should be carried out by a company based on defined regulations or standards while the voluntary disclosure is information relieved outside the minimum requirements of the applicable regulations (Hery, 2014). The submission of annual reports of the issuers or public companies is listed in the control of the Capital Market Supervisory Agency Number 431 of 2012. It is stated that the annual reports of issuers and companies are the critical sources of information on the company performance and prospects for shareholders and the public as a consideration basis for making investment decisions. Disclosure also means that the financial statements must provide sufficient information and explanations regarding the results of the activities of business. The strategy to improve company credibility is through a broader voluntary disclosure and assisting investors in understanding business management strategies (Hardiningsih, 2008).

The company's openness in delivering quality financial report information to investors is a basis for assessing management performance. Meanwhile, for management, it is used to convince the public of the company's ability to influence the investors' decision-making process using more transparent techniques capable of displaying a good corporate management system. It indicates that the company is able to compete and maintain its business continuity.

The practice of unveiling the various ways carbon is emitted in Indonesia is a type of voluntary disclosure. These are mainly caused by different climate conditions which include the peatland fires in the seven provinces, namely Central Kalimantan, West Kalimantan, South Kalimantan, Jambi, South Sumatra, Riau, and Papua. These emissions are also equivalent to burning 4,500-7,800 gallons of gasoline. Furthermore, these peatlands with a depth of 11 meters make it difficult to extinguish the fires during the dry season. Indonesia experienced the worst peat fires in 2015 with the state losses estimated at over 200 trillion rupiahs. This also disrupted transportation, trade, tourism, forced schools to close affected human health with huge impacts on other economic losses (BBC, 2015).

Rainfall in Pademawu Barat Village, Pemekasan, East Java, makes half of the rice fields inundated by water, thereby making the plants threatened to death. Such events are common and unpredictable. Therefore, farmers tend to experience a decline in crop yields due to climate change. In the past, they could plant at any time because there was still rain in the dry season. However, the problem of climate change has made it difficult, thereby, leaving the farmers increasingly pressured. The same thing

happened to the farmers on the slopes of Mount Merapi, Boyolali Central Java, and those living in chili as bad weather hit led to tremendous loss of plants. The chili plants that are ready to harvest but the fruit fall out due to heavy rainfall, and strong winds which break and destroys the plants (Antara, 2014).

Along with rapid progress and technology, it encourages the growth of the manufacturing industry, followed by increased use of fuel and carbon dioxide gas. In every industrial process, wastes are always produced, and when not carefully localized, it endangers the environment and reduces its quality (Sulistiyono, 2007). The management discloses the information voluntarily assuming the benefits obtained from it are higher than the cost. However, its consideration is also influenced by external and internal factors, such as financial performance.

This study utilizes the independent variables, namely the external factors which are proxied by institutional and government ownership and financial performance as the internal factor proxied by leverage and profitability. Furthermore, it utilizes the disclosure of carbon emissions as the dependent variable.

Institutional ownership is a type of ownership that has a vital role in the company is expected to influence its management decision to implement information on carbon emissions disclosure. The highest the percentage of shares held by institutional investors, the higher the information acknowledged. This is supported by research conducted by Pratiwi (2017).

Companies owned by the government plays an essential role in motivating private companies through regulations and policies. Furthermore, its existence is expected to increase the extent of carbon emissions disclosure Article 4 of the Presidential Regulation Number 61 of 2011, stated that business actors should also take part in reducing the greenhouse gas emissions.

Leverage relates to the company's efforts to control its assets with its short and long-term liabilities. The companies with high leverage bear the high costs of supervision because they have to provide comprehensive information. This is because the higher the *leverage*, the more complete the information provided (Jensen & Meckling, 1976). Therefore, companies with high *leverage may* make extensive disclosures relating to carbon emissions.

Profitability is a ratio that describes the financial performance used in measuring a company's ability to generate profits. The economic performance of the company has the ability to affect its financial capability to incur the costs of its corporate social activities. Companies with good financial performance have great potential to acquire additional expenses related to the environment that provides its long-term goals (Irwhantoko, 2016). For example, replacing the production machines with more environmentally friendly and participating in tree planting activities. Therefore, an increase in profitability will be followed by the extent of carbon emissions disclosure disclosed by the company. This is supported by the research conducted by Jannah and Muid (2014), Hartanto and Purwatiningsih (2014), and Cahya (2016).

