

The Effect of Carbon Emission Disclosure and Social Performance on Financial Performance, with Firm Growth as Moderation

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Abstract

This study aims to determine the effect of Carbon emissions disclosure, Social Performance, Firm Growth, and Financial Performance. This research is causal research with a quantitative descriptive approach with the object of research on manufacturing companies listed on the Indonesia Stock Exchange (BEI). The research data are secondary data obtained from looking at the financial statements of companies including manufacturing companies listed on the IDX from 2017 - 2019. The results of the study stated that carbon emissions 'disclosures and social performance affected financial performance. Firm growth strengthened the relationship between carbon emissions' disclosures and financial performance. However, firm growth weakens the relationship between social performance and financial performance.

Keywords: Carbon Emission disclosure, social performance, Firm Growth, and Financial Performance.

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INTRODUCTION

In the current era of globalization where the development and growth of the economies of countries around the world cannot be separated from the role of existing companies, one of which is in the manufacturing industry sector. In the country of Indonesia, this company is considered to have a positive impact on the Indonesian economy. Head of the Central Statistics Agency (BPS) Suhariyanto said the growth of the manufacturing industry in 2018 increased by 4.07 percent compared to 2017 (Central Statistics Agency, 2019). Deputy Governor of Bank Indonesia (BI), Dody Budi Waluyo also said that the manufacturing sector is seen as one of the important pillars of the Indonesian economy (Liputan 6, 2019). By having maximum profit, because the profit increases, the company's financial position will develop, which means it can show the health level of a company. The goal of companies in increasingly tight and competitive economic conditions is to get maximum profits with long-term growth and also to maintain the survival of the company itself according to Choiriah (2019). Meanwhile, according to Nengzih (2014) Companies with good governance, management control systems and planning will have an impact on the company's survival. The existence of financial performance in the company is one measure of success. For management,

by knowing the company's financial performance, management can evaluate or make policies to improve and enhance financial performance. Carbon emissions have been considered as one of the main threats to environmental pollution. Since the industrial revolution, human activities have led to increased temperature concentrations, climate change on the surface of the earth's atmosphere which has had detrimental consequences on natural and human ecosystems resulting in global warming. The impact on the company itself, such as damage to raw materials due to floods, prolonged drought, and the distribution system is hampered by landslides (Choi et al, 2013). Like the phenomenon that occurred in 2019 in Indonesian companies engaged in the manufacturing industry, the case of 114 factories polluting the environment in Jakarta was the focus of the DKI provincial government. One of them is PT. Mahkota Indonesia (chemistry).

This company has been sanctioned and is considered indicated to have emitted excess carbon through exhaust gases or chimneys which are considered to be polluting the environment because it does not meet the standard quality standards for social and environmental responsibility through independent control activities required in Regulation of the Minister

of Environment Number 13 of 2009 concerning Standards. Emission Quality of Immovable Sources for Business and Governor Decree No. 670 of 2000 concerning Quality Standards of Emission Sources of Immovable Resources in DKI Jakarta Province (Kompas, 2019). To prevent greater economic losses (UNFCCC) or the United Nations Framework Convention on Climate Change created an international amendment known as the Kyoto Protocol, which was made in Kyoto, Japan in 1997. The essence of the convention is to oblige its members to reduce carbon emissions (Irwhantoko, 2016). Disclosure of carbon emissions in Indonesia is currently still voluntary (voluntary). So, from the phenomenon that occurs also the lack of social performance of companies can create unfavorable views of the company in the eyes of stakeholders, which triggers a decrease in the level of public trust, decreased sales products and decreasing interest of investors to invest, which will have an impact on the company's financial performance (Eduardus & Juniarti, 2016). The same thing was expressed by (Nurlis, 2019) who stated that disclosure of carbon emissions in Indonesia was still voluntary, so not all companies disclosed information about disclosing carbon emissions in their reports. This makes research about disclosure of carbon emissions is interesting to study. Financial Performance is considered important to measure the extent to which the company generates a return on the business it does. If the financial performance of the company is considered important to measure the extent to which the company generates a return on the business it undertakes. If the company's financial performance is good, then the business value will be high. The quality of the information in the financial statements can also be assessed from the extent to which information disclosure is carried out and published by the company. Good environmental performance can encourage greater productivity, increase the level of consumer confidence, attract more investors, reduce environmental costs, and improve the company's financial performance (Widhiastuti et al, 2017).

