

# Analysis of The Disclosure of Greenhouse Gas Emissions and Environmental Performances in Listed Firms at The Jakarta Islamic Index

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**Abstract**— Indonesia fully supports the United Nations by designing and legalising Constitution No. 17 2004 about the Kyoto Protocol to the United Nations Framework Convention on Climate Change, Presidential Decree No. 61 2011 about the National Action Plan to Reduce Greenhouse Gas Emission, and Presidential Decree No. 71 2011 about the Inventory Operation of National Greenhouse Gas. The energy sector in Indonesia contributes 20% of greenhouse gas emission with the annual percentage increasing to 3.5% which comes from the burning of fossil fuels to boost Indonesia's national economy. Since 1995, the Indonesian government has issued a policy about the Corporate Performance Rating Program in Environmental Management or PROPER (*Program Penilaian Peningkatan Kinerja Perusahaan dalam Pengelolaan Lingkungan*). The result of the ranking is in the form of the colours of gold, green, blue, red, and black. Al-Qur'an in Surah Al-A'raf verse 56 and Surah Ar-Rum verse 41 states that those of the Islamic faith are ordered to maintain the world's environment. The research sample consists of 150 listed firms in the Jakarta Islamic Index at the end of each year from 2012 to 2016. This research uses the quantitative methodology with binary logistic regression and multinomial regression analysis. The results of this research indicate that corporate performance, profitability in the form of ROA and ROE, firm size and environmental performance are not significant influences related to the disclosure of greenhouse gas emissions. But, through the Classification Table, the output shows that the logistic regression model used is good enough because it was able to predict correctly as much as 89.3% of the conditions. Whereas corporate performance, profitability in ROA and ROE, and firm size are significant influences on the environmental performance of the company. This proves that the listed firms in JII have good environmental performance in accordance with corporate performance, profitability and firm size.

**Keywords**—greenhouse gas emissions; environmental performance; Jakarta Islamic Index (JII); annual report; financial statement

## I. INTRODUCTION

Firms as an economic agent have a great opportunity when it comes to producing environmental emissions in their operations to the earth, so the firms are responsible for reducing the emissions that they produce. According to Griffith et al. (2007), global warming and the risk of climate change are internationally recognised as a significant problem for all of the firms in the world. As one of the solutions of the

global warming and climate change problem, the United Nations in the Kyoto Protocol mandates that each firm in the world should disclose the firm's greenhouse gas emissions in order to find out and decrease the amount of greenhouse gas emissions that they output. The Indonesian government also fully supports United Nations by having drafted and legitimised UU number 17 2004 about The Ratification of the Kyoto Protocol to The United Nations Framework Convention on Climate Change, PP number 61 2011 about the National Action Plan for Greenhouse Gas Emissions Reduction, and PP number 71 2011 about The Inventorisation of National Greenhouse Gases.

According to Sadjiarto (2012), the disclosure of corporate environment and greenhouse gas emissions is one of the factors which affects the achievement of the firm's financial performance. With the existence of laws, the pressure from other parties, and the emergence of awareness about climate change, so firms have decided to disclose the firm's greenhouse gas emissions and to make serious efforts to reduce it (Kolk et al., 2008). In Islam through Al-Qur'an surah Al-A'raf verse 56, it says "And do not make mischief on the earth after (Allah) has been set in order and pray to Him with fear (will not be accepted) and hope (will be granted)" and in Surah Ar-Rum verse 41, it says that "Mischief has appeared throughout the land and sea by (reason of) what the hands of people have earned so He may let them taste part of (the consequence of) what they have done that perhaps they will return (to the righteousness)". Therefore it can be said that those of the Islamic faith have been commanded to preserve the environment. There are a group of firms in the Indonesian Stock Exchange which are classified as shariah in their finances and operations. These firms are attached to the Jakarta Islamic Index (JII). It is necessary to analyse whether the firms participate in keeping the environment as healthy as possible as it is a teaching of Islam.

## II. LITERATURE REVIEW

### A. Stakeholder Theory

The endurance of the firm depends heavily on stakeholder support (Gray, Kouhy, and Adams in Ghazali and Chariri, 2014). Purnomosidhi (2006) said that the stakeholder has the

right to know information about financial performance and nonfinancial performance alike (policy, decision, social, and environmental). Firms are under direct or indirect pressure from the stakeholders about environmental disclosure (Ghomi and Leung, 2013).

