

# Effect of Greenhouse Gas Emission Disclosure, Environmental Performance, and Disclosure of Corporate Social Responsibility Report on Financial Performance

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**Abstract**—This study aims to examine whether the disclosure of Green House Gas (GHG) emissions proxied by the GHG Emission index, environmental performance proxied by the PROPER rating, and CSR disclosures proxied by the CSR index affect the financial performance proxied by Tobin's Q. To test these three hypotheses, this study will use simple linear regression techniques. This study uses a simple linear regression technique, the analytical method used in this study includes classical assumption tests and model tests. The sample in this study are companies listed in the Indonesia Stock Exchange (IDX) and publish their financial statements in the range of 2014-2016. The research sample was 32 companies with 96 observational data. The results of the study prove that the disclosure of greenhouse gas emissions affects financial performance. Second, environmental performance influences financial performance. Third, CSR disclosure affects financial performance.

**Keywords**—financial performance; tobin's Q; greenhouse gas emissions; environmental performance; CSR disclosure

## I. INTRODUCTION

Global warming is an issue that is widely discussed not only in Indonesia, but also in the world. Global warming is considered as the cause of the increase in the earth's temperature and erratic weather causing flooding, prolonged drought and other natural disasters. Global warming is an event caused by the greenhouse effect that causes an increase in the earth's temperature. One of the causes of the greenhouse effect is caused by the economic activity of the company [1].

The phenomenon of global warming and the amount of environmental damage that exists at this time makes many parties pay more attention to environmental aspects. Nowadays, green business trends are starting to emerge. Companies that implement green business trends, in carrying out their activities or business activities will pay attention to social and environmental effects resulting from the implementation of the company's business activities. Companies that do green business in carrying out their

production activities will try to be as efficient and effective as possible in using energy but still increasing the value of goods or services for consumers. In other words, the company conducts eco-efficiency, namely the company controls the impact of negative externalities [2].

The purpose of this research is because there are still many companies in Indonesia that do not pay attention to negative externalities, so that there is a lot of environmental damage in Indonesia. Whereas if the company carries out consistent environmental management there is an increase in financial performance. Some studies show that there is a positive influence between environmental performance, disclosure of social accountability reports (CSR) and the company's financial performance. Companies that have good environmental performance and disclose reports on financial performance, such as those carried out by Miroshnychenko et al. [3], Nor et al. [4] who conduct research in companies in Malaysia, Chang [5], Song et al. [6], Fan et al. [7] who conducts research in companies in China, Przychodzen and Przychodzen [8] who conduct research in companies in Poland and Hungary, and Angelia and Suryaningsih [9]. While the research conducted by Rahmadhani [10], Iqbal [11] shows that environmental performance does not significantly influence financial performance.

The aim to be achieved in this study is to determine the effect of greenhouse gas disclosure on financial performance, to determine the effect of environmental performance on financial performance, and to determine the effect of CSR disclosure on financial performance.

## II. LITERATURE REVIEW

### A. Environment Performance

Assessment of environmental performance in Indonesia uses the rules used by the Ministry of Environment. The environmental performance assessment carried out by PROPER has been used by several parties to assess the company's environmental performance. Like for example the

banking industry uses proper reports to be used as a basis for assessing the level of risk of a company, the Ministry of Energy and Mineral Resources as the basis for awarding the Adhitama Award, and the ILO (International Labor organization) Award as a reference for performance appraisal (Proper Reports 2015 and 2016).

#### B. PROPER Implementation Objectives

There are five ratings for PROPER environmental performance ratings, namely: 1) Gold rating is the highest rating in the PROPER assessment. 2) Green rating is given to companies that have carried out environmental management activities in excess of those required in the regulations. 3) Blue rating is given to companies that have carried out environmental management activities in accordance with the provisions of the prevailing laws and regulations. 4) Red rating is given to companies that have carried out environmental management activities but not in accordance with the provisions of the prevailing laws and regulations. 5) Black rating is given to companies that intentionally carry out the excavation causing environmental damage (www.proper.menlh.go.id).

#### C. Corporate Sosial Resposibilty Report

Corporate Social Responsibility (CSR) is the process of communicating social and environmental effects on the economic actions of the company to certain groups in society. The company's negative contribution to the surrounding environment has caused a loss of public trust by disclosing information about the company's operations in relation to the environment as a responsibility of the company [12].

#### D. Financial Performance

Financial Performance is an important thing for management, because performance is the work that can be achieved by a person or group of people in an organization, in accordance with the authority and responsibility of each in order to achieve the objectives of the organization legally, not violating the law and in accordance with morality and ethics [13].

#### E. Previous Research

Nor et al. [4] in their research results 1) Disclosure of environmental performance has a significant effect on profit margin, 2) Disclosure of environmental performance has no effect on ROA, EPS, & ROE. Chang [5] with the results of his research 1) environmental performance has a negative effect on Tobin's Q, 2) The tendency of environmental disclosure has a positive effect on Tobin's Q, 3) asset size, assets leverage, ROA has a positive effect on financial performance, 4) environmental performance & efficiency disclosure has a significant effect on financial performance from 2008-2012. Chen et al. [14] with Performance results. The environment has a positive effect on ROA and ROS. But it has no effect on Tobin's Q. Song et al. [6] 1) found the results of environmental performance had no significant effect on ROE and EPS, 2) environmental performance had no significant effect on ROE.

