



Do environmental costs and environmental information disclosure effect on environmental performance?

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Abstract. *There are still many companies in Indonesia that do not pay attention to environmental performance. Environmental disclosure performance is currently mandatory disclosure, so it is mandatory for go public companies to disclose their environmental performance as a manifestation of the company's responsibility for the activities it carries out. This study aims to determine the effect of environmental costs and environmental information disclosure on environmental performance in manufacturing companies listed on the Indonesia Stock Exchange from 2015-2019. The research sampling technique used purposive sampling method with data analysis using the Structural Equation Modeling method. The software used is partial least square with the Warp-PLS analysis tool. The results of testing the first hypothesis show that environmental costs have a positive and insignificant effect on environmental performance, while the second hypothesis shows that environmental information disclosure has a positive and significant effect on environmental performance. This research is important to do as a study material for the manufacturing industry related to environmental performance.*

Keywords: *Environmental cost; Environmental information disclosure, Environmental performance; Manufacturing companies.*

1. Background

Environmental problems arise because of economic activities and the environment (Basuki & Irwanda, 2018). The higher the intensity of the workouts carried out by the company to earn a profit, the higher the impact on environmental damage. Environmental problems are often observed by stakeholders, especially the community and government. Companies must overcome ecological issues so that the company legitimacy is not disturbed and that the company's sustainability is guaranteed (going concern). Based on the Law of the Republic of Indonesia Number 32 of 2009 concerning Environmental Protection and Management (UUPPLH), preserving the environment is a systematic and integrated effort to prevent pollution and environmental damage, including pollution and utilization supervision and law enforcement. The Environmental Management Company Performance Rating Program (PROPER) is created by the Ministry of Environment and Forestry (KLHK) to measure the company's compliance with environmental laws and regulations. Environmental performance can be seen from the PROPER rating obtained by a company, which shows company compliance in efforts to manage environmental damage. Gold, green, blue, red,

and black are the five-color levels used in the PROPER rating. The highest rank is indicated by gold color, while the lowest is indicated by black color.

Manufacturing companies in Indonesia that have participated in PROPER are still relatively low (Pratiwi, 2013). PROPER is a form of government concern to prevent environmental damage from the company's operations through the triple bottom line. Companies in Indonesia support government programs related to environmental conservation, as evidenced by an increase in gold, green, and blue ratings from 2015 to 2019 and a decrease in red and black ratings. This is evidence that manufacturing companies in Indonesia are making progress regarding environmental concerns. Environmental performance assessment can provide a good image for the company in the eyes of stakeholders so that it impacts the company's sustainability (Meiyana & Aisyah, 2019). Assessment of the company's environmental performance requires environmental costs, which are the costs of corporate social responsibility disclosure activities. The environmental costs incurred by the company are the allocation of funds that will be used to run the ecological development program (Derila et al., 2020). The environmental development program will minimize the impact of environmental damage caused by the company's activities to create eco-efficiency within the company. According to Basuki & Irwanda (2018) companies that implement the eco-efficiency concept of environmental development emphasize the benefits of the products and services produced and the ecological impact by minimizing the use of resources in the production process, thereby reducing waste and pollution. Companies must control environmental costs efficiently so that there will be harmony between the company's concern for the environment and the company's ability to generate profits, which will impact environmental performance.

In addition to environmental costs, environmental information disclosure will also positively impact environmental performance. Disclosure of ecological data is disclosure related to the company's attitudes, policies, and behavior towards the environmental impacts produced by the company. These disclosures include emissions, pollution, impacts after cleaning, arrangement, and energy efficiency, which aim to improve environmental performance (Mikial et al., 2019). The company presents environmental information disclosure through annual reports or sustainability reports to provide information to stakeholders regarding the activities carried out to manage the environment (Campbell, 2004). Disclosure of environmental data is one of the media for companies to publish all required information by the public to reduce the level of information asymmetry between internal and external parties. The company also carries out environmental information disclosure with the aim that decision making pays attention to financial and environmental aspects (Elshabasy, 2018). Financial Services Authority (OJK) Regulation No. 29/POJK.04/2016 states that public companies must disclose environmental information because of its mandatory disclosure. Disclosure of environmental data can be seen in the Global Reporting Initiative (GRI) G4 guidelines, which help organizations measure goals and performance so that company management can run well and sustainably (Mahmood et al., 2017). Environmental information disclosure is evidence of efforts made to comply with regulations related to the environment, which can later impact the disclosure of environmental performance. Based on several previous research findings, this study will re-examine the effect of environmental costs and information disclosure on environmental performance in manufacturing companies in Indonesia.

