Determination of Carbon Emissions Disclosure of Non Service Company

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ABSTRACT: Carbon emission disclosure means to convey information for stakeholders which related to the company's carbon emission and the company's response to carbon emission issues. This research’s aim is to examine and analyze influence of profitability, size, and environmental performance to carbon emission disclosure. The research objects is all non-industrial services companies listed on the IDX in 2016-2018. Data analyses technique is multiple linear regression. The research result shows that size and environmental performance has positive effect on carbon emission disclosure. Profitability has no effect on carbon emission disclosure, this can be happened because companies which have high profitability assume that carbon emissions disclosure can interfere with company's financial success information.

Keyword: Carbon emission disclosure; profitability; size; environmental performance

Introduction

Climate change is an issue that lately was a particular concern in many countries. Climate change due to increased carbon compounds that are caused by the rapid growth of the industry (Pratiwi and Sari, 2016). Industry growth in Indonesia has increased by 4.07% in 2018 compared to 2017 (Central Bureau of Statistics, 2019). Industrial development was followed by increased carbon emissions that can affect the quality of the environment. Air Quality Index (AQI) said that Indonesia is the world's first position in the category of air quality and pollution levels of cities with a size of 153 micrograms / m3, which means unhealthy air conditions (AirVisual.com, 2019). Increased carbon emissions to encourage countries to make efforts to minimize carbon emissions. Indonesia also make a contribution to reduce the emissions by the Presidential Decree No. 61 of 2011 and the Kyoto Protocol Agreement (Suhardi and Purwanto, 2015). The rule set is one of concern for the Indonesian government related
to problems of carbon emissions, so it is expected with these regulations can grow the company and the relevant stakeholders sensitivity of environmental issues is going on.

Company can not only focus on profit but also focuses on other aspects, so the company must also consider the concept of 3P or triple bottom line (Guntari and Yunita, 2018). Disclosure of carbon emissions is one of the company’s efforts in implementing the concept of Profit, Planet and People (3P). Carbon emission disclosure shows that the company cares about environmental issues and is a means of communication to provide additional information related carbon emissions as well as the efforts of companies to minimize the impact of required emission stakeholders for decision-making (Deantari, et al., 2019). Stakeholder theory according to Freeman (1984) stated that the stakeholders have the right to get all the information that exists in the organization of activities undertaken within the company, including disclosure of carbon emissions (Purnomosidhi 2006; Suhardi and Purwanto, 2015). According Deantari, et al., (2019) Suhardi and Purwanto, (2015) profitability, size, and environmental performance are some aspects to be considered and can affect the disclosure of carbon emissions.

Previous studies have examined about some aspects that affect the disclosure of carbon emissions. Research Apriliana, et al. (2019) found results that positively affects the profitability of the disclosure of carbon emissions. Research Deantari, et al. (2019), Suhardi and Purwanto (2015) and Prafitri and Zulaikha (2016) states that the measure has a positive effect on the disclosure of greenhouse gas emissions. In contrast with the results obtained by Pratama (2018) are firm size has no effect on emissions disclosure. Research Deantari, et al. (2019) and found the results if the positive effect on the environmental performance disclosure of greenhouse gas emissions. Suhardi and Purwanto (2015) and Apriliana, et al. (2019) found results in environmental performance do not affect the company’s disclosure of emissions.

Differences in this study with research Deantari, et al. (2019), Suhardi and Purwanto (2015), Pratama (2018), Prafitri and Zulaikha (2016) is the study using a dummy variable to measure environmental performance. First to companies that follow PROPER and 0's that do not follow PROPER. Second, the sample in this study is a non-industrial services company from 2016 to 2018 period. Non-industrial services company produces more carbon emissions that could have a negative impact on the environment than service companies. The purpose of this study was to examine and analyze the effect of profitability, size, and environmental performance on the disclosure of carbon emissions in non-industrial services company listed on the Indonesia Stock Exchange period 2016-2018.

Stakeholders an individual or group that has the ability to influence or be influenced by the actions, policies, decisions or operations of the organization (Susilo and Kaho, 2018). Stakeholder theory is a theory if the company is not operating entity for its own sake but also all the stakeholders (Freeman, 1984). Disclosure stakeholders
carbon emissions used as a basis for decision-making related to the environment, especially carbon emissions policy, so the company will not only meet the interests of any company that is looking for profit but also the interests of all stakeholders one of which presents information related to carbon emissions (Ghozali and Chariri, 2007). Carbon emissions disclosure is the disclosure that aims to provide information to stakeholders on corporate responsibility related carbon emissions produced by the organization as a result of the organization's business activities (Prafitri and Zulaikha, 2016). Disclosure of carbon emissions will be measured using a checklist CDP table in appendix 1.

