The Role of Firm Characteristics and Environmental Performance on Environmental Disclosure (Study from Indonesian Non-Financial Sector)

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Abstract. This research aims to analyze firm characteristics and environmental performance's role in environmental disclosure. Using data from Indonesian Stock Exchange from 2018-2021, 80 data from the non-financial sector were selected for further analysis. Firm characteristics represent by profitability and firm size. The results show that profitability, firm size, and environmental performance positively affect environmental disclosure simultaneously. A partial analysis was conducted and shows that firm size has a positive effect on environmental disclosure. In line with legitimacy theory, the larger the company, they will give more transparency disclosure to the public as a form of responsibility.

1 Introduction

The development of business requires every company to consider strategies for preventing negative impacts on the environment from its operational activities. This strategy will determine the company's reputation in terms of concern for the environment and is expected to be sustainable. The concept of sustainability is a measure of the success of a business that includes a balancing of social, economic, and environmental factors as well as the management of resources that create value and opportunities for the next generation [1]. This concept is in line with the Triple Bottom Line principle, which simultaneously examines and balances corporate economic, environmental, and social issues [2].

One form of corporate responsibility to external parties is implementing Corporate Social Responsibility (CSR) activities. CSR is often defined as the consideration by companies of obligation within society beyond profit-making for shareholders [3] In recent years, CSR becoming a warm issue, especially for social and environmental activities. Firms are now becoming more aware of their responsibilities toward society and the environment, resulting in a growing trend in social and voluntary reporting [4] Environmental disclosure is a medium for providing environmental information to stakeholders and for reflecting the company's environmental performance and concerns about various environmental issues [5]. Throughout the year, more companies are disclosing the environment in annual reports and following PROPER. Companies face pressure from different stakeholders, governments, and society to be responsible for environmental activity [4]. Companies that pollute and do not preserve their environment will receive sanctions from the government.

As regulated in Indonesian Government Regulation (PP) Number 47 of 2012 that every company has social and environmental responsibilities. In line with these activities, the company reports disclosures relating to environmental impacts. Generally, companies carry out environmental disclosure through CSR activities in annual reports or sustainability reports [6]. Environmental disclosure is the disclosure of environmental information in the form of company concern and responsibility for the social environment and society. According to legitimacy theory, environmental disclosure is a part of corporate responsibility. The legitimacy theory state that firms must have some accountability to society and meet investors' and the general public expectation [7]. To gain social acceptability and credibility, firms should meet society's diverse needs [7].

Many factors influence the company in increasing environmental disclosure according to several studies, including company size, profitability, and environmental performance. Prior research shows that profitability and company size have a positive effect on environmental disclosure [8,9]. Companies with good financial conditions have enough resources to participate actively in environmental activities and sustainability activities. Environmental disclosure also becomes the representation of the company's responsibility to society [10]. Other research about environmental performance also has a positive effect on environmental disclosure [11]. Companies that have good environmental performance will be more confident to disclose the information in their financial reports.

On the other side, there was research that give contrary results. Profitability and firm size have no significant

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effect on environmental disclosure, but environmental performance encourages environmental disclosure [6]. Other research also found that profitability does not significantly affect environmental disclosure [12]. Referring to different results of previous studies, this research aims to examine the effect of firm characteristics and environmental performance on environmental disclosure. This research is expected to enrich the literature on environmental disclosure and the factor that encourages companies to disclose environmental information.

2 Literature Review and Hypothesis Development

2.1 Legitimacy Theory and Stakeholder Theory on Environmental Disclosure

Legitimacy theory focuses on the interaction between companies and society. Legitimacy theory is a condition in which a company has a system of norms with compatible characteristics and shows that social systems are part of the system of norms [10]. The theory provides a demonstrable communication mechanism to address external pressure and adapt to the socially accepted beliefs, values, and rules established by society [13] [4]. The theory presents a social contract between firms with society, it is focused on what society expects and therefore discloses more information [4] According to legitimacy theory, companies will give more attention to environmental and social activities to enhance the company's reputation and strengthen its interactions with stakeholders [14]. Therefore the disclosure of information can enhance the legitimacy, reputation, and social recognition of the firms.

Where legitimacy theory focused on communication with society, stakeholder theory focuses on communication with all stakeholder groups. Stakeholder components include society, shareholders, creditors, employees, customers, and suppliers, with a group in the society concerned with corporate, social, and environmental disclosure information [4] Powerful stakeholder pressure their concerns and expectations that must be taken by the firm [15].