#### *B. Environmental Performances*

The Indonesian government, through the Ministry of the Environment, in 1995 issued the government policy called as PROPER or Corporate Performance Rating Program in Environmental Management in order to improve firm's environmental performance. There are five colours in PROPER which include gold (to the firms who consistently have environmental excellency, ethics and societal responsibility), green (for implementing environmental management beyond compliance, the effort of 4R Reduce Reuse Recycle and Recovery, and social responsibility through CSR or Comdev), blue (for the business that has environmental management appropriate with the applicable regulations), red (environmental management is not yet in appropriate with the regulations and is in the stage of administrative sanctions) and black (for the business that intentionally or careless results in environmental damage as well as the violation of the regulations and not implementing administrative sanctions).

#### *C. The Disclosure of Environmental Report*

According to Rankin et al. (2011), the disclosure of greenhouse gas emissions in the business's environmental report is a management attitude which aims to have a degree of accountability and transparency of information for the stakeholders, as well as being a way to adapt with and to society in order to create or maintain their legitimacy. In addition to the Kyoto Protocol, there is also the GRI (Global Reporting Initiative) guideline which explains about the seven criteria of disclosure and reporting greenhouse gas emissions.

#### *D. Profitability*

According to Fraser (2008), there are five things most commonly used as basic analysis in financial statements which consist of the background of the firm, short-term liquidity, the efforts of efficiency, profitability, and capital structure and the ability to pay off long-term debt. The profitability ratio is a ratio used to measure the rate of firm's ability to earn profits in sales, assets, and shares. Robinson et al. (2009) said that the profitability ratio consists of gross profit margin, operating profit margin, net profit margin, pretax margin, ROA and ROE.

#### *E. Corporate Performance*

Corporate performance is as a reflection of the results achieved by the firm in their activities, programs or policies with the aim to implement their mission for the sake of achieving the objectives that tie in to the firm's vision. As a form of responsibility to do with corporate performance, it is necessary to present and report the results of corporate performance in the form of a performance report. With the presence of corporate performance, it can be a tool to evaluate

and motivate employees to achieve the firm's goals. In addition, Sukamulja (2004) said that corporate performance for managers is also useful to help them to make decisions in the company's financial structure strategy. Tobin's Q is a ratio which is expected to provide the information which explains about events such as cross-sectional differences in the decision-making of investment diversification, the relationship between management performance with any gains in acquisition and the funding of dividend and compensation (Fan, 2003; Onwioduokit, 2002; Gompers, 2003; Imala, 2002 in Sukamulja, 2004). Cowen et al. (1987) said that large corporations also learn to have shareholders who are interested in social and environmental changes. In addition, Galani et al. (2011) said that large corporations also have more resources by paying for the cost of information production which consists of collecting and producing the information for the readers of the annual report. With the existence of competitive cost advantage, large corporations are more revealing with the information in their annual reports than smaller companies. Wang et al. (2013) said that large corporations will get more pressure from social and political elements than smaller companies.

#### *F. Firm Size*

Some components of firm size include total assets, sales, or market capitalisation through the number of shares listed on the stock exchange. Tabachnick and Fidell (2007) said that firm size based on the market capitalisation can cut down outliers and the high slope of raw data. Stanny and Ely (2008) and Prado-Lorenzo et al. (2009) said that large corporations tend to do voluntary disclosure because the firm's activities affect the environment directly or indirectly, resulting in high monitoring from the public and the government.

### III. RESEARCH METHOD

This research study used the quantitative methodology with binary logistic analysis and multinomial regression analysis. The exogenous variables are firm performance, firm size, and profitability. The endogenous variables are the disclosure of greenhouse gas emissions and environmental performance. The samples in this research are the 150 firms taken from the listed firms in JII at the end of 2012-2016. The data was taken from 2012 due to the PP number 61 2011 about National Action Plan for Greenhouse Gas Emission Reduction and PP number 71 2011 about the Inventarisasi of National Greenhouse Gas.

### IV. DISCUSSION

#### *A. Environmental Performance*

In this research study, we have stated that the profitability in ROA and ROE, corporate performance and firm size are significant influences when referring to the result of environmental performance in the listed firms in JII. The results can be seen in Table 1 in which all p-value values are smaller than 0.05 with a 95% confidence level.

TABLE I. RESULT OF ENVIRONMENTAL HYPOTHESIS TEST

Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	Df	Sig.
Intercept	354.844	17.540	4	.002
KP	352.714	15.410	4	.004
ROA	350.269	12.966	4	.011
ROE	359.818	22.515	4	.000
SP	350.992	13.689	4	.008

Source: Secondary data were processed, 2017

According to Fraser (2008), profitability is a ratio to measure the firm’s ability to earn profits in sales, assets, and shares. Profitability in this research is measured by ROA and ROE. The result of profitability is that the ROA and ROE in the listed firms at JII have a significant effect on environmental performance.