Company with high profit to contribute related carbon emission reduction through various efforts such as buying new machines that are environmentally friendly (Apriliana, et al., 2019). Companies with high profitability more easily disclose information on carbon emissions because companies have more resources to work on reducing emissions, so the company does not only focus on profits but also meet the interests of stakeholders in environmental responsibility through disclosure of carbon emissions (Pratiwi, 2018). This statement is in accordance with stakeholder theory where companies with high profitability disclose carbon emissions aimed at conveying environmental information and showing stakeholders if the company is able to manage the environment through the efforts and policies of the company. Suhardi and Purwanto (2015) and Apriliana, et al. (2019) stated that the positive effect on the profitability of the disclosure of carbon emissions. Based on the explanations that have been described it will be taken hypotheses:

**H1: Profitability positive effect on the disclosure of carbon emissions.**

Large-sized companies have many and varied activities as well as the impact on the environment (Suhardi and Purwanto, 2015). Large companies will be the subject of supervision, so that companies will be more responsive to environmental issues, especially related to the disclosure of carbon emissions (Pratiwi, 2018). Large companies are under pressure from stakeholders who have high expectations related to management's efforts to address the company's carbon compounds (Prafitri and Zulaikha, 2016). The explanation that has been described in accordance with the theory of stakeholders where the disclosure of carbon emissions for large-scale enterprise is a means to respond to pressure from stakeholders, so that the interests of various stakeholders are met. Previous studies conducted by Suhardi and Purwanto (2015), Deantari, et al. (2019) and Prafitri and Zulaikha (2016) found a positive effect if the size of the company to disclosure of carbon emissions. The second hypothesis to be taken are:

**H2: Company size has positive influence on the disclosure of carbon emissions.**
Superior environmental performance can describe the enthusiasm of a corporation in carrying out the implementation of related reporting disclosure of carbon emissions (Deantari, et al., 2019). Companies with good environmental performance shows that the company is more responsive to environmental concerns, especially related carbon emissions. Poor environmental performance enterprise will withstand disclosure of carbon emissions in order to avoid a negative view of stakeholders. Stakeholders have the right to obtain information related to the company’s performance one of which the environmental performance (Prafitri and Zulaikha, 2016). The statement has been elaborated in accordance with the stakeholder theory, where environmental disclosure can be used as a means of notification to the environmental performance of the stakeholders so that the rights owned by stakeholders in obtaining the information needed can be met (Deantari, et al., 2019). In research Deantari, et al. (2019) and Prafitri and Zulaikha (2016) found results that the positive effect on the environmental performance disclosure of greenhouse gases. Thus it will be taken the following hypotheses:

H3: Positive effect on the environmental performance disclosure of carbon emissions.

Research Methods

This research is a quantitative research hypothesis testing. Object of this research is non-services company listed on the Stock Exchange from 2016 to 2018 year. The period from 2016 to 2018 have been selected for use the most recent year that data in accordance with the current state and due to an agreement paris recently passed in 2016. The data used is quantitative data in the form of an annual report 2016-2018 period. The data used in this research is secondary data from BEI (www.idx.co.id) and PROPER for data obtained from the Ministry of the Environment (www.menlhk.go.id). The sample used in this study were selected by purposive sampling with criteria as see table 1.

Table 1. Sample Selection Criteria

| Information                                                                 | amount |
|-----------------------------------------------------------------------------|--------|
| Population: non-industrial services company listed on the Stock Exchange    | 103    |
| the period 2016 - 2018 year Observations                                   | 3 years|
| Total Sample Company                                                        | 309    |
| Companies that do not meet the criteria:                                    |        |
| 1. The non-industrial services company has a complete annual report is      | (41)   |
| available on the Stock Exchange from 2016 to 2018 period.                   |        |
| 2. The non-industrial company that uses the services of the rupiah          | (84)   |
| currency in reporting financial information.                               |        |
| Total (n)                                                                  | 184    |