Environmental (E), social (S), and (corporate) governance (G) pillars, or ESG, are non-financial factors that are becoming increasingly important and popular among investors. ESG is part of an investment portfolio analysis that helps identify opportunities and potential risks. In addition, the indicator helps investors interested in sustainable investments avoid investing in companies with financial risks due to controversial environmental practices and business practices [16]. Although reporting environmental disclosure is not mandatory in company annual statements, it is quite popular in terms of corporate sustainability [16].

2.2 Profitability and Environmental Disclosure

Profitability is a ratio that reflects an entity's ability to convert sales of revenue into profit and its ability to generate income from investment in its assets [17]. Legitimacy theory states that profitable firms are more accountable to society because they have to protect society by safeguarding the environment to retain profit and sustain in the long run. [11]. Profitability is a factor that makes management free and flexible to disclose their information. The higher the level of profitability, the more information that the company discloses [18] Stakeholders have high expectations from profitable firms and believe that they will participate actively in the environment [7]. Companies that care about the environment are considered to pay more attention to the company's future performance prospects so that it will be assessed positively by investors.[18] Thus, paying attention to the environment also becomes a competitive strategy to increase the company's reputation for investors.

Research from [19] shows that profitability has a significant effect on corporate environmental disclosure. Companies tend to disclose more information on the environment to a wide variety of stakeholders if their profitability is high, whereas if their profitability is low, they communicate fewer details about the environment. Another research shows a significant relationship between profitability and environmental disclosure, [20] found that there is a positive relationship between firm profitability on environmental disclosure.

A study from Indonesia, China, and Indian firms also found that company profitability has a positive relationship with CSR and environmental disclosure [18]. Research in French Companies also found the same result, that profitability has a significant effect on environmental disclosure [8]. Higher environmental disclosure indexes are displayed by firms with high profits. The supported result shows that companies with higher profits are more active to disclose their environmental information [9]. Stakeholders have high expectations from profitable firms and will not allow them to engage in activities that are hazardous to the environment [7]. Based on the explanation above, the hypothesis proposed as follow :

H1 : There is a positive relationship between profitability and environmental disclosure.

2.3 Firm Size and Environmental Disclosure

Legitimacy theory state that companies have a responsibility to society, meanwhile stakeholder theory give pressure on management to give concern to their stakeholder expectation. Due to this theory, large firms should disclose all relevant information to their stakeholder as a corporate responsibility and accountability [21]. Many researchers investigated the correlation between firm size and environmental discussion and most of them found that significantly related.

The research explained that large firms tend to share more environmental information than small firms as they have enough funds to spend for the welfare of society [22]. Large firms have enough resources to participate actively in environmental and social activities. Despite that, they have a social responsibility to conduct CSR

activity as the representation of company reputation [11]. This argument supported by [23] explained that company with large size and good corporate governance tends to give attention to renewable energy and environmental disclosure. Similar findings from [5] that firm size has a significant effect on environmental disclosure. Other research [6] also found the same result that larger companies will give more attention to environmental activities and disclosure [9]. Research from French Companies also found that most companies disclose their environmental information [11].

Environmental disclosure creates a new approach for companies to obtain social appreciation for their activity [21,22]. Appreciation and credibility will attract more investors and help the firm to gain support from the public [11]. From the previous explanation, it can conclude that environmental disclosure is important and mandatory for company sustainability. Based on the explanation above, the hypothesis proposed as follow:

H2: There is a positive relationship between firm size and environmental disclosure.

2.4 Environmental Performance and Environmental Disclosure

The environmental performance of companies in Indonesia is measured by PROPER ratings and environmental management systems. PROPER is a rating system that gives a good or bad rate for environmental performance [12]. According to Legitimacy theory and stakeholder theory, firms have a corporate responsibility to enhance company's reputation to society and stakeholders through their information to strengthen relationships with all stakeholders. Firms with excellent environmental performance are more motivated to keep their investors and stakeholder informed through environmental disclosure [6], [4]

Research about environmental performance on environmental disclosure show that environmental performance has a significant effect on environmental disclosure. Similar to legitimacy theory, the activity is for corporate responsibility from the company. Prior research in Indonesia found that environmental performance has a positive effect on environmental disclosure [6]. Other studies also found that companies with high ratings of PROPER tend to disclose their environmental information [12][8]. Based on the discussion above, the hypothesis proposed as follow:

H3: There is a positive relationship between environmental performance on environmental disclosure

3 Research Methods

3.1 Research Design and Analysis

This research uses Indonesian non-financial sector which is listed on Indonesian Stock Exchange (IDX). This research uses a purposive sampling method with sample criteria as follows:

a. Companies from the non-financial sector and using IDR currency
b. Companies were listed in Indonesian Stock Exchange (IDX) from 2018-2021
c. Companies who apply PROPER assessment for 2018-2021
d. Companies have Sustainability Reporting Disclosure based on GRI Standards

There are 523 companies in the non-financial sector as a population. Based on the criteria, 445 companies didn't apply PROPER assessment and 58 companies didn't disclose Sustainability Reporting based on GRI Standards. Based on the sample criteria, 20 companies are used for further analysis. Thus, 80 data were conducted for this research. This study analyzes with multiple regression analysis using Eviews 12.

