

# Pattern of Environmental Performance Relations, Environmental Disclosure, Firm Size, and Financial Performance of Proper-Member Companies Listed on Indonesia Stock Exchange

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# Pattern of Environmental Performance Relations, Environmental Disclosure, Firm Size, and Financial Performance of Proper-Member Companies Listed on Indonesia Stock Exchange

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Keywords: Environmental Disclosure, Environmental Performance, Financial Performance, Firm Size.

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Abstract: This research aims to determine the influence of environmental performance on financial performance with environmental disclosure as the intervening variable and firm size as the moderating variable. The sample consisted of 110 firm-year samples of PROPER-member companies listed on the Indonesia Stock Exchange. The data was analyzed using the structural equation modeling – partial least squared (SEM-PLS) method using WarpPLS 5.0. The results show that environmental performance has a significant positive effect on financial performance. In addition, environmental performance has a significant positive effect on environmental disclosure; however, environmental disclosure is not proven to have any positive effect on financial performance. Environmental disclosure is also not proven to act as a mediating variable on the relationship between environmental performance and financial performance. Meanwhile, this research shows that there is a statistically significant moderating effect of firm size on the relationship between environmental performance and financial performance.

## 1 INTRODUCTION

According to data published by the Population Reference Bureau (2011), Indonesia is the fourth most populous country in the world, with a population of around 238 million people (Haub et al., 2011). With such a large population, Indonesia certainly has a great need for natural resources. Ironically, the nature of Indonesia, which should meet these needs, instead demonstrates an apprehensive condition. According to Bloomberg (2015), Indonesia ranks eighth in the world in terms of the most dangerous levels of air pollution. In addition, Garg (2015) states that Indonesia has the highest rates of deforestation in the world, with a quantification of 6.02 million hectares from 2000 to 2012.

One of the causes of massive environmental pollution are the business activities undertaken by companies. Dragomir (2010) states that the resource depletion process, extreme natural phenomena, and various types of air pollution are, in part, the result of economic activities that have an adverse impact on society.

Elsayed and Paton (2005) state that, by increasing their commitment to environmental performance, companies are expected to increase productivity and profitability, and, at the same time, are able to maintain the availability of natural resources. The application of environmental accounting can be one of a company's efforts to care about and commit to environmental issues. The United States Environmental Protection Agency (US EPA) defines environmental accounting as the function of environmental costs that corporate stakeholders need to consider when identifying strategies so that companies can reduce costs and improve environmental quality. According to Schaltegger dan Burritt (2000), the concept of environmental accounting has two main elements, which are the impact of the implementation of environmental policies reflected in financial performance, and the direct impact on the physical environment that is reflected through environmental performance. The main purpose of the application of environmental accounting is to achieve companies' sustainability.

In business practice, corporate sustainability is closely related to the concept of the "triple bottom

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line" (TBL), which was proposed by Elkington (1997) as a concept of harmony that includes *economic prosperity, environmental quality, and social justice*. The TBL concept, which later became better known as 3P (*people, planet, profit*), has become very important since it is considered the foundation of company sustainability so that a company can receive long-term benefits (Dočekalová & Kocmanová, 2016).

Government, as one of the company stakeholders, also plays a role in creating a sustainable business ecosystem by issuing regulations or policies to which companies must adhere. In Indonesia, there are several supporting regulations such as Law no.23 of 1997 on Environmental Management, and Law no.40 of 2007 concerning incorporated companies, which demands several industries such as mining, oil and gas, and chemical to ensure transparency in terms of their activities, policies, and environmental strategies.

In addition to the strict regulations, in 2002, through the Ministry of Environment, the Indonesian government implemented the Corporate Performance Rating Program in Environmental Management, better known as PROPER. The program assesses a company's environmental performance using certain indicators. The goal of the program is to increase companies' efforts to preserve the environment. The incentive-disincentive mechanism, applied by disseminating the good-bad image according to ratings, which are distinguished in gold, blue, green, red, and black, shows the results.

However, the government's efforts to improve the company's role in managing the environment has not succeeded fully as there are still many companies receiving red and black ratings each year. According to Schaltegger and Burritt (2000), companies often hesitate to commit further on environmental issues because the cost and benefit calculations are unclear and they do not necessarily believe the initiative is profitable.