This study is a replication of the research conducted by Irwhantoko (2016) which examines the company size, profitability, competition, growth, debt to equity ratio, and the reputation of public accounting firms for carbon emission disclosure. The difference between this research and Irwhantoko's study (2016) is that the independent variables used are the institutionally owned by the government.

Also, the study period is also different as data was collected from 2014 to 2016 in order to ratify the second period of the Kyoto Protocol and provide an overview of the disclosure of carbon emissions in external and internal factors. Besides that, this is the latest annual and sustainability reports available on the IDX. During Irwhantoko study in 2016, data was obtained from 2012-2013, which was the period of Indonesia's transition before the Kyoto Protocol.

The companies listed on the exchange generally received higher demands for disclosing information. In this study, the manufacturing companies were chosen as the object of research because it produces exhaust gas.

2. Literature Review

Legitimacy Theory

The legitimacy theory is based on the assumption that companies have the right to operate

simultaneously with social activities (Hery, 2017). It also focuses on its relationship with the society through government regulations. The legitimacy required by the community where it is situated is that its operational activities are by the norms, boundaries, and applicable regulations. The more it pays adequate attention to social norms and values, the more legitimate the company (Irwhantoko, 2016).

Regarding disclosure of carbon emissions, this theory indicates that if there is a discrepancy between the systems of corporate and society value, the company is likely to lose its legitimacy. This theory will motivate the company to issue out carbon emissions information to gain trust from its host community and strive to maximize its long-term strength.

Stakeholder Theory

Stakeholder theory refers to the opinion that the company is systematically responsible for all parties involved in its operation. A socially responsible company could be seen from its decisions, which tend to pay attention to the interests of stakeholders (Joseph, 2017). Based on this theory, the organization chooses to respond to many demands made by its stakeholders. The disclosure of carbon emissions is the company's response to one of the stakeholder pressures on its existence.

Carbon Emission Disclosure

There are two types of financial statement disclosures; mandatory and voluntary disclosures (Naim & Rachman, 2000). Mandatory disclosures are the required information in an annual report and are governed by an applicable capital market regulation. While voluntary disclosure is the revelation of items that are voluntarily carried out by the company required.

The reason why companies voluntarily reveal its information is that they are interested in providing adequate disclosure (Fitriany, 2001). Carbon emissions are defined as the process of releasing carbon-containing gases such as carbon dioxide into the atmosphere. One of the contributors to carbon emissions is the operational activities of companies (Jannah & Muid, 2014). Due to climate change, companies are expected to disclose their businesses to the surrounding community.

In Indonesia, the disclosure of this information started to develop with the demand of various regulations issued by the government, such as the Presidential Regulation Number 61/2011 concerning the National Action Plan for Reducing Greenhouse Gas Emissions, Presidential Regulation Number 71/2011 with respect to the Implementation of the National Greenhouse Gas Inventory and the demands of various company stakeholders. These regulations are issued to reduce carbon emissions; this is because the companies that disclose the information will have its value increased.

Institutional Ownership

Institutional ownership is the share in ownership by the government, financial institutions, legal entities, foreign institutions, trust funds, and other financial institutions at the end of the year (Subagyo, et. al, 2017). The ownership structure in a company will have different motivations in terms of overseeing or monitoring and managing its operations. It is a mechanism to reduce conflicts between management and shareholders (Subagyo et al, 2017, p. 46).

It also describes the level of institutional ownership with a high level leading to highest oversight by investors, thereby capable of hindering the manager's opportunistic behavior (Hery, 2014). The existence of institutional ownership in a company becomes a technique used in managing its carbon emissions disclosure. The share ownership represents a rich source used to support and respond to management performance. Therefore, the higher the share ownership of institutional investors towards the company, the higher its annual voluntary disclosure report as a tool for overseeing its performance.

Government Ownership

According to Law Number 19 of 2003, a State-Owned Enterprise is a business entity in which the state owns the entire or part of its capital through direct participation derived from separated assets. This also influences government ownership on disclosure of carbon emissions with the power to pressure companies to be environmentally responsible (Pratiwi, 2017).