3.2 Operational Variable and Research Model

The dependent variable is Environmental Disclosure and the independent variable is firm characteristics (profitability, firm size) and environmental performance. Here is the operational variable presented in Table 1 below

Table 1. Operational Variable

Variable	Measurement
Environmental Disclosure (Y)	Number of Environmental Disclosure items according to GRI Index [6]
Profitability (X_1)	ROA (Return on Asset) = Net Profit After Tax : Total Asset [8]
Firm Size (X_2)	Company size is measured by the natural logarithm (Ln) of total assets. **Company Size = Ln(Total Assets)** [9]
Environmental Performance (X_3)	Environmental performance is measured by the PROPER rating which is categorized into 5 colors, namely: Gold (score = 5); Green (score = 4); Blue (score = 3); Red (score = 2); Black (score = 1) [6]

The model of this research is below :

$$Y\ it = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + e_{it}$$

Y_{it} = Environmental disclosure
α = constant
$X_{1\,it}$ = Profitability
$X_{2\,it}$ = Firm size
$X_{3\,it}$ = Environmental performance
e_{it} = Error
$\beta_1 - \beta_3$ = regression coefficient

4 Result and Discussion

4.1 Descriptive Statistics

Descriptive statistical analysis aims to provide an overview of data characteristics. The result of descriptive statistics is presented in Table 2.

Table 2. Descriptive Statistics

Var	N	Average	Max	Min	Dev.Std
Y	80	0.418088	1.000000	0.156000	0.170677
X_1	80	10.04489	92.09972	-11.76661	14.54623
X_2	80	30.36428	32.38700	27.52700	1.144205
X_3	80	3.497500	5,000000	3,000000	0.657378

Table 2 shows that the average environmental disclosure (Y) disclosed is 41.8% of the company's 2018-2021 sustainability reports. This indicates that from the 32 GRI Standards indices, only 13 indexes were disclosed by most companies on average. The most environmental disclosures reported by one company in 2021 are 32 GRI Standards indexes.

Profitability (X_1) as measured by ROA produces a mean value of 10.045 reflecting that most companies have achieved profits in the current period. The distribution of X_1 data is quite diverse, marked by a standard deviation of 14.54, which is larger than the mean. This result shows that the distribution of profit data on total assets is relatively diverse because it is greater than the average value.

The size of the companies (X_2) had an average value of 30.36428 with a standard deviation of 1.144205. The standard deviation value that is lower than the average indicates that the data deviation is relatively small so the company size data can be said to be good.

Environmental performance (X_3) as measured by the average PROPER rating is in blue and green with a value of 3.5. It can be said that the non-financial sector in Indonesia has average environmental performance. Besides that, some companies got the highest score of 5 (Gold) representing the highest environmental performance. These colors are given by companies that have carried out environmental management by applicable regulations.

4.2 Hypothesis Testing

The hypothesis was analyzed with multiple regression analysis using PLS using Eviews 12. Table 3 shows the result of the fixed effect model on the regression analysis.

The coefficient of determination test aims to determine how much the dependent variable can be explained by the independent variables in the regression model. The value of Adjusted R -squared in Table 3 is 0.722294. These results mean that environmental disclosure can be explained by the profitability, company size, and environmental performance of 72.2%. While the remaining 27.8% is influenced by other factors or variables such as industry type and Good Corporate Governance (GCG) which are not included in this study.

Table 3. Regression Result

Variables	coefficient	std. Error	t-Statistics	Prob.
Y	-14.49111	2.795653	-5.183442	0.0000
X_1	-0.003366	0.000885	-3.803352	0.0004
X_2	0.494565	0.093013	5.317142	0.0000
X_3	-0.021185	0.020639	-1.026434	0.3090
Cross-section fixed (dummy variables)				
Root MSE	0.117505	R-squared		0.799630
Mean dependent var	1.434886	Adjusted R-squared		0.722294
SD dependent var	2.565491	SE of regression		0.139208
Sum squared residue	1.104591	F-statistics		10.33973
Durbin-Watson stat	2.075693	Prob(F-statistic)		0.000000

The F-statistic test is used to prove the simultaneous influence of all independent variables in the regression model on the dependent variable. Table 3 shows the value of the F-statistic (10.34>2.72) and a probability value of 0.00<0.05. The results of the F test conducted, show that profitability, company size, and environmental performance simultaneously affect environmental disclosure. It can conclude that profitability, company size, and environmental performance have a positive relationship with environmental disclosure simultaneously. This result can be explained through legitimacy theory, which focuses on the interaction between companies and society. The legitimacy theory argues that firms should appear legitimation to their stakeholder. As a form of legitimation, firms should undertake environmental policies that demonstrate commitment to the environment and it encourage companies to disclose their environmental disclosure [24].