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The previous study shows that the relationship between environmental performance and financial performance is a topic that is researched often. Several studies show a positive relationship between environmental performance and financial performance (Al-Tuwaijri et al., 2004; Angelia & Suryaningsih, 2015; Endrikat et al., 2014). In contrast, several other studies have concluded that environmental performance has no significant effect on financial performance (Elsayed & Paton, 2005; King & Lenox, 2001; Sarumpaet, 2006; Rakhiemah & Agustia, 2009).

This study makes a contribution by offering a comprehensive overview of the relationship between environmental performance and financial performance, using environmental disclosure as a mediating variable and firm size as a moderating variable.

## 2 LITERATURE REVIEW

### 72 2.1 Theory of Voluntary Disclosure

The Financial Accounting Standard Board (2001) defines voluntary disclosure as the condition whereby a company's management gives more information beyond the criteria required by applicable accounting standards, which is relevant to users of annual reports in the decision-making process. Meek et al. (1995) classify voluntary disclosure into three categories: financial disclosure, non-financial disclosure, and strategic disclosure. In the theory of voluntary disclosure, there is an assumption that a company's management tends to have more information or knowledge about the company's performance in the future. In general, voluntary disclosure is carried out through annual reports as well as company websites.

From the point of view of the theory of voluntary disclosure, a company discloses information as a precaution against the possibility of adverse selection arising from the information asymmetry between corporate managers and investors (Lang & Lundholm, 1993). Voluntary disclosure theory also emphasizes that corporate disclosures are essentially endogenous, which is to say that they are influenced more by incentives from corporate managers, with little attention paid to what may occur in the future (Verrecchia, 2001).

### 17 2.2 Resource-based View Theory

Resource-based view (RBV) theory states that a company's success is influenced more by the internal factors of resource ownership and capability in achieving comparative advantage compared to the external factors influencing the company (Barney, 1991). Companies are considered to be obliged to transform short-term competitive advantages in more sustainable ways, to provide added value to consumers, surpass competitors' performance, and achieve long-term profit superiority.

In accordance with RBV theory, good environmental performance is able to support the development and sustainability of a company's

strategic resources (Hart & Dowell, 2010). Additionally, according to this theory, an improvement in environmental performance can create a competitive advantage through the achievement of three strategic capabilities: *pollution prevention, product stewardship, and sustainable development*. This can ensure that environmental performance has a positive impact on resource ownership and strategic capability, which is useful for the company's financial performance improvement (Endrikat et al., 2014; Surroca et al., 2010).

### 2.3 Environmental Accounting

According to Agustia (2010), environmental accounting is a term related to the recognition of environmental costs in the practice of corporate financial accounting with the aim to improve the efficiency of environmental management through environmental performance evaluation based on a cost-benefit perspective. Cohen and Robbins (2011: 190) describe activities covered by environmental accounting as follows:

*“Environmental accounting collects, analyzes, assesses, and prepares reports of both environmental and financial data with a view toward reducing environmental effect and cost. This form of accounting is central to many aspect of governmental policy as well. Consequently, environmental accounting has become key aspect of green business and responsible economic development.”*

### 2.4 Environmental Performance and PROPER

According to ISO 14001 (2004), environmental performance is the final result of the environmental conditions achieved by the company, when the environmental aspects of the activities, processes, products, services, systems, and organizations have been well managed and controlled. Briefly, Suratno et al. (2006) define environmental performance as a company's performance in building a green environment.

In Indonesia, a company's environmental performance is usually measured by PROPER (Agustia, 2010; Sarumpaet, 2006; Dessy, 2015). According to the Regulation of the Minister of the Environment Number 18 of 2012, PROPER is an assessment program on the efforts of the party responsible for the business and/or activities in controlling pollution and/or environmental damage

and the management of hazardous and toxic materials waste. PROPER shows a company's environmental performance through ratings using color representation in descending order from gold, green, and blue, to red, and black.