Source: Stock Exchange (2019)
This study data analysis using multiple linear regression with SPSS software version 23. Models of multiple linear equations as follows:

\[ \text{PEK} = \alpha + \beta_1 \text{PR} + \beta_2 \text{UP} + \beta_3 \text{KL} + e \]

\textbf{Information:}
- \text{PEK}: Carbon Emissions Disclosure
- \alpha: constants
- \beta: Regression Coefficients
- PR: profitability
- UP: Company size
- KL: Environmental performance
- e: standard Error

This research uses descriptive statistics to analyze data by describing the data without making general general conclusions (Sugiyono, 2014). In addition, studies using the test the classical assumption of normality test Kolmogorov-Smirnov Test (Kurniawan and Yuniato, 2016: 160), heteroscedasticity test is intended to test whether the regression model there is inequality of variance of residuals in one observation to observation of others (Ghozali, 2016), multicollinearity test to test whether the independent variables with other independent or dependent (Kurniawan and Yuniato, 2016), autocorrelation to see a current state variable component error correlated based on the data time series or cross-section data (Kurniawan and Yuniato, 2016). After the test the classic assumption then it will continue to test the feasibility of a model consisting of a test of the coefficient of determination (R2 test), which aims to measure the ability of the model used in the study with the dependent variable explained by the independent variable (Ghozali, 2016) and the F test useful to determine the level of significance of the independent variables and the dependent variables used in this study (Ghozali, 2016). Hypothesis testing is done after the classic assumption test and test the feasibility of the model is done. Determined hypothesis test with a significance level of 0.05 so that decision making is if \( H_a \geq 0 \) with significance \( t < 0.05 \) so \( H_a \) is received.

**Result and Discussion**

**Results Analysis**

Descriptive statistical test results in Table 2 shows the maximum value on carbon emissions disclosure of which is equal to 0.8333 and the minimum value is 0. The average value disclosure is a standard deviation of 0.2751 to 0.1629 indicates if the average company revealed 4 to 5 disclosure items that fit in the CDP criteria checklist. The highest profitability of 0.5262 and the lowest at -0.5220. The average profitability is 0.0686 which indicates if the company during the years 2016 to 2018 had an average gain with the rate of return of 6.86%. The maximum value of the size of the company
amounted to 33.4737 and the lowest enterprise size is 25.9011. Average size is 29.4578 and a standard deviation of 1.5433. Environmental performance is measured using PROPER.

**Table 2.** Descriptive Statistics Test Results

|      | N   | Minimum | Maximum | Mean  | Std. Deviation |
|------|-----|---------|---------|-------|----------------|
| PEK  | 184 | 0       | .8333   | .2751 | .1629          |
| PR   | 184 | -0.5220 | .5262   | .0686 | .1185          |
| UP   | 184 | 25.9011 | 33.4737 | 29.4578 | 1.5433        |
| KL   | 184 | 0       | 1       | .435  | .4971          |

Source: SPSS output (2019)

Based on Table 3, normality test results indicate that the data has been distributed more than normal because of the significance 0.114 > 0.05 and the upper bound is the significant value of 0.160.

**Table 3.** One-Sample Kolmogorov-Smirnov Test

| Residual unstandardized | Information            |
|-------------------------|------------------------|
| Monte Carlo Sig. (2-tailed) | 0.114  distributed Normal |
| Upper Bound             | 0.160                  distributed Normal |

Source: SPSS output (2019)

Based on Table 4, the test results heterokedastisitas in the regression model shows significant value is below 0.05 so as to overcome the problem heterokedastity, performed treatment using Newey-West HAC in the statistical tools of e-views. The test results Newey-West HAC indicates that there is no heterokedastisitas because HAC value of 5.0000 which is greater than 0.05.