Further tests were conducted to examine the partial variable effect on environmental disclosure. Based on Table 3, it can conclude that profitability has a negative and significant effect on environmental disclosure with a t-value -3.803352 with a p-value<0.05. Therefore H1 was rejected. There is a negative relationship between profitability and environmental disclosure. This result is contrary to a previous study [8,9], but supported by research [6,11,25,26], that shows that financial performance does not have a significant impact on environmental disclosure. This result can be explained that the indicator of strong financial performance (high profit) is not an incentive for firms to improve their environmental disclosures. Due to legitimacy theory and stakeholder theory, companies have responded to give information to stakeholders, whether they were in good financial condition or bad condition. In other words, firms do not put profits into consideration when they prepare environmental disclosures[6].

H2 proposed that there is a positive relationship between firm size and environmental disclosure. Based on

the regression result in Table 3, it can show that there is a positive relationship between firm size and environmental disclosure with a p-value< 0.05 and a t-value of 5.32. This result is in line with previous research [8,9,11,23], which explained that firm size has a significant effect on environmental disclosure. This result confirms the legitimacy theory settings that large companies disclose a higher volume of information because they are more accountable to the public regarding their environmental activities.

Environmental disclosures often create a platform to gain social appreciation. Moreover, for more prominent companies, this information may already have been collected for internal reporting and decision-making. Hence, they can easily communicate it to external stakeholders by publishing it in their reports. This is different with small firms, which may have limitations in resources to collect information and disseminate it to the public. The finding is also supported by [21–23].

Further analysis for H3 shows that environmental performance has a negatively significant effect on environmental disclosure with a p-value>0.05. Therefore H3 is rejected, that environmental performance didn't have a significant effect on environmental disclosure. This result is different from previous research [6,11,12], which states that environmental performance has a positive relationship to environmental disclosure. This research can be explained through [27] which explain that company with poor environmental performance have higher motivations to increase their level of disclosure than strong performers. This situation is related to the legitimacy theory that companies need to increase their reputation, to enhance their performance. This result is also similar to [26], which explains that there is no significant effect between environmental performance and environmental disclosure. This situation can be explained through stakeholder theory and legitimacy theory, that the company has a responsibility to all stakeholders and society to disclose all information, neither they have good environmental performance nor bad environmental performance. The Company's responsibility encourages management to disclose environmental information both in good and bad performance.

5 Conclusion

Legitimacy theory states that organizations continuously try to ensure that they carry out activities by the expectation of society. This legitimacy theory focuses on the company's interactions with society. Environmental disclosure is one of the reports that appear in the sustainability report, showing all activities and environmental performance of the firms to fulfill the company's responsibility. This study tries to analyze, factors determined by environmental disclosure based on company characteristics and environmental performance.

The result of this study there is a positive relationship between profitability, firm size, and environmental performance on environmental disclosure simultaneously. Further research analyzes each variable and shows that firm size has a positive and significant effect on environmental disclosure. It can see that large companies tend to disclose their environmental information more than small companies. This is because large firms have access to show their financial reports and have a responsibility to disclose all information to shareholders and stakeholders, related to legitimacy theory and stakeholder theory.

Meanwhile, profitability has a negative and significant effect on environmental disclosure. This can be explained that firms do not put profits into consideration when they prepare environmental disclosure [6]. This result is also in line with other research, that profitability does not influence environmental disclosure [11,21]. This can be explained because companies are providing the information only to fulfill government direction and to get other benefits such as tax rebates, green finance, etc [11,21].

There is no relationship between environmental performance to environmental disclosure. The result is contrary to previous research. This result can be explained through stakeholder theory and legitimacy theory [17] [4]. Based on stakeholder theory and legitimacy theory, companies have a responsibility to stakeholders and society, despite good or bad environmental performance they have pressure from stakeholders and society to enhance the company's reputation and responsibility through environmental disclosure.

This study has limitations due to limited environmental disclosure in Indonesia's nonfinancial sector. Further research can explore other factors determined to encourage environmental disclosure. Corporate governance can be the moderating variable to strengthen environmental disclosure. Board diversity, independent board members, ownership structure, board of director composition, and other corporate governance items become interesting topics related to environmental disclosure. Using environmental, social, and governance disclosure for future research could enrich the ESG and sustainability literature.

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