Social Performance has a reciprocal relationship between the company and the community to develop ethical business practices to comply with the law, as well as communicate the social activities the company carries out. The quality of the information in the financial statements can also be assessed from the extent to which information disclosure is carried out and published by the company. This is because the survival of the company is not only determined by the level of profitability, but also the need to combine economic, social, and environmental performance and consider the impacts arising from these decisions, both in the short and long term (Eduardus & Juniarti, 2016). The expected accounting concept is the transparency of social disclosure of social activities carried out by the company, where users of the company's annual report (stakeholders) are not only limited to the benefits

obtained in mandatory reports but also information regarding the company's concern for social and environmental conditions. Included in voluntary reports (Suparjan & Mulya, 2012).

Carbon research is usually carried out in developed countries, for this study using a sample of Indonesia as a developing country. Previous research conducted by Kelvin et al. (2017), Irwhantoko (2017), and Rokhmawati et al., (2015) stated that an increase in carbon emissions was followed by a significant increase in positive ROA. This result is in line with the findings of Ganda (2018) and Choi et al. (2013) that carbon emissions have a positive effect on profitability. But this is not in line with the findings of Iwata and Okada (2011) that carbon emissions have a significant negative effect on ROA. Widhiastuti et al., (2017), Eduardus and Juniarti (2016), Rahmawati and Ahmad (2012) concluded that corporate social performance has a positive effect on ROA. The better the performance or social reporting, the better the company's financial performance. But this is not in line with research conducted by Rosyid (2015) which states that social performance partially does not have a significant effect on ROA.

Basic theory and development of hypothesis Stakeholder Theory

According to Stakeholder Theory, a company is not an entity that only operates for its interests, but must also be able to provide benefits to stakeholders. That way the company's existence can be influenced by the support provided by the company's stakeholders. According to Gray et al., (1995) the responsibility of a company in carrying out its operations is not only limited to its stakeholders, but in running its business the company must be responsible for the surrounding environment and social responsibility.

Meanwhile, Friedman & Miles, (2002) states that stakeholders argue that cultural systems (some thinking about what is right and wrong depend on universal laws of logic) shape the thoughts and actions of others.

According to Lu, Abeysekera (2014) stakeholder theory tries to explain how companies identify strong stakeholder groups who can influence, or be influenced by, the company's social and environmental disclosure practices, and how companies respond to their expectations. Agency theory assumes that companies need support from stakeholders in managing their company. This is because stakeholders take part in making company decisions and require stakeholder approval.

Legitimacy Theory

Legitimacy is a psychological condition of taking sides of people and groups of people who are very sensitive to the symptoms of their surrounding

environment, both physical and non-physical (Nor Hadi, 2011: 87). Legitimacy theory states that organizations are continuously looking for ways to ensure their operations are within the limits and norms prevailing in society (Rokhlinasari, 2018). This legitimacy theory is related to the "social contract" between the community and the operating companies. Where the community has special standards for companies operating in the neighborhood where they live. This social contract is not always fixed, but changes along with the development of a company and the environment. This can be a motivation or vice versa as company pressure to face change and adjust it to the company's products, methods and goals (Nor Hadi, 2011: 88).

Carbon Emission Disclosure

Carbon Emission according to Choi et al. (2013) is defined as the release of gases containing carbon into the Earth's atmosphere. Human and corporate activities make carbon dioxide levels denser so that nature cannot absorb all the available carbon dioxide. Types of emissions (emissions) include gases released from the combustion of carbon-containing compounds such as greenhouse gases GHG which includes (Carbon dioxide (CO₂), Methane (CH₄), Nitrous oxide (N₂O), Hydrofluorocarbons (HFCS), Perfluorocarbons (PFCS), Sulfur hexafluoride (SF₆), Ozone-depleting substances (ODS), Nitrogen Oxide (NO_x), Sulfur oxide (SO_x), and other air emissions (Irwhantoko, 2016). These gases are produced by business activities so that it is appropriate for business actors to provide information about their role in minimizing the onset of global warming. This carbon emission disclosure indicator is measured using the criteria suggested by the Global Reporting Initiative Standards (GRI, 2016), which compares the disclosure of items issued by the company with the criteria items according to GRI.