Leverage

Leverage shows how much the company's ability to fulfill short-term and long-term liabilities. The level of leverage is used to provide an overview of the capital structure of the company. Therefore it is capable of providing the level of uncollectible risk of a debt (Spica & Retrinasari, 2007). The number of funds used for each funding source must be carefully considered according to the company's capabilities, goals, and strategies (Hery, 2017).

Those with high degrees of leverage are dependent on external loans to finance their assets (Pratiwi, 2017). They are more likely to carry out environmental disclosures, to show responsibility and concern for the surrounding environment in order to attract creditors and investors to invest in their modes. The carbon emissions disclosure is one type of corporate responsibility.

Profitability

Profitability is a ratio used to measure a company's ability to generate profits from the normal activities of its business. The operational goal of most companies is to maximize profits. This ratio is used as a tool to measure the level of effectiveness of management performance. Furthermore, a good performance will be demonstrated through the management's success in generating maximum profits for the company (Hery, 2017). The better the financial performance of a company, the more it has the ability to implement disclosures and carry out strategic plans to reduce carbon emissions. With high profitability, the company managers will reveal more information in financial statements to show their performance. However, assuming the profitability is considered from the investment quality, the company with a low-profit rate will be motivated to broadcast information on carbon emissions. This aims to raise the image of the company to the views of investors, thereby funding it at a low cost.

Theoretical Framework

The framework for this study is:

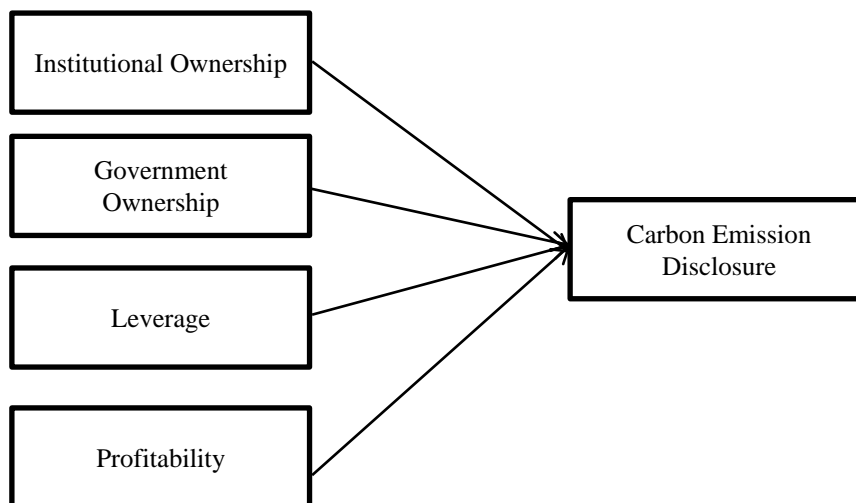


Figure. Theoretical framework

Hypothesis

Hypothesis is a temporary supposition on the results of a study conducted to test for the truth (Nisfiannoor, 2009, p. 9).

Institutional ownership plays an important role in monitoring management performance. Supervision is very much dependent on the amount of investment made. Companies managed by its institutional ownership indicate their ability to monitor their management (Hery, 2014). High awareness of institutional

shareholders on the environment will encourage them to implement the carbon emissions disclosures.

The research conducted by Pratiwi (2017) shows that institutional ownership has a positive effect on carbon emissions disclosure. However, those undertaken by Sari et al (2013) and Edison (2017) also show the influence of institutional ownership on the extent of CSR disclosure. Therefore, the first hypothesis proposed is **H₁: Institutional ownership has a positive effect on carbon emission disclosure.**

Government-owned companies play a bigger role in motivating private companies to care more about the environment through regulations and policies. Article 2 of Law Number 19 of 2003 stated that the activities of SOEs must be by their aims and objectives and not conflict with laws and regulations, public order, and morality.