### 2.5 Financial Performance

Financial performance is the only bottom line of traditional accounting thinking, which means that it is very important. The concept states that companies must maximize profits to give back to the community as much as possible (Agustia, 2010). According to Reinhardt (2000), understanding financial performance is necessary for environmental accounting research since it provides a realistic assessment of the impact of environmental activity on the company as a whole.

Moreover, Brown and Fraser (2006) express a tendency through a critical approach towards the inability of business people to completely abandon their economic orientation despite a commitment to being “green”. Al-Tuwajri et al. (2004) state that the measurement of financial performance consists of two main approaches: profitability based and market value based.

### 2.6 Environmental Disclosure

Environmental disclosure is part of a company's efforts to communicate its environmental management strategy to its stakeholders, and this is usually delivered through the medium of annual reports and the company's website. According to Brammer and Pavelin (2008), the majority of voluntary information submitted by large corporations today pays more attention to the impact of environmental activities that companies have implemented and how these are managed. Dissemination of environmental information is a communication process aimed to sharpen the views and expectations of stakeholders in terms of a company's environmental obligations (Gray et al., 2009). Disclosures by companies are expected to reduce information asymmetries between companies and stakeholders, so that companies have a chance to influence external stakeholder perceptions (Brammer & Pavelin, 2008).

### 2.7 Firm Size

Firm size is a variable used to classify companies into several groups, i.e. large companies, medium-sized companies, or small firms. Specifically,



Simerly and Li (2000) mention that calculating the number of employees, sales volume, or total value of assets owned by a company are some of the ways in which firm size can be measured. 67

In research related to environmental performance and financial performance, the role of firm size needs to be considered to find any possible moderation effects (Dixon-Fowler, 2013). Large companies tend to gain greater attention from external stakeholders, thus requiring them to manage their operations better, including demands for environmental conservation (Waddock & Graves, 1997).

## 2.8 Relation between Financial Performance and Environmental Performance 55

Based on the view of traditional economic theory, a company's environmental performance will lead to a trade-off between benefits for the community and additional costs to the company (Konar & Cohen, 2001). Based on the logic of shareholder value maximization, the company's commitment to environmental performance is viewed only as a counter-productive philanthropic activity towards profit maximization (King and Lenox, 2001).

Operational efficiency can be achieved through cost savings of raw materials input, waste disposal, regulatory oversight from regulators, public pressure reduction, rising product value, and the competitiveness of enterprises (Konar & Cohen 2001). On the other hand, a company's reputation provides advantages in terms of attracting superior human resources, creating loyalty and customer willingness to pay more for the company's products, and establishing long-term relationships with suppliers, governments, or other stakeholders (Orlitzky et al., 2003; Surroca et al., 2010). Based on the above explanation:

*H1: Environmental performance positively affects financial performance.*

## 2.9 Relation between Environmental Performance and Environmental Disclosure

Voluntary disclosure theory is one of the theories commonly used to explain the relationship between environmental performance and the extent of corporate environmental disclosure. This theory predicts the existence of a positive influence of the company's environmental performance on environmental disclosure.

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Previous studies conducted by Rakhiemah and Agustia (2009), Angela and Yudianti (2015) with open manufacturing companies in Indonesia provided consistent results, showing positive correlations of environmental performance to the extent of environmental disclosure. The results support the theory of voluntary disclosure, which states that firms have an incentive to reveal "good news" with the aim of differentiating their company from other companies that have "bad news", to avoid any adverse selection issues (Verrecchia, 1983). Based on the above explanation:

*H2: Environmental performance positively affects the extent of environmental disclosure.*

## 2.10 Relation between Environmental Disclosure and Financial Performance 79

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Previous studies state that environmental disclosure has a significantly positive effect on financial performance (Orlitzky & Benjamin, 2003). Companies with good environmental disclosures tend to be favored by investors (Qiu et al., 2014). Supported by RBV theory and the theory of voluntary disclosure, it can be argued that firms with extensive environmental disclosure will gain the economic benefit of rising stock prices (Hart, 1995, Verrecchia, 2001).