The measurement of performance using Tobin’s Q as a ratio can give information that is used to describe any event. The corporate performance in the listed firms at JII has a significant effect on maintaining and even increasing the stakeholders’s trust. This can be seen from the value of the sum of market capitalisation, total debt, and total equity.

Stanny and Ely (2008) and Prado-Lorenzo et al. (2009) stated that large firms tend to make voluntary disclosures because their activities affect the environment directly or indirectly which results in high monitoring from the public and the government. In this research study, the size of the listed firms in JII has a significant effect on environmental performance.

**B. Disclosure of Greenhouse Gas Emissions**

As Al-Qur’an is directed to preserve the environment, the United Nations supported by the Indonesian government together guards the global environment especially in firms around the world, encouraging them to disclose their greenhouse gas emissions. Although greenhouse gas emissions

disclosure is still voluntary, it is one of the most important things in relation to maintaining the environment and human life for today and for the future. The disclosure of a firm’s greenhouse gas emissions in their annual report is as an added-value for the management from the stakeholders because the firm is not just focused on profit, but also contributing to its stakeholders by upholding the sustainability concept of the Triple Bottom Lines 3P’s (Profit, People, Planet) in the management of the firm.

The disclosure of greenhouse gas emissions is based on a categorical scale, and then uses logistic regression. Based on the Overall Test, it is found that the result of the statistic test of G is 9.448 with the p-value being less than 0.05. It can be concluded that with a confidence level of 95% simultaneously, it has been found that it is not a significant variable which can be seen in Table 2.

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 <sup>a</sup> size	.000	.000	.261	1	.609	1.000
kinerja_perusahaan	.000	.000	1.271	1	.260	1.000
roa	-.079	.070	1.290	1	.256	.924
roe	.028	.033	.733	1	.392	1.029
kinerja_lingkungan			.483	4	.975	
kinerja_lingkungan(1)	-18.866	19881.937	.000	1	.999	.000
kinerja_lingkungan(2)	-19.230	19881.937	.000	1	.999	.000
kinerja_lingkungan(3)	-19.217	19881.937	.000	1	.999	.000
kinerja_lingkungan(4)	-19.471	19881.937	.000	1	.999	.000
Constant	20.594	19881.937	.000	1	.999	878597313.1

a. Variable(s) entered on step 1: size, kinerja\_perusahaan, roa, roe, kinerja\_lingkungan.

FIG. 1. RESULT OF L HYPOTHESIS TEST OF GREENHOUSE GAS EMISSIONS DISCLOSURE

Source: Secondary data were processed, 2017

In relation to Goodness of Fit, the feasibility or suitability of the model can be seen by substantially (whether the resulting model can be understood by the knowledge itself) and statistically (other statistical criteria which must be seen in logistic regression, consisting of Hosmer-Lemeshow, Nagelkerke R-Square, and Classification Plot). By way of Hosmer-Lemeshow, it obtained a p-value of 0.982 so more than 0.05. It is therefore concluded that the logistic regression model which was used in this research has been sufficiently capable to clarify the data or that it can be said to be appropriate. As displayed in the Classification Table in Table 3, the output shows that the logistic model used is good enough because it is able to guess correctly as much as 89.3% of the conditions.

Observed	pengungkapan_emisi	Predicted		Percentage Correct
		tidak	ya	
Step 1	pengungkapan_emisi tidak	0	16	.0
	ya	0	134	100.0
Overall Percentage				89.3

a. The cut value is .500

FIG. II. CLASSIFICATION TABLE

Source: Secondary data were processed , 2017

## V. CONCLUSION AND RECOMMENDATION

1. Using multinominal regression analysis, corporate performance, firm profitability in ROA and ROE, and firm size significantly influences the environmental performance for the listed firms in JII.
2. Using binary logistic regression analysis, corporate performance, profitability in ROA and ROE, firm size and environmental performance are not significantly affected in relation to the disclosure of greenhouse gas emissions at the listed firms in JII.
3. Through the classification table, the output shows that the logistic regression model which was used in this research is good enough because it is able to predict correctly as much as 89.3% of the occurred conditions.
4. For the next research study, the variable of greenhouse gas emissions disclosure will be better to use nominally by looking at how much greenhouse gas emissions are reported and using multinominal regression analysis to get better results.

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