Social Performance

Social performance is a business organizer configuration of the principles of social responsibility, responding to social activity policies, programs and displaying results as they relate to corporate social relations (Wood, 1991). Social performance is a form of corporate social responsibility for sustainable development of the environment which is closely related to a reciprocal relationship between the company's business entities and the community. Companies that can manage their stakeholders will be able to achieve better corporate financial performance. Managing stakeholders can be done by companies by building better relationships, communicating, and accommodating stakeholder interests, one of which can be realized through corporate social responsibility activities (Lindawati & Puspita, 2015). Good corporate social performance makes the company viewed positively by stakeholders. That way the company will

get many benefits such as customer loyalty and trust from stakeholders.

This in turn will trigger better company finances, so that company profits will increase. The increase in company profits will then lead to an increase in the company's ROA in the following year. The company's social performance indicators expressed in sustainability reporting are measured using the criteria suggested by the social section of the Global Reporting Initiative Standards (GRI, 2016). The choice was made because the National Center for Sustainability Reporting (NCSR) is an independent organization that develops Indonesian sustainability reporting and also measures corporate social performance based on the criteria suggested by GRI and uses the latest version.

Financial Performance

Financial performance is an analysis of the company's financial position report in a certain period, to find out how efficient and effective a company is in generating revenue (Malik and Nadeem, 2014). Financial performance is an analysis carried out to see the extent to which the company has implemented the rules of financial implementation properly, providing a view of the company's financial condition for a certain period to measure the success of a company which generally focuses on performance information derived from financial reports and data. -Other non-financial data of a supporting nature. Because the company wants to know the profit, the level of health, and the level of risk from the results of the operations it has carried out (Hanafi, 2016: 74). The efforts made by the company to evaluate the efficiency and effectiveness of the company's activities that have been carried out cannot be separated from the company's performance. This is very important so that resources can be used optimally in the face of existing changes (Weygant, 2015: 22).

Firm Growth

Sales growth reflects the investment manifestation of the past and future periods. Sales growth is also an indicator of the demand and competitiveness of companies in an industry. The growth rate of a company will affect the ability to maintain profits in funding opportunities in the future (Barton et al., 1989). According to Weston and Brigham (1991), knowing how much the company's sales growth can predict how much profit will be obtained. To measure sales growth it is calculated from current sales minus previous sales divided by previous sales multiplied by one hundred percent.

The effect of carbon emissions' disclosures on financial performance

The motivation of a company to do business is not only to seek profit but also to pay more attention to and prioritize the interests of others (altruistic), it raises concern for others. Awareness of paying attention to the environment is needed in disclosing a company's

carbon emissions (Giamoco et al., 2017). This is following the Legitimacy theory that companies are not only looking for profits in doing business but also paying attention to their environment. Irwhantoko's research, (2016) explains that over time, human activities can increase the concentration of temperature and climate change on the surface of the Earth's atmosphere, causing detrimental consequences to natural and human ecosystems that cause global warming. The relationship between carbon emissions' disclosures and the company's financial performance can be explained through signaling theory in the research of Kelvin et al. (2017) which states that the disclosure of additional non-financial information published will provide a signal to external parties in making decisions, such as in terms of investment or provision. Ranking for company performance regarding its social and environmental performance.

The effect of social performance on financial performance

Stakeholder theory states that as the business world develops, management is implicitly responsible not only to shareholders but also to stakeholders. So when a company fails to contribute to social development, preserve the environment and provide financial benefits even though there is pressure from stakeholders, it can damage its reputation. Stakeholders will lose confidence and consequently will increase the cost of equity and debt. Governments and civil society organizations can also take legal action if companies do not comply with social rules. Therefore, in line with Eduardus and Juniarta's research, (2016) companies that have good social performance will get positive appreciation from stakeholders, so that companies can increase sales and reduce costs which leads to increased company profits. In addition, public companies that carry out social performance will be assessed by shareholders that the company has succeeded in increasing operational efficiency and also focuses on the sustainability of the company so that the company has the opportunity to get an increase in share prices and an increase in company value. This is in line with (Su et al., 2015); (S. Brammer & Pavelin, 2005), and (Mattera & Baena, 2015) which state that economic and/or non-economic aspects and corporate social responsibility can be a strategic tool to build a company's reputation.

