The effect of profitability and leverage to the carbon emission disclosure on companies that registered consecutively in sustainability reporting award period 2014-2016

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Abstract. This study aimed to examine the effect of profitability and leverage to the carbon emission disclosure on Companies that Registered Consecutively in Sustainability Reporting Award Period 2014-2016. The objects in this research are profitability, leverage and carbon emission disclosure. The dependent variable in this study is the carbon emission disclosure and independent variable is profitability and leverage. Research methods used in this research is explanatory. The research results showed that profitability and leverage significantly influential to the carbon emission disclosure. Profitability variable contributes to the influence of 19.05% against the carbon emission disclosure. Leverage variable contributes to the influence of 26.47% against the carbon emission disclosure, while the rest 54.5% is the magnitude of the influence exerted contribution by other factors that not examined in this research for examples exposure media, operational coverage of the company, and environmental performance.

Keyword. profitability, leverage, carbon emission disclosure

1. Introduction
The issue of tackling global warming is a problem that being aggressively fought in the world. One of the reason is greenhouse gas emissions. Indonesia is one of the largest contributor to greenhouse gas emissions in the world. According to data from the cooperation REDD (Reduction Emissions from Deforestation and Forest Degradation), in 2005 Indonesia contributed for greenhouse gas emissions is 2.05 gigatons. This fact makes Indonesia the third largest emitter of carbon in the world after the United States (5.95 giga tons) and China (5.06 giga tons). Indonesia’s carbon emissions predicted to be 3 giga tons of CO2 in 2020.

One of the causes of climate change in the world is the greenhouse gases resulting from human activities. According Carbon Disclosure Project (2013), 50 of the 500 largest companies listed on the world responsible for nearly three-quarters of the 3.6 billion metric tons of greenhouse gases (GHGs). Carbon produced by 50 companies, which mainly operates in the sectors of energy, materials and utilities sectors (materials and utilities sectors). The carbon has increased by 1.65% to 2.54 billion metric tons over the last four years (cdp.net).

Carbon Emission Disclosure in Indonesia still a voluntary disclosure therefore not all companies disclose it information in their report. According to research [9] disclosure practices of greenhouse gas...
emissions, including carbon emissions is still low to fulfill the ISO 14064-1 guidelines. Although disclosure of carbon emissions in Indonesia is a voluntary disclosure, but companies should pay more attention to it because the last few decades environmental conditions getting worst and claim from citizens to create a livable environment. Carbon emission disclosure have some considerations such as to gain legitimacy from stakeholders, avoiding the threats, especially for companies that produce greenhouse gas to increased operating costs, reduced demand, reputational risk, legal proceedings, and penalties [1][2]. Research [3] finding regarding the control variables allows us to affirm that the volume of information on greenhouse gas emissions significantly depending on the sector of activity in which the company operates. The influence of industry on voluntary disclosure of all types with the aim of reducing the cost of politics. Research [4] found that voluntary disclosure of greenhouse gas emissions are influenced by the presence of an environmental management system, public reporting of the Carbon Disclosure Project (CDP), and the use of the GRI (Global Reporting Initiative). While [5][6] examine the factors that affect to the carbon emission disclosure.

Indonesia made commitments to reduce greenhouse gas emissions. Commitment to reduce greenhouse gas emissions is demonstrated by ratifying the Kyoto Protocol on December 3, 2004 through Law 17/2004 [7]. Based on President Decree 61/2011, 71/2011, 47/2012 explained that industrial sectors can reduce the greenhouse gas emissions and they also have the obligation to carry out Corporate Social Responsibility (CSR), that are mining, agriculture and manufacture. The industry is expected to reduce their greenhouse gas emissions as the realization of CSR [8] [9].

This study uses a framework that is based on stakeholder theory and the theory of legitimacy aims to determine the effects of profitability and leverage extensive disclosure of greenhouse gas emissions in Indonesia. This study uses an index developed by [4] under the direction of ISO 14064-1. Selection of the index is done because this research focuses on greenhouse gas emissions. In a previous study [2] states that in December 2009 Indonesia through the National Standardization Agency adopted ISO that associated with greenhouse gases such as ISO 14064 and 14065. Carbon Emission Disclosures one example of environmental disclosure that is part of the additional reports have stated in SFAS No. 1 (revised 2009) paragraph twelve.

2. Profitability, Leverage and Carbon Emissions Disclosure

Return on Investment (ROI) is used to measure profitability. ROI is more appropriate to describe the level of disclosure of greenhouse gas emissions because of the cost of disclosure is an indirect investment that is expected to enhance the company's net profit. This is consistent with the study [9] which is the company with the ability to better financial performance, the more likely to try to reduce emissions from their corporate activity.

\[
\text{ROI} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}} \times 100\%
\]

Leverage may be implicated in a financial company. This is in line with research [10] in [11] is companies with high leverage may not be able to absorb the adverse financial impact of the disclosure of carbon information. In this study, Debt to Equity Ratio (DER) is used to measure leverage.

\[
\text{Debt to Equity Ratio} = \frac{\text{Total Debt}}{\text{Equity}} \times 100\%
\]

Carbon emissions disclosure captured in the sustainability report that contained in the annual report of the companies and registered consecutively in Sustainability Reporting Award Period 2014-2016. Carbon emissions disclosure item using an index developed by [5] were constructed from the request sheet developed by CDP (Carbon Disclosure Project). If the company's disclosure in accordance with the specified item will be given a score of 1, whereas if the item is determined not disclosed it will be given a score of 0. Then the score 1 overall summed and divided by the maximum number of items that can be expressed and then multiplied by 100%. There are 18 items identified.
3. Theoretical Framework