The influence of government ownership on the disclosure of carbon emissions related to their ability to pressurize companies to be environmentally responsible (Pratiwi, 2017). Due to this, the second hypothesis was proposed, which states that in **H₂, Government ownership has a positive effect on carbon emission disclosure.**

Leverage is a ratio that describes a company's ability to fulfill its obligations. The higher a company's leverage, the more its supervision, which is conducted through the disclosure of carbon emissions. Those with a high degree of leverage tend to make wider disclosures of carbon emission. The considerations for disclosing additional costs are strongly influenced by financial performance. Carbon emissions are one of the biggest gases responsible for climate change. The companies with high leverage to disclose emissions and care about the environment seem to want to improve their image by making it an investment destination (Irwhantoko, 2016). The research conducted by Jannah and Muid (2014), and Pratiwi and Sari (2016) shows an influence of leverage on disclosure of carbon emissions. Therefore, the third proposed hypothesis is **H₃: Leverage has a positive effect on carbon emission disclosure.**

Profitability describes a company's ability to generate profits, capable of affecting its disclosures of carbon emissions. One of the important motivations for running a company, is to obtain maximum profits with certain resources as this will enable it choose alternative actions that will support its achievement. A profitable operation is essential for an company to advance and operate. Companies with high profitability are more likely to incur additional costs for disclosing carbon emissions.

The companies with high profitability disclose information to provide signals capable of acting effectively on environmental pressure and willing to solve problems quickly (Jannah & Muid, 2014). The previous research conducted by Hartanto and Purwatiningsih (2014), and Cahya (2016) also shows the influence of profitability on carbon emissions disclosure. Therefore, the last proposed hypothesis is **H₄: Profitability has a positive effect on carbon emission disclosure.**

3. Research Methodology

Population and Samples

The population is defined as the whole number of the research object, while the sample partly taken from a population (Nisfiannoor, 2009). The population used in this study is all manufacturing companies listed on the Stock Exchange during three years. However, the sample used is a manufacturing company that fulfills the required criteria. It is taken based on a purposive sampling method, selected from non-random samples whose information is obtained from considerations or criteria. Based on these criteria, the sample used in this study amounted to 17 companies, with three years of observation, which culminated in 51 observations.

Data Analysis Techniques

Multiple Regression Analysis

The analysis used in this research is multiple regression analysis. Which is a phenomenon that displays a causal relationship where a dependent variable is determined by more than one independent (Santosa & Hamdani, 2007). The regression models in this study are as follows:

$$CED = \alpha + \beta1IO + \beta2GO + \beta3LEV + \beta4PRO + \varepsilon$$

Notes:

CED: Carbon emission disclosure, α : Constants, $\beta_1 - \beta_4$: Regression coefficient, *IO*: Institutional ownership, *GO*: Government ownership, *LEV*: Leverage, *PRO*: Profitability, and ε : Error

Hypothesis Testing

Its goodness of fit measures the accuracy of the sample regression function in estimating the actual value. Statistically, it is also measured from the partial test (t-test), simultaneous test (F test), and determination coefficient value (*adjusted R*²).

Partial Test (t-Test)

The partial significance test is used to determine the effect of each independent variable individually on the dependent variable. In the multiple linear regression, this is required to be conducted because each independent variable gives a different influence in the model (Kurniawan & Yuniarto, 2016). Owing to this reason, the partial t-test was utilized.

Simultaneous Test (F Test)

The simultaneous tests were conducted to determine whether the overall independent variables had a significant effect on the dependent variable. Assuming the results of the simultaneous test are significant, then the relationship that occurs is applied to the population (Kurniawan & Yuniarto, 2016). The tests are carried out using the overall F test.

Coefficient of Determination (Adjusted R²)

The ratio of determination is used to determine how much the independent variable explains the dependent variable. In the selection of the best regression model, the use of *adjusted R*² is much better compared to *R*². It is because this coefficient takes the number of parameters in the regression model into calculation through free degrees (Kurniawan & Yuniarto, 2016). The *adjusted R*² is $0 \leq \text{adjusted } R^2 \leq 1$, and the higher it is, the better the estimation of the regression model proposed. The closer it is to 1 or 100%, the better the independent variable used in explaining the variation of the dependent variable.