Firm Growth Strengthening the effect of Carbon emissions' disclosures on Financial Performance

Companies that invest in carbon abatement usually have a higher profit compared to companies that do not invest in environmentally friendly carbon reduction technologies. They usually apply green technology and implement environmentally friendly policies; they also invest in carbon emission reduction products. Such companies have a flexible, competitive, innovative, and green strategy compared to companies that have low profits and are not environmentally-

oriented (Bos & Stam, 2013). The role of stakeholders is very influential, they want the company to produce high-quality but environmentally friendly products. This is done to improve the company's reputation and ultimately increase the company's profitability. According to Fortune (2018), the company's growth rate moderates the relationship between carbon disclosure and financial performance.

Firm Growth strengthens the influence of social performance on Financial Performance

Companies in realizing social performance through economic, environmental, labor, social, and product responsibility performance. The more social responsibility a company carries on its environment, the better the company's image and reputation. Stakeholders prefer companies that have a good image because the higher the image of the company will increase customer loyalty which will result in higher sales levels which in turn will increase the company's growth. According to Kerr & Slocum, (2005) Companies that support the practices of social and environmental activities have a good organizational culture that encourages competitive advantage which in turn improves the company's financial performance. Social care practices affect the company's reputation, which consists of attitudes, values, beliefs norms, and organizational habits by the theory of legitimacy where the management of the company sided with and prioritized the interests of the community.

Stakeholder theory states that as the business world develops, management is implicitly responsible not only to shareholders but also to stakeholders. So when a company fails to contribute to social development, preserve the environment and provide financial benefits even though there is pressure from stakeholders, it can damage its reputation. Stakeholders will lose confidence and consequently will increase the cost of equity and debt. Governments and civil society organizations can also take legal action if companies do not comply with social rules. Therefore, in line with Eduardus and Juniarta's research, (2016) companies that have good social performance will get positive appreciation from stakeholders, so that companies can increase sales and reduce costs which lead to increased company profits. In addition, public companies that carry out social performance will be assessed by shareholders that the company has succeeded in increasing operational efficiency and also focuses on the sustainability of the company so that the company has the opportunity to get an increase in share prices and an increase in company value. This is in line with (Su et al., 2015); (S. Brammer & Pavelin, 2005), and (Mattera & Baena, 2015) which state that economic and/or non-economic aspects and corporate social responsibility can be a strategic tool to build a company's reputation.

RESEARCH METHODS

The form of this research is causal. Causal research aims to test hypotheses about the influence of one or more variables (independent variables) on other variables (dependent variable). Namely by analyzing and explaining the effect of the independent variable on the dependent variable. This study examines the effect of carbon emissions' disclosures, social performance on financial performance. The independent variable in this study is carbon emissions' disclosure, social performance, and firm growth as well as the dependent variable on financial performance, where these variables influence one another. The population in this study are manufacturing companies listed on the Indonesia Stock Exchange (IDX) in 2017-2019. The sample in this study used a purposive sampling method, which is a sampling method that fits the criteria and objectives of the study. The sample criteria in this study include 1) Manufacturing and mining companies listed consecutively on the Indonesia Stock Exchange (IDX) during 2017-2019. 2) Companies that disclose environmental information consecutively in their annual reports and company websites. 3) Manufacturing companies listed on the Indonesia Stock Exchange (IDX), which provide data related to research variables such as disclosure of carbon emissions, and corporate social activities.

Operational Definition of Variables

The research variable is something that is determined but based on theory and confirmed my hypothesis. The variables used in this study are the dependent and independent variables. The dependent variable in this study is financial performance. This study uses ROA as a proxy for financial performance

because ROA describes the company's ability to generate profits calculated by comparing the company's net income with total assets. Carbon Emission according to Choi et al. (2013) is defined as the release of gases containing carbon into the Earth's atmosphere. Carbon emission disclosures are usually found in annual reports and sustainability reports with standard environmental performance criteria in the 2016 Global Reporting Initiative Standard index. Carbon emission disclosures are measured using a disclosure score, which is dividing the company's total carbon emission items with the total items from the GRI Index. Social performance is measured in annual reports and sustainability reporting using the criteria suggested by Global Reporting Initiative (GRI Standard). Social performance is measured using a disclosure score, which is dividing the total company social performance items with items from the social section of the GRI Standard. Firm Growth is measured by sales growth and can be measured using the company's growth ratio. This ratio is a ratio to measure the extent to which the company's ability to increase its sales over time. The size of the company can reflect how many resources the company has. The larger the size of a company, the greater the resources owned by the company (Choi et al., 2013). The size of a company can be seen through the total assets owned by a company. Given that the total asset value is large enough, the measurement is converted into a natural logarithm (Ln). The formula for company size according to Brigham and Houston (2001) is the log of total assets.