**Table 4.** Heteroskidastity test (after treatment)

| HAC standard errors & covariance | Conclusion                      |
|----------------------------------|---------------------------------|
| equation 1                       | 5.0000                          |
|                                  | Not Happen Heteroskidastity     |

Source: SPSS output (2019)

Based on Table 5, tolerance value (TV) of greater than 0.1 and VIF <10. The conclusion is obtained that is not happening multikolinearitas which means if the independent variable has a relationship with the dependent variable, but do not have a relationship or correlation with other independent variables.
Table 5. Test Multicollinearity

| Model | Tolerance | VIF | Information                  |
|-------|-----------|-----|------------------------------|
| PR    | 0.917     | 1.090 | Did not happen multikolinearitas |
| UP    | 0.915     | 1.093 | Did not happen multikolinearitas |
| KL    | 0.845     | 1.184 | Did not happen multikolinearitas |

Source: SPSS output (2019)

Autocorrelation test aims to test a linear regression model does have a certain relationship between the error period with the previous period. Terms autocorrelation is $D_u < D_w < 4 - D_u$. The results of the autocorrelation states if $1.7920 < 2.167 < 2.208$, so it can be concluded if no autocorrelation. Test the feasibility of the model in this study using the test the coefficient of determination (R2). R Square which is equal to 0.205 so that it can be stated if the independent variables can explain the dependent variable of 20.5%, while 79.5% is explained by other variables that are not used in this study. In Table 6 is unknown if the value sigifikansi $F$-test the feasibility of this model is 0.000. 0.000 value less than 0.05 so that it can be concluded if feasible regression model was used to test the effect of independent variables on the dependent variable.

Table 6. Test F

| F       | significance |
|---------|--------------|
| 15.463  | 0.000        |

Source: SPSS output (2019)

In Table 7 Profitability (PR) has a significance value of 0.222 which is greater than 0.05 so it can be declared if the variables did not significantly affect the profitability of the disclosure of carbon emissions. Size (UP) and environmental performance (KL) has a significance value of 0.004 and 0.000, which is smaller than 0.05 with a regression coefficient +0.021 and +0.104 so it can be declared if the UP and KL significant positive effect on the disclosure of carbon emissions.

$PEK = -0.408 + 0.117PR + 0.021UP + 0.104KL + e$

Table 7. Hypothesis Testing

| Variables | Coefficients unstandardized | B     | Std. Error | t       | Sig   | Information  |
|-----------|-------------------------------|-------|------------|---------|-------|--------------|
| constants |                               | -0.408| 0.214      | -1.911  | .058  |              |
| PR        |                               | 0.117 | 0.095      | 1.224   | 0.222 | Not significant |
| UP        |                               | 0.021 | 0.007      | 2.917   | 0.004 | Significant   |
| KL        |                               | 0.104 | 0.024      | 4.388   | 0.000 | Significant   |

Source: SPSS output (2019)
Discussion

Based on the analysis of the results of testing hypothesis 1, it is known that profitability does not affect the company's efforts to disclose information on emissions. The conclusion in this study together with the results obtained from Deantari, et al. (2019) and Pratama (2018). Statements about the higher the company's ability to generate profits, the higher the possibility that the company did not prove to disclosure of carbon emissions in this study. The results of the study are not supported by stakeholder theory which states that the company operates not only reached the corporate interests, but also provide benefits and meet the interests of other stakeholders. Companies that have a level of profitability (ROA) high regard or have a judgment that the disclosure of carbon emissions do not need to be done because it can disrupt the company's financial success information (Deantari, et al., 2019). Disclosure of carbon emissions can interfere with the company's financial performance as if the company has a value of low carbon emission disclosure, it can affect the views of stakeholders on the company becomes a negative direction (Pratiwi, 2018).

Based on the analysis results of hypothesis testing 2, size positively affects the disclosure of carbon emissions. Results obtained in line with research Suhardi and purwanto (2015), Deantari, et al. (2019), Prafitri and Zulaikha (2016). Companies with a large size scale having more and varied activities (Suhardi and Purwanto, 2015). Companies that have operating activities increasingly numerous and diverse then the resulting emission levels will also be higher. Large companies are under pressure from stakeholders who have high expectations related to management's efforts to address the company's carbon compounds (Prafitri and Zulaikha, 2016). The results of this study in line with the company's stakeholders theory would disclosure of carbon emissions in response to demands from stakeholders,

Based on the analysis results of hypothesis testing 3 positive effect on the environmental performance disclosure of carbon emissions. These results illustrate that if the company has a good environmental performance, the company also inclined to make disclosure of carbon emissions. This study was supported by research Deantari, et al. (2019) and Prafitri and Zulaikha (2016). Superior environmental performance reflects the corporate enthusiastic in carrying out the implementation of related reporting disclosure of carbon emissions (Deantari, et al., 2019). Superior environmental performance enterprise has an associated concern over environmental issues. Disclosure of greenhouse gas emissions is a means to inform the relevant corporate responsibility environmental performance (Prafitri and Zulaikha, 2016). This is in line with the theory of stakeholders, environmental disclosure is one means of weeks to meet the needs of stakeholders to inform the company's environmental performance to all stakeholders (Deantari, et al., 2019). Disclosure of carbon emissions is a breakdown
reports to stakeholders about the company's efforts to address the various impacts of business activities that produce carbon emissions.