Operational Definition and Variable Measurement

Table 1. Variable Definition and Measurement

Variable	Definition	Measurement
Institutional Ownership	Shares are owned by others company; financial, legal entities, foreign, trust funds, and other institutions at the end of the year (Subagyo et al., 2017).	IO = Share owned by institutional/Total outstanding share
Government Ownership	Number company shares are owned by the government	Dummy variable; 1 for it is owned by the government (State-Owned Enterprises) and 0 for it is not (Non-State-Owned Enterprises).
Leverage	This ration describes the ability of a company to fulfill all its obligations	DER = total debt/ total equity (Hery, 2016).
Profitability	This ration describes the company's ability to generate profits.	ROA = the net income/total assets (Hery, 2016).
Carbon emission disclosure	CED is conducted by examining the annual/ sustainability report with 18 statements grouped into five categories, including climate change, greenhouse gas, energy consumption, reduction and cost, and accountability of carbon emission.	CEDI = numbers of the company disclosure/total disclosure (Irwhantoko, 2016; Choi et al, 2013)

4. Analysis and Discussion

Regression Analysis Results

Regression is a functional relationship that occurs between one or more dependent variables with its independent variables estimated. This study used multiple regression models to examine the effect of institutional, government ownership, leverage, and profitability on carbon emission disclosure. The linear regression analysis was used to determine the relationship due to the effect as well as the dependent variable used to determine more than one independent variable (Santosa & Hamdani, 2007). The results of data processing are as follows:

Table 2. Regression Analysis Results

	Coefficient	Standard Error	Prob-value	Sig
Institutional Ownership	0.476	1.924	0.247	0.806
Government ownership	0.240	1.140	0.210	0.834
Debt to equity ratio	-1.140	0.442	-2.578	0.013*
Return on assets	0.027	0.026	1.025	0.311
Constant	5.754			
R square	0.166			
Prob-value	2.291			
F test	0.074**			
*significant in 5%				
**significant in 10%				

Source: SPSS Output

The multiple regression equation models and the analysis results obtained are:

$$\text{CED} = 5.754 + 0.476\text{IO} + 0.240\text{GO} - 1,140\text{LEV} + 0,027\text{PRO} + \varepsilon$$

This equation shows that the disclosure of carbon emissions is influenced by external factors (which are proxied by institutional ownership and government ownership) and financial performance are proxied by leverage and probability. These results are explained as follows:

1. The constant value is positive, which indicates that assuming the external factors were proxied by institutional and government ownership, financial performance such as internal factors will be 5.754. It means that the extent of carbon emissions disclosure is expressed by a dichotomous scale consisting of 18 items.
2. The coefficient of institutional ownership as a proxy of external factors is positive and not significant at 0.476. It means that the higher the institutional ownership, the higher carbon emissions by 0.476 or 47.6%.
3. The coefficient value of government ownership as a proxy for external factors is positive and not significant at 0.240. It indicates that government regulation in encouraging companies to publish their activities related to information on carbon emission reduced by 24%.
4. The leverage coefficient is a proxy of financial performance and an internal factor with significant negative value at -1,140. Therefore, assuming the amount of company leverage is high, the area for carbon emissions disclosure will decrease by 1,140 or 114%.

5. The profitability coefficient as a proxy of financial performance as an internal factor has a positive value of 0.027 and is not significant. It means that the higher the company's profitability, the higher the carbon emitted by 0.027 or 2.7%.

Hypothesis Test Results

In the current study, hypothesis was conducted using multiple regression analysis models. It was carried out through the partial, simultaneous, and the coefficient of determination (*R Square*) tests. The multiple analyses aim to examine the relationship of influence between one variable to another. The results of hypothesis testing using the IBM SPSS *Statistics Version 23* program are illustrated in the following explanation.

Partial Test (t-Test)

The t statistic test is used to determine the existence of the influence of each independent variable individually on the dependent at the 0.05 significance level. The results of the t-test in this study are shown in table 2.

Based on the results of the t-test, decisions were conducted on carbon emission disclosure variables. Overall, the results of the t-test show that the leverage variable has a significant effect on the disclosure of the company's carbon emissions in ISE listings for the period of 2014-2016. The institutional and government-owned companies have no significant impact on the disclosure of carbon emissions.

Simultaneous Test (F Test)

The F statistical test is used to determine whether all the independent variables included in the model have a joint effect on the dependent variable. The results of the regression analysis test are presented in table 3. The results of F test for institutional and, government ownership, leverage, and profitability on the disclosure of carbon emissions indicates that the significant value is $0.074 > 0.05$. This shows that the coefficient regression does not affect the disclosure of carbon emissions simultaneously.