Przychodzen and Przychodzen [8] with result 1) there is a significant positive relationship between environmental performance with ROA, 2) there is no significant relationship between environmental performance and ROE. Miroschnychenko et al. [3] with the results of green practices by the company have a significant positive effect on the profitability of the company.

#### F. Hypothesis Development

H1: Disclosure of Greenhouse Gas Emissions Affects the Company's Financial Performance in Indonesia.

H2: Environmental Performance Affects the Company's Financial Performance in Indonesia.

H3: Disclosure of CSR Reports Affects the Company's Financial Performance in Indonesia.

### III. RESEARCH METHODS

#### A. Research Approach

This study uses a quantitative approach by testing hypotheses using measurable data so as to produce conclusions that can be generalized. This study includes the effect of disclosure of greenhouse gas emissions, environmental performance, and disclosure of CSR reports on the financial performance of companies in Indonesia.

#### B. Variable Identification

The dependent variable in this study is the financial performance of companies in Indonesia. Indicators used are:

$$\text{Tobin's Q} \\ Q = \frac{EMV + D}{EBV + D}$$

The independent (independent) variables used in this study consisted of: 1) Disclosure of Greenhouse Gas Emissions (X1), 2) Environmental Performance (X2), 3) Disclosure of CSR Reports (X3). Independent variables can be interpreted as independent variables, a variable that can influence or become a change in the dependent variable [15].

The disclosure of greenhouse gas emissions uses the following 5 categories: 1) Climate change risks and opportunities (Climate Change), 2) Calculation of greenhouse gas emissions, 3) Calculation of energy consumption (Energy Consumption), 4) Home gas reduction glass and costs (Reduction and Cost), 5) Accountability of Carbon Emissions.

The measurement of environmental performance in this study uses the PROPER rank, in which there are five ratings assessed by dummy numbers.

Assessment of CSR Report disclosures uses dummy numbers. Companies that implement and disclose CSR items in their annual reports will be numbered 1 and if the company does not disclose CSR it will be given a number 0. The formula used in using CSRIj Angelia and Suryaningsih [9].

$$CSRDI_j = \sum_{nj} X_{ij}$$

CSRI<sub>j</sub> : CSR Disclosure Index.

N : total item  $n \leq 20$

X<sub>ij</sub> : variable dummy: 1: if conducting CSR report disclosures; 0 = if not CSR disclosure,  $0 \leq CSRI_j \leq 20$ .

### C. Type and Source of Data

The type of data taken in this study uses secondary data taken from the company's annual report and PROPER report. Data collection methods in this study were carried out through secondary data search (literature study) and documentation techniques.

### D. Population and Sample

The population in this study were all companies whose environmental performance was evaluated by the Ministry of Environment of the Republic of Indonesia through the PROPER program during the period 2010-2016. The criteria used are as follows:

- The company is listed in the PROPER rating for the period 2014-2016
- The company is listed on the Indonesia Stock Exchange (IDX) for the period 2014-2016.
- The company issues an annual report and can be downloaded through the IDX website or the website of each company.

### E. Analysis Technique

This study uses a simple linear regression technique because there are only 3 independent variables and 1 dependent variable namely financial performance in testing it. The analytical method used in this study includes classical assumption tests and model tests. Classic assumption test consists of: 1) normality test, 2) heteroscedasticity test, 3) autocorrelation test, 4) multicollinearity test. Hypothesis testing consists of: 1) Simple Linear Regression Analysis, 2) Multiple Linear Regression Analysis.

## IV. RESULTS AND DISCUSSION

### A. Description of Research Object

Determination of the sample in this study using purposive sampling method. The initial sample obtained in this study amounted to 350 companies, but after being selected based on the criteria set, the final sample was obtained by 32 companies where the researchers used the data collection method for 3 years starting from 2014-2016 and obtained as many as 32 companies with 3 periods to obtain 96 observational data.

In this study the samples examined included disclosure of greenhouse gas emissions proxied by GHG EMISSION index, environmental performance proxied by PROPER ratings, and CSR disclosures proxied by CSR index as independent

variables, and financial performance proxied by Tobin's Q as dependent variable.

### B. Classical Assumption Test Results

Normality testing in this study uses the Kolmogorov-Smirnov Test. The results of the normality test show that the Kolmogorov-Smirnov value is 3.135 and is significant at 0.763. This means that the residual data is normally distributed because of normal conditions if the significance level is  $> 0.05$ .

The Glejser test results obtained the significance value of the GHG EMISSION index (X1) is 0.312; PROPER rating (X2) 0.225; and CSR Disclosure (X3) 0.020. If the probability level is significant X1, X2, and X3  $< 0.05$ , then it can be said to contain heteroscedasticity, so it can be concluded that residual data does not occur heteroscedasticity.