RESULTS AND DISCUSSION

Based on the results of data processing, it can be seen that:

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
FP	118	-,03	,15	,0442	,03927
CE	118	,00	,98	,3830	,21531
SP	118	,05	1,00	,6499	,18901
FG(Firm Growth)	118	,00	,68	,1196	,12103
C (Firm size)	118	2,44	13,23	8,1478	2,02516
Valid N (listwise)	118				

The sample consists of manufacturing companies listed on the Indonesia Stock Exchange (IDX) for 3 years and also meet the Financial Performance (FP), Carbon Emission Disclosure (CED), Social Performance (SP) variables. Financial Performance has the lowest value (minimum), namely -0.3 the number of samples (N) there are 118 data. The sample consists of manufacturing companies listed on the Indonesia Stock Exchange (IDX) for 3 years from the variable Carbon emission disclosure (CED), Social Performance (SP), Financial Performance (FP), and Firm Growth.

Carbon emission disclosure (CED) has the lowest (minimum) value of 0.0, this indicates that in

that year the company was deemed not to carry out disclosure of carbon emissions. The largest value (maximum) of 0.98 indicates that the company only discloses carbon emissions as much as 98% of the disclosures are almost complete. The average value (mean) is 0.6499 which indicates that the average manufacturing company as a sample, disclosing carbon emissions as much as 64.9%. And for the standard deviation value of 0.0392.

Social Performance (SP), has a minimum value of 0.05, which means that the company performs social performance as much as 5%. And the maximum value is 1.00 which means 1% means that the company

only carries out social performance activities as much as 1% in one year. SP has an average value of 0.649 and a standard deviation of 0.189.

Financial Performance (FP) has a minimum value of -0.3 which means the company is experiencing a loss. And the maximum value is 0.15, which means that the manufacturing company has a profit of 15%. FP has an average value of 0.0442 and a standard deviation of 0.0392. Firm Growth (FG) has the lowest (minimum) value of 0.00, this value indicates that the company had not had an increase in sales during the three years. The largest value (maximum) of 0.68, this value is considered to indicate that the company has an increase

in sales of 68%. The average value (mean) is 0.1196 or an 11.96% increase in sales over the three years of assessment. And for the standard deviation value of 0.121

FINDINGS AND DISCUSSION

Significance test results

Based on statistical testing and the results of the significance of the test, it can be seen in the table above. From the t statistical test between each independent variable on the dependent variable it can be explained as follows:

Variabel	+/-	β	t	Sig
Carbon Emission (CED)	+	,258	2,901	,004
Social Performance (SP)	+	,179	2,011	,047
Moderasi CE*FG	+	,119	1,267	,001
Moderasi SP*FG	-	,093	1,008	,060
Size (S)	+			,004

The results of hypothesis 1 tests show that carbon emission disclosure (CE) with the at-count value of 2.901 and a probability value of 0.004 or less than $\alpha = 0.05$ so it can be concluded that H0 is rejected H1 is accepted, which means that carbon emissions disclosure (CE) has a positive effect on financial performance (FP). Thus the first hypothesis is accepted.

Hypothesis 2 test results show that Social Performance (SP) with at a value of 2.011 and a probability value of 0.047 or less than $\alpha = 0.05$ so it can be concluded that H0 is rejected, H2 is accepted, which means that Social performance (SP) has a positive effect on financial performance. (FP). Thus the second hypothesis is accepted.

Hypothesis 3 test results: Firm Growth Emission strengthens the effect of carbon disclosure on financial performance. In the table, it can be seen that the t count is 1.267 and the probability value is 0.001 less than 0.05, so it can be concluded that H0 is rejected, accepting H3, which means that Firm Growth strengthens the effect of carbon emissions' disclosures on financial performance.