2. Literature Review and Hypotheses

Legitimation Theory

The organization's future depends on how much the organization can contribute to society in terms of welfare. One of the theories that underlie and explain social and environmental disclosures in companies is the theory of legitimacy. Legitimacy theory is closely related to corporate social responsibility and stakeholder theory because the social contract between an organization or company and the community is related to its business operations to conform to the norms and boundaries in society (Lindawati & Puspita, 2015). Legitimacy theory states that legitimacy is essential for companies to maintain sustainability, which is related to ethical business, employee performance development, and the company's environmental impact in the future. Companies with a great concern for the environment can be shown by the ecological disclosure contained in the revelation of Corporate Social Responsibility. Environmental disclosure is expected to increase legitimacy and positively impact the company's sustainability. Based on the theory of legitimacy, the company will report on the activities carried out to overcome the environmental impact due to its operational activities to meet community expectations and maintain its legitimacy (Deegan, 2002). The company's operating activities must be under the norms in the community where the company is located.

Environmental Performance

According to Hapsoro & Adyaksana (2020) environmental performance is the company's ability to manage the negative impacts of various company operational activities on the environment. The environmental management system measures the company's achievement in producing good environmental performance. The Ministry of Environment and Forestry (KLHK) created a regulation to assess a company's environmental performance called PROPER. RI Ministry of Environment Regulation No. 03 of 2014, PROPER is an evaluation of compliance and performance that exceeds the obedience of those in charge of businesses and or activities in controlling pollution, funds, or environmental damage and managing hazardous and toxic waste. Companies must voluntarily integrate ecological issues into company operations as a form of responsibility to the environment and not only comply with applicable laws (Derila et al., 2020).

Environmental Cost

According Hansen & Mowen (2005) environmental costs are costs that companies spend to prevent and reduce the impact of ecological damage caused by the company's operational activities. Costs arising from internal and external activities of the company such as costs for prevention, planning, disposal, and repair of damage caused by company activities. Environmental costs influence environmental performance. Ecological costs are classified as environmental prevention costs, internal and external failure costs, and detection costs. Environmental costs are all costs incurred for environmental conservation (Buana & Nuzula, 2017). When a company can control environmental costs efficiently, there is an alignment between the ability to earn profits and still care about environmental sustainability; the company's care impacts environmental performance.

H₁: Environmental costs have a negative effect on environmental performance

Environmental Information Disclosure

Environmental information disclosure is a collection of information related to activities carried out by companies to manage the environment and show the performance of ecological managers (Berthelot et al., 2003). Public companies' environmental information disclosure has been determined to be mandatory disclosure, so every company is obliged to disclose it. One form of corporate social responsibility is disclosing environmental information contained in the annual report. The purpose of this disclosure is so that the public can know about the activities carried out by the company (Paramitha & Rohman, 2014). Guidelines for measuring environmental information disclosure refer to the Global Reporting Initiative (GRI), consisting of 34 items (Irfansyah et al., 2018). The company discloses environmental information to reduce information asymmetry between the company's internal parties and the company's external parties. Disclosure of environmental data is evidence of efforts made to comply with regulations related to the environment, which can later impact the disclosure of environmental performance. The complete environmental information disclosure shows that the company's concern for environmental performance is getting better.

H₂: Environmental information disclosure has a positive effect on environmental performance

3. Method

Manufacturing sector companies are the population in this research. Research data is collected through financial reports and company annual reports contained on the IDX website or the official website of each company and the official website of the Ministry of Environment from 2015 to 2019. Purposive beside method used for research sample selection. The sample criteria in this research are as follows:

Table 1. Research Sample

Companies in the manufacturing industry listed on the Indonesia Stock Exchange from 2015 to 2019	159
PROPER rated company	55
Companies that report environmental costs in rupiah	36
Companies with data according to research needs	12
Company data used for the 2015-2019 period (12 x 5)	60
Unprocessed company data	(11)
Usable data	49

The sample companies that meet the criteria are 12 companies. The sampling period in this research is from 2015 to 2019, so a sample of 60 companies is obtained. 11 company data are not available, so the data that can be processed is 49. This research uses secondary data obtained through financial reports and annual reports that the company has published. The Structural Equation Modeling (SEM) method is a data analysis method used in this study. Research hypotheses are tested using Warp-PLS software.