Coefficient of Determination (R^2)

The coefficient of determination test is conducted to measure the ability of the independent variable in explaining the dependent variable. The coefficient of determination in multiple regressions is indicated by R^2 . The test of the coefficient of determination is indicated in table 3. The result of R Square is 0.166. The variable of institutional and government ownership, *leverage*, and profitability, which contributes as much as 16.6% to the disclosure of carbon emissions, while 84.4% is explained by other variables not included in this model.

Discussion of Research Results

Effect of Institutional ownership on carbon emission disclosure

The first hypothesis proposed states that institutional ownership affects the disclosure of carbon emissions. From the results of the study, the coefficient of institutional ownership variables is positive at 0.476, with a significance value of 0.806. This value is not significant at 0.05 because it is higher. The results indicate that the institutional ownership variables have no significant and positive effect on carbon emissions disclosure. Based on the results of empirical testing, H_1 is rejected.

This support the previous research conducted by Herawati (2015) which states that institutional ownership does not have a significant effect on CSR disclosure and contrary to the research carried out by Hartanto & Purwatiningsih (2014). This provides research results stating that the majority has a significant influence on social and environmental disclosures.

Furthermore, the institutional ownership is a shareholding company with majority-owned by the institution or organization (governments, financial institutions, institutional, legal entities, foreign institutions, trust funds, and other institutions) which will encourage the optimal supervisors on the performance of the company's management. This research is measured by the portion of the company's shares owned by other companies, not individuals. The test results show that institutional ownership does not have a significant effect on carbon emissions disclosure. The positive regression coefficient means that manufacturing companies with a higher percentage of share ownership by institutions that make

disclosures of carbon content is broader compared to manufacturing companies with a lower rate of institutional ownership.

This is evidenced in the data related to institutional ownership of sample companies that achieve above 50%, with a large percentage of institutional ownership not indicating a significant effect on the disclosure of carbon emission. It is caused by the lack of adequate institutional shareholders in monitoring management to disclose carbon emissions owing to its role in monitoring performance, which leads to a higher oversight to obstruct opportunistic behavior management.

Effect of government ownership on carbon emission disclosure

The second hypothesis proposed states that government ownership affects the disclosure of carbon emissions. From the results of the study obtained, its coefficient is positive at 0.240, with a significance value of 0.834. Furthermore, it is insignificant at 0.05 because it is higher, which means that the variables of government ownership possess some positive effect on carbon emissions disclosure. Therefore, the second hypothesis is rejected. The results of this study support the previous research conducted by Hartanto & Purwatiningsih (2014), which states that government power has no significant effect on social and environmental disclosure. It is contrary to the research conducted by Pratiwi (2017), which provides the opposite.

The test results show that government ownership does not have a significant effect on the disclosure of carbon emissions. The positive regression coefficient of 0.240 indicates that it can influence other manufacturing companies by 24%. The small percentage of the government's influence on disclosure is caused by samples of state-owned manufacturing companies listed on the Stock Exchange in 2014-2016 and more dominated by non-state-owned companies. The research sample data in the observation year also prove that non-governmental companies, with a percentage of 82.4% compared to state-owned enterprises. It makes the government control as a reference for the practice of disclosure of carbon emissions is less effective because the non-state-owned companies own more manufacturing companies.

Effect of leverage on carbon emission disclosure

The third hypothesis proposed stated that the advantage affects carbon disclosure at -1,140 with a significance value of 0.01, because it is smaller than $\alpha = 0.05$. It indicates that the leverage variable has a significant and negative effect on carbon emissions disclosure. Based on the results of empirical testing, the third hypothesis (H_3) is accepted. This result supports the previous research conducted by Jannah & Muid (2014) and Irwhantoko (2016) which states that the leverage affects the disclosure of carbon emissions, and contradicts the research conducted by Pratiwi (2017) which provides the research results that the leverage does not have a significant effect on disclosure of carbon emissions.

The level of leverage is used to provide an overview of the capital structure owned by the company that the level of risk of uncollectible debt is seen (Spica & Retrinasari, 2007). In this study, the leverage is measured using the DER ratio through a comparison of total debt with total equity. The test results show that leverage has a significant and negative effect on carbon emissions disclosure. The negative regression coefficient results mean that the manufacturing companies that have higher leverage levels will experience a decrease in expressing carbon emissions compared to manufacturing companies that have a lower level lower ones.