Hypothesis test result 4: Growth Emission strengthens the influence of social performance on financial performance. In the table, it can be seen that the t count is 1.008 and the probability value is 0.069 which is greater than 0.05, so it can be concluded that H0 is accepted, rejecting H4, which means that Firm Growth does not strengthen the effect of social performance on financial performance.

Size as a control variable has a probability/significance value of 0.04, this shows that size can be a good controller for financial performance.

Where it can be concluded that companies that have a large size have better financial performance and have a large enough budget to implement carbon emission reduction and social performance around the company environment.

CONCLUSION

The discussion in this study uses the dependent variable, namely financial performance, and the independent variable consisting of carbon emissions' disclosures, social performance, and firm growth. The results of hypothesis testing that have been carried out can be summarized as follows: Carbon emissions' disclosures have a positive effect on financial performance. This finding is due to the disclosure of carbon emissions by companies, such as reducing activities related to climate change, which can reflect the company's business ethics. Stakeholders will be able to find out how much commitment and attention the company has to the environmental impacts that are likely to arise. This is reinforced by research by Rokhmawati et al., (2015) which states that companies can benefit from imposing environmental regulations by innovating towards a more environmentally friendly direction to reduce costs and increase company competitiveness. According to Choi et al. (2013) disclosure of carbon emission reduction is not only beneficial from a short-term perspective but there is value in reducing carbon emissions in the long term for companies to benefit financially from reducing carbon emissions. Thus, disclosure of environmental responsibilities such as carbon emissions disclosure to the public by companies in a mandatory manner is one of the steps to gain legitimacy from the community. When legitimacy is obtained, the company can continue its operations because the entity has paid attention to the prevailing norms as well as the conditions of the

community and the surrounding environment. The environmental love relationship created will be a marketing tool for the company to improve its financial performance such as achieving maximum profitability because consumers will be attracted to using products from environmentally friendly companies.

Social performance has a positive effect on financial performance. Social Performance is a form of corporate social responsibility for sustainable development of the environment which is closely related to a reciprocal relationship between corporate business entities and society (Partalidou et al., 2018). This is in line with the research of Rokhmawati et al., (2015) which states that when a company fails to contribute to social development, preserve the environment and provide financial benefits despite pressure from stakeholders, it can damage its reputation. Investors and creditors will lose confidence and consequently will increase the cost of equity and debt. Companies that can manage their stakeholders will be able to achieve better corporate financial performance. Managing stakeholders can be done by companies by building good relationships, communicating, and accommodating stakeholder interests. In addition, the production process requires companies to have a workforce that is closely related to work safety and welfare issues (Tyagi and Sharma, 2013). Good corporate social performance makes the company viewed positively by stakeholders and will get many benefits such as customer loyalty and trust from stakeholders (Tunggal and Fachrurrozie, 2014).

Firm growth strengthens the effect of carbon emissions disclosures on financial performance. Companies that invest in carbon reduction technology are considered to have a very large potential risk because they are usually companies that have very large financial benefits. On the other hand, companies that do not invest in new technology experience low returns. This is because investing in carbon reduction technology has a very large cost, this cannot be done by companies that have low profits (Fortune, 2018). Companies that invest in high technology tend to adopt strong, integrated, and very flexible, and innovative operating systems. This has been considered because it will have a fairly high-profit impact and improve the company's image compared to companies that have low profits (Ajabe and Ismail, 2014).

Further research results Firm Growth weakens the relationship between social performance and financial performance. Currently, many companies have a high level of social contribution; this can be seen in companies that maintain environmental sustainability, sustainable development, and social activities both internally and externally. However, many companies carry out inconsistent social performance, only once and only as a formality. And they state that social

activities require high costs which will reduce company profits (Aydogan, 2016); Lee & Kim (2017).

IMPLICATIONS

This research can help formulate policies for the Indonesian government in supporting its manufacturing industry in dealing with climate change and GHG emissions, particularly in dealing with Regulation No. 70/2009. The main objective is supporting the manufacturing industry is to encourage this industry to be actively involved in government initiatives to reduce GHG emissions without destroying or even increasing its competitiveness. In addition, strong law enforcement, strong and influential regulations can be the main drivers to achieve this goal. Therefore, the Indonesian government and policymakers need to develop strong and influential regulations.

Research for the future can compare between before and after the issuance of Regulation No. 70/2009. Comparing different periods will provide information on whether there has been a reduction in GHG emissions after the implementation of regulations.

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