The endogenous dependent variable in this research uses the company's environmental performance (EP) variable. Environmental performance in this research is measured by the

PROPER rating issued by the Ministry of Environment and Forestry No. 3 of 2014, which is categorized into five ranks. Measurement of environmental performance using a dummy variable by giving a score for each level. The measure of environmental performance uses a dummy variable by providing a score for each rank. Gold with a score of 5, green with a score of 4, blue with a score of 3, red with a score of 2, black with a score of 1.

Environmental costs (EC) in this research use a comparison proxy between total environmental costs and net profit after tax (Egbunike & Okoro, 2018). Environmental costs come from environmental activities, which are classified into environmental damage prevention costs, environmental detection costs, and internal and external failure costs (Hansen & Mowen, 2005). The formula for calculating environmental costs is as follows:

$$\text{Environmental Cost} = \frac{\sum \text{Environmental Cost}}{\text{Profit after TAX}}$$

The second independent variable in this research is the environmental information disclosure (EID) as measured by the Global Reporting Initiative (GRI) G4, which contains 34 disclosure items related to environmental information disclosure. Information disclosed by the company is given a score of 1 and 0 for items that are not disclosed. The measurement of environmental information disclosure uses the total items carried out by the company.

4. Result and Discussion

Hypothesis testing was conducted to determine the effect of exogenous variables on the endogenous dependent variables. The exogenous variables of this study are environmental costs and environmental information disclosure, while environmental performance is the endogenous dependent variable. Arrows and coefficients indicate the influence between variables, and the relationship's direction between variables is indicated by the symbol (β). Beta coefficients and P-values were used to test the research hypotheses. This study uses a significance level of 5%. The results of hypothesis testing are presented in table 2 as follows:

Table 2. Hypotheses testing

Hypotheses	Beta	Sig	Result
EC $\rightarrow$ EP	0.120	0.110	H1: Rejected
EID $\rightarrow$ EP	0.290	0.010*	H2: Accepted

*Sig < 5%

Testing the first hypothesis shows that environmental costs do not affect environmental performance. Based on this description, it is concluded that the first hypothesis, which states that environmental costs have a negative effect on environmental performance, is not supported. The number of allocations for environmental costs for manufacturing companies in Indonesia tends to fluctuate. However, it is still relatively low, and the monotonous environmental performance of manufacturing companies in Indonesia from year to year is why environmental costs do not affect environmental performance (Basuki & Irwanda, 2018). This is evidenced by the data obtained by researchers that the highest realization of environmental costs that the company has allocated is only 26%, and

the majority of the company's environmental performance gets a blue rating. The blue rating in PROPER means that the company has complied with environmental regulations but does not yet have more innovations to prevent environmental damage. Based on this explanation, the company's environmental cost allocation, which fluctuates, is not followed by an increase in the company's environmental performance.

The results of testing the second hypothesis prove that the environmental information disclosure has a positive and significant effect on the company's environmental performance. Based on this description, it is concluded that the second hypothesis, which states that the environmental information disclosure has a positive and significant effect on environmental performance, is supported that the more companies disclose ecological data, the better the environmental performance of the company. Environmental information disclosure is evidence that the company has carried out various activities to prevent and overcome ecological damage (Derila et al., 2020). The many activities carried out to manage the environment are a manifestation of the company's concern for managing environmental impacts, so this impacts improving environmental performance (Mahmood et al., 2017). This is also evidenced from the data obtained by researchers that the most disclosure of ecological information is 14 items and gets a green PROPER rating. In comparison, companies that disclose environmental information only five things get a red PROPER rating. Based on this explanation, the more environmental information disclosure can be interpreted that the company also carries out many activities to protect the environment so that it will improve environmental performance.

5. Conclusions and suggestions

Based on the results of hypothesis testing and analysis in this study, environmental costs do not affect environmental performance, and environmental information disclosure has a positive and significant effect on environmental performance. This study has limitations as consideration for further research. The limitation is that information related to the number of environmental costs and items of environmental information disclosure carried out by manufacturing companies from 2015 to 2019 is still limited. Expansion of the scope of the research sample can be carried out in further research to overcome the limitations of this study.

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