The results of this study support the stakeholder theory, which states that stakeholders can control or have the ability to use economic resources that are used. Therefore, the ability of stakeholders to encourage manufacturing companies to disclose carbon emissions is determined by the amount of power they have on the source. When the stakeholder controls the economic resources that are important to the company, the company will react in ways that satisfy stakeholders. Regarding disclosure of carbon emissions, manufacturing companies manage the stakeholders related to costs, including reducing the carbon emissions.

The data from the sample of the study also prove that the average leverage level of manufacturing companies has a relatively large percentage. High debt levels will limit the company's ability to carry out the carbon emissions disclosure because the additional costs are needed. The manufacturing companies with high leverage prefer to pay off all their obligations rather than disclose carbon emissions that require

additional costs. It can be said that companies adopt passive strategies where companies with passive posture tend not to seek the optimal strategy to attract stakeholder attention (Ghozali & Chairri, 2007). Therefore, it ended in reducing the tendency of manufacturing companies to disclose information regarding carbon emissions because the level of leverage has implications for the company's financial performance.

Effect of profitability on carbon emission disclosure

Furthermore, the fourth hypothesis proposed states that the profitability affects carbon disclosure, and from the results obtained, the coefficient is positive at 0.027 with a significance value of 0.311. However, this value is not significant at 0.05 because it is higher, thereby indicating that the profitability does not have a significant and positive effect on carbon emissions disclosure. The fourth hypothesis (H_4) is rejected. This result is in line with the previous research conducted by Putri & Sari (2016) and Irwhantoko (2016), which states that profitability does not significantly influence carbon disclosure. It is contrary to research conducted by Jannah & Muid (2014) and Hertanto & Purwatiningsih (2014) which provide the results that profitability has a significant influence on disclosure of carbon emissions.

The profitability ratio describes the success of a company in generating profits. In this study, the profitability variables are measured using the ROA ratio through post-tax profit to total assets. The results of the examination show that profitability has no significant effect on carbon emissions disclosure. The positive regression coefficient means that the manufacturing companies that have higher profitability will disclose carbon emissions more widespread compared to the companies that have lower levels of profitability.

A good corporate performance will be demonstrated through the success of management in generating maximum profits for the company. The results of this study is in line to Irwhantoko (2016), which states that profitability will be compared with companies with the cost of creating profit itself. This means that when disclosure of carbon emissions burdens the company's profits, it will reduce the tendency for companies to exposure it.

The research sample data prove that the average level of profitability of low manufacturing companies does not reach 20%. This is in line with the research that decreases the disclosure of company carbon emissions due to the low level of profitability the company has. The increased profitability will be followed by the increased disclosure of emissions carbon by the manufacturing company.

5. Conclusion and Suggestion

Conclusion

This study aimed to examine the influence of external factors (proxied by institutional ownership and government ownership) and financial performance as internal factors (proxied with leverage and profitability) on the carbon emission disclosure. It was conducted on companies listed on the Stock Exchange during three, with the analysis of carbon emissions derived from annual and sustainability reports.

From the analysis, the leverage variable is capable of producing a significant adverse effect on carbon emissions disclosure. Meanwhile, other variables such as institutional and government ownership failed to indicate any form of substantial impact on the carbon emissions disclosure of manufacturing companies.

The significance of the leverage supports stakeholder theory, which indicates their ability to control manufacturing companies against the disclosure of carbon emissions. The strategies adopted depend on the company, one of which is related to the reduction of carbon emissions.

Limitations

This study has some limitations which should be considered in subsequent studies as follows, namely this study only examines the influence of institutional, government ownership, *leverage*, and profitability on carbon emissions disclosure, this research is only conducted in 3 years, and this study uses manufacturing companies as research objects.

Suggestion

Based on the results, discussion, and several conclusions, the suggestions for further research are as follows, namely another independent variable capable of explaining its effect is on carbon emission level, company size, and company age, subsequent research utilizes company samples carried out by the Clean Development Mechanisms because they have more information on reducing carbon emissions, and future research will consider different models in measuring carbon emissions, using the GRI G4 Content Index, thereby producing different results.

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