**Conclusions**

This study came to the conclusion that the size and environmental performance positive effect on the disclosure of carbon emissions. Large-sized companies have activities diverse so that it will have an impact on the environment, so the company will be prosecuted by the relevant stakeholders the company's contribution to the environment it causes large enterprises will tend to disclose of carbon emissions in response to demands from stakeholders. Companies that have good environmental performance would be more likely to make disclosure of carbon emissions as a form of corporate responsibility towards the environment. Profitability has no effect on the disclosure of carbon emissions for companies that have high profitability assume if disclosure of carbon emissions can interfere with the success of the company's financial information. This study has several limitations, namely the use PROPER research to measure environmental performance, while companies that do not follow PROPER not necessarily have a poor environmental performance. Suggestions that can be used as input for subsequent research that for the next study is expected to use other measurement methods other than the environmental performance because PROPER PROPER still voluntary. while companies that do not follow PROPER not necessarily have a poor environmental performance. Suggestions that can be used as input for subsequent research that for the next study is expected to use other measurement methods other than the environmental performance because PROPER PROPER still voluntary. while companies that do not follow PROPER not necessarily have a poor environmental performance. Suggestions that can be used as input for subsequent research that for the next study is expected to use other measurement methods other than the environmental performance because PROPER PROPER still voluntary.

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## ATTACHMENT

| Category                                | item | Information                                                                                                                                                                                                 |
|-----------------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Climate Change: Risks and Opportunities | CC1  | Assessment / description of the risk (rules / regulations both specific and general) that are associated with climate change and the actions taken to manage these risks.                                     |
|                                         | CC2  | Assessment / description of the current (and future) of the financial implications, businesses, and opportunities from climate change.                                                                        |
| Greenhouse Gas Emissions (GHG / Greenhouse Gas) | GHG1 | Description of the methodology used to calculate greenhouse gas emissions (e.g., GHG protocol or ISO).                                                                                                       |
|                                         | GHG2 | The existence of external verification of the calculation of the quantity of GHG emissions by whom and on what basis.                                                                                             |
|                                         | GHG3 | Total greenhouse gas emissions (metric tons of CO2-e) were produced.                                                                                                                                          |
|                                         | GHG4 | Disclosure of scope 1 and 2, or 3 direct GHG emissions.                                                                                                                                                      |
|                                         | GHG5 | GHG emissions disclosure of origin or source (e.g., coal, electricity, etc.).                                                                                                                                |
|                                         | GHG6 | Disclosure of GHG emissions by facility or segment level.                                                                                                                                                     |
|                                         | GHG7 | GHG emission comparison with previous years.                                                                                                                                                                 |
| Energy Consumption (EC / Energy Consumption) | EC1  | The amount of energy consumed (e.g., tera-joules or mega-joules).                                                                                                                                           |
|                                         | EC2  | Calculation of energy used from renewable resources.                                                                                                                                                         |
|                                         | EC3  | Disclosure by type, facilities, and segments.                                                                                                                                                                |
| GHG Reduction and Cost (RC / Reduction and Cost) | RC1  | Details of the plan or strategy to reduce GHG emissions.                                                                                                                                                     |
|                                         | RC2  | Details of the level of GHG emissions reduction targets of current and GHG emission reduction targets.                                                                                                       |
|                                         | RC3  | Reducing emissions and costs or savings (costs or savings) achieved today as a result of emissions reduction plan.                                                                                             |
|                                         | RC4  | The cost of future emissions are taken into account in the planning of capital expenditure (capex planning).                                                                                                  |
| Accountability Carbon Emissions (AEC / Accountability of Emission Carbon) | AEC1 | Indications that the board committee (or other executive body) has the responsibility for the actions related to climate change.                                                                          |
|                                         | AEC2 | Description of the mechanisms that the board (or other executive body) review the development of companies that deal with climate change.                                                               |

Source: Choi, et al. (2013) Pratiwi, E., Mulyasuryani, A., & Sabarudin, A. (2018).