The test results using the Durbin Watson Test showed that the Durbin Watson value of 2.127 would be compared with the table value using a 5% significance for the number of samples  $n = 96$ , the number of independent variables 3 ( $k = 3$ ), the value of  $dl = 1.602$  and  $du = 1.732$ . Because the value of Durbin Watson 2.127 is greater than the upper limit ( $du$ ) of 1.732 and less than  $(4-du) 4-1.732 = 2.268$ , it can be concluded that there is no autocorrelation.

The test results using the Multicollinearity Test show all independent variables have a VIF value  $\leq 10$  and also a tolerance level of  $\geq 0.10$ , which means the data is free from multicollinearity.

### C. Hypothesis Testing Results

From the regression equation model used, there are three hypotheses tested, the results of regression calculations are shown in Table 1 as follows.

TABLE I. CONCLUSION OF REGRESSION CALCULATIONS

Hipotesis	Adjusted R <sup>2</sup>	F	Sig.	T	Sig.	Conclusion
H1	0,100	2,453	0,024	-2,309	0,024	Accepted
H2	0,070	0,354	0,043	-0,595	0,043	Accepted
H3	0,017	0,677	0,015	0,636	0,015	Accepted

Source: Data processed by the researcher, 2018

1) *Hypothesis 1 model test results (H1)*: The results of the results of the statistical test F obtained that the probability value (F count) is 2.453 and is significant at 0.024. So, it can be concluded that simultaneously, the independent variable GHG EMISSION index (X1) has a significant effect on the dependent variable Tobin's Q seen from its significance level  $< 0.05$ .

That the t value (t-count) in the regression shows the GHG EMISSION index (X1) has a t-count of -2.309 with a significance of 0.024 which means that there is an effect of GHG EMISSION index (X1) on Tobin's Q seen from its significance level  $< 0.05$ .

The first hypothesis examines the effect of the Greenhouse Gas Emission Disclosure variable proxied by the GHG EMISSION index (X1) on the financial performance variables proxied by Tobin's Q. It can be seen that the significance level

of the GHG EMISSION index (X1) is 0.024. Because the significance level of the GHG EMISSION index (X1) is less than 0.05, the first hypothesis (H1) is **accepted**.

2) *Hypothesis 2 model test results (H2)*: The results of the results of the statistical test F obtained that the probability value (F arithmetic) is 0.354 and is significant at 0.043. Judging from the probability of significance <0.05, the regression model can be used to predict Tobins Q or it can be said that the PROPER rating (X2) affects Tobins Q.

The value of t (t-count) in the regression shows the PROPER rating (X2) has a t count of -0.595 with a significance of 0.043 which means that there is an influence of PROPER rating (X2) on Tobins Q seen from its significance level <0.05.

The second hypothesis examines the effect of the Environmental Performance variable proxied by the PROPER rating on the financial performance variables proxied by Tobin's Q. That the significance level of the PROPER rating (X2) is 0.043. Because the significance level of PROPER rating (X2) is less than 0.05, the second hypothesis (H2) is **accepted**.

3) *Hypothesis 3 model test results (H3)*: The results of the results of the statistical test F obtained that the probability value (F count) is 0.677 and is significant at 0.015. Judging from the probability of significance <0.05, the regression model can be used to predict Tobins Q or it can be said that CSR disclosure (X3) affects Tobins Q.

The value of t (t-count) in the regression shows CSR disclosure (X3) has a t count of 0.636 with a significance of 0.015 which means that there is an effect of CSR (X3) disclosure on Tobins Q seen from its significance level <0.05.

The third hypothesis examines the effect of the CSR Disclosure variable that is proxied by the CSR index on financial performance variables proxied by Tobin's Q. From table 4.15 it can be seen that the significance level of CSR Disclosure (X3) is 0.015. Because the significance level of CSR Disclosure is less than 0.05, the third hypothesis (H3) is **accepted**.

## V. CONCLUSION

### A. Conclusion

Based on the results of the previous analysis and discussion, conclusions were obtained as follows:

- Disclosure of Greenhouse Gas Emissions proxied by the GHG EMISSION index on financial performance proxied by Tobin's Q shows that Disclosure of Greenhouse Gas Emissions affects financial performance. This shows that if the disclosure of Greenhouse Gas Emissions in this case the high GHG EMISSION index will affect the financial performance, and vice versa.
- Environmental performance proxied by the PROPER rating on financial performance proxied by Tobin's Q shows that environmental performance influences

financial performance. This shows that if the environmental performance in this case is a high PROPER rating, it will affect the financial performance, and vice versa.

- CSR disclosures proxied by the CSR index on financial performance proxied by Tobin's Q indicate that CSR disclosures affect financial performance. This shows that if CSR disclosure in this case a high CSR index will affect financial performance, and vice versa.

### B. Suggestion

Suggestions that can be given related to the results of this study are Suggestions for further research are expected to use other financial performance proxies, such as return on assets (ROA), return on investment (ROI), return on equity (ROE), leverage, Earning Value Added (EVA), Market Value Added (MVA) or other more relevant proxies.

The subjective evaluation of CSR based on the views of the author is possible to have different results for other researchers. It is hoped that further research can use CSR /disclosures based on current GRI.

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