![Theoretical Framework Diagram]

4. Hypothesis and Research Method

4.1 Hypothesis
The hypothesis is formulated as below:
H1: Profitability effect on Carbon Emission Disclosure
H2: Leverage effect on Carbon Emission Disclosure
H3: Profitability and Leverage effect to Carbon Emission Disclosure

4.2 Research method
The data collected were analyzed using statistical analysis tools F test, t test, coefficient of determination and multiple regression analysis with a model of the following equation:

\[ Y = \alpha + \beta_1 \text{ROI} + \beta_2 \text{Leverage} + e \]

Information:
- \( Y \) = Carbon Emission Disclosure
- \( \alpha \) = constant
- \( \beta_1, \beta_2 \) = Regression Coefficients
- ROI = Return on Investment (Measurement of profitability)
- Leverage = Leverage (Total Debt / Total Assets)
- \( e \) = Error

5. Results and Discussion
Before performing hypothesis testing, performed classical assumption in advance, which includes multicollinearity test, autocorrelation test, heteroscedasticity test, and normality test.

| Table 1: Coefficient Determination and F test Model Summary^b |
|---------------------------------------------------------------|
| Model | R     | R Square | Adjusted R Square | Std. Error of Estimate | R Square Change | F Change | df1 | df2 | Sig. Change | Durbin-Watson |
|-------|-------|----------|-------------------|------------------------|-----------------|--------|-----|-----|-------------|-------------|
| 1     | .675  | .455     | .432              | .753                   | .455           | 20.050 | 2   | 48  | .000        | 1.502       |

a. Predictors: (Constant), Leverage, Profitabilitas
b. Dependent Variable: CED
Table 2: Multiple Regression and t test Coefficient

| Model     | Unstandardized Coefficients | Standardized Coefficients | 95.0% Confidence Interval for B | Correlations | Collinearity Statistics |
|-----------|-----------------------------|---------------------------|--------------------------------|--------------|-------------------------|
|           | B                           | Std. Error               | Beta                           | t       | Sig. | Lower Bound | Upper Bound | Zero-order | Partial | Part | Toler  | VIF |
| 1         | (Constant)                  | -.311                    | .117                           | -2.651 | .011 | -.546      | -.075       |            |         |      | 1.000 | 1.000 |
| Profitabilitas | 0.381          | .094                    | .432                           | 4.057  | .000 | .192       | .570        | .441       | .505    | .432 | 1.000 | 1.000 |
| Leverage | -.542                       | .113                    | -.511                          | -4.791 | .000 | -.770      | -.315       | -.518      | -.569   | -.510 | 1.000 | 1.000 |

a. Dependent Variable: CED

Based on the table, can be concluded that:

1. Based on F test: Profitability and leverage have simultaneous effect to Carbon Emission Disclosures, this means that there is a relationship between profitability and leverage to the Carbon Emission Disclosure.
2. Based on t test: Profitability effect to Carbon Emission Disclosures, and leverage effect to Carbon Emission Disclosures.
3. Multiple Regression:
   Structural equation: \( Y = -0.311 + 0.381X_1 - 0.542X_2 \)
   \( a = -0.311 \) means that, if the profitability variable (X1) and leverage (X2) is equal to zero or constant then CED has a value of \(-0.311\) units.
   \( \beta_1 = 0.381 \), meaning that is when profitability (X1) increased by one unit, and the other variables are constant or equal to zero then the value of the variable to be predicted CED will increase \(0.381\) units.
   \( \beta_2 = -0.54 \), meaning that is when leverage (X2) increased by one unit, and the other variables are constant or equal to zero then the value of the variable CED would be predicted to be down \(-0.54\) units.
4. Coefficient determination:
   Profitability and Leverage has a sufficient relationship and significant to the Carbon Emission Disclosure (CED), as much as 45.52%, and 54.5% is influenced by factors beyond Profitability and Leverage. Partial result can be shown in the table below based on the calculations it can be seen that the profitability variable (X1) gives effect to the CED (Y) of 19.05% and leverage variable (X2) gives effect to the CED (Y) of 26.47%.

Table 3: Partial results of the calculation coefficient of determination

| Research variable | Beta coefficient X Zero Order | Result   |
|-------------------|-------------------------------|----------|
| (X1)              | 0.0432 x 0.0441               | 19.05%   |
| (X2)              | -0.0511 x -0.0518             | 26.47%   |
| TOTAL             |                               | 45.52%   |

This shows the profitability (X1) give effect smaller than the leverage (X2) to CED (Y), which occurs because the value of fluctuations in profitability and reduced leverage annually, making it partially or each variable profitability and Leverage effect to CED.

6. Conclusion
   1) Profitability and Leverage effect to the Carbon Emission Disclosure. This means there is a relationship between profitability and leverage to the Carbon Emission Disclosure.
2) The regression coefficient profitability has a positive sign that means increased profitability will be followed by increasing the Carbon Emission Disclosure in Companies listed consecutively in the Sustainability Reporting Award from the year 2014-2016.
3) Leverage regression coefficient has a negative sign that means increasing leverage then decreasing Carbon Emission Disclosure in Companies listed consecutively in the Sustainability Reporting Award from the years 2014-2016.
4) Based on the conclusions that have been mentioned above, the researchers advise that for the company to report CED fuller, clearer and more transparent. CED will establish and improve the brand image of the company, to investors are expected to be thorough in choosing the company that will make a place to invest. Investors also must pay attention to social responsibility is not only concerned with profit, and academic researchers to further recommended to increase the number of samples in research as well as adding other variables that affect the disclosure of carbon emissions. Several other dependent variables that can be used are the media exposure, the scope of the company's operations, and environmental performance.

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