Rakhiemah and Agustia (2009) state that it is important to consider environmental disclosure within CSR as a companion to accounting information, which is only profit oriented. Then, by conveying broad environmental disclosure, the company is considered capable of reducing its market risk in investing, because any uncertainty concerning its ability to achieve good financial performance will decrease (Eccles, 2011). Companies that release environmental disclosures are also expected to gain a reputation enhancement that will impact their financial performance (Cabral, 2012). Based on the above explanation:

*H3: Environmental disclosure positively affects financial performance.*

## 2.11 Relation between environmental performance and financial performance with environmental disclosure as a mediator 7

Environmental disclosure is a medium through which companies can communicate their environmental performance to stakeholders. Without

corporate environmental disclosure, it is feared that there will be asymmetrical information in the form of adverse selection, which causes information about environmental performance to become irrelevant to investors for making decisions (Solomon & Lewis, 2002; Brammer & Paveli, 2008). Rakhimah and Agustia's (2009) research states that information about environmental performance and environmental disclosure covered in CSR simultaneously affects the financial performance of the company, so it can be said that environmental disclosure is the mediation variable of the environmental performance and the financial performance of the company. Based on the above explanation:

*H4: Environmental disclosure is a mediator of the relation between environmental performance and financial performance.*

## 2.12 Relation between Environmental Performance and Financial Performance with Firm Size as a Moderator

Dixon-Fowler (2013) states that previous studies demonstrated uniformity in their results in relation to the effect of environmental performance on financial performance, without considering the possibility of a moderation effect based on the size of the firm. In examining the effect of environmental performance on financial performance, firm size has two aspects that are allegedly capable of providing moderation effects, which are related to the concerns of the external stakeholders and resource ownership.

Internally, large companies are believed to have better levels of efficiency because they have qualified resources to invest in R&D and are also able to adopt the latest technology, especially in their efforts to become "green companies" (Eden, 1997). Externally, large companies will receive more economic benefits if they perform well in terms of environmental performance since the market will respond quickly and perceive the information as "good news" (Qiu et al., 2014).

*H5: Environmental performance positively affects financial performance, and it is moderated by the size of the firm.*

## 3 RESEARCH METHODS

### 3.1 Population and Samples

The population in this study consists of open companies that participated in the PROPER assessment conducted by the Ministry of the Environment during the 2011–2015 period. The purposive sampling technique was used, based on the following criteria:

1. Companies that participated consistently in PROPER assessment during the 2011–2015 period.
2. Companies listed on the Indonesia Stock Exchange (IDX) since or before January 1, 2011, and consistently registered until December 31, 2015.
3. Companies that published their annual financial statements and annual reports on a regular basis during the 2011–2015 period.

Based on these criteria, 22 companies were chosen, resulting in a total sample for this study of 110 firm-year samples.

### 3.2 Variable Operational Definition

1. Environmental Performance  
In 2002, the Government of Indonesia, through the Ministry of Environment, conducted a measurement of companies' environmental performance by organizing a program called Rating Program Working Company (Program Penilaian Peringkat Kerja), often referred to as PROPER. PROPER measures a company's environmental performance based on a series of methods to generate ratings represented in color categories. Based on the color categories, PROPER divides the companies into two groups: *compliance* (including black[1], red[2], and blue[3] categories), and *beyond compliance* (including green[4] and gold[5] categories).
2. Financial Performance  
In this study, measurement of financial performance based on accounting value (ROA) is used side by side with measurement based on market value (Tobin's Q).
  - a. Return on Assets  
ROA is one of the profitability ratios used to measure the income or success of a company's operations over a given period (Weygandt, 2007: 793). According to Ross (2007: 64), ROA has advantages compared to other similar ratios since it is more relatable to the assessment of efficiency, as well as being measured by

assessing the number of earnings in each currency value of the asset.

$$ROA = \frac{\text{Net Income}}{\text{Total Assets}}$$

b. *Tobin's Q*

According to Ross (2007: 64), Tobin's Q has advantages over other market value measures, such as market-to-book value, as it can illustrate the attractiveness of investment opportunities and/or the significance of a company's competitive advantage.

$$\text{Tobin's } Q = \frac{\text{MVE} + \text{Debt}}{\text{TA}}$$

Explanation:

- MVE: The closing price of the end-of-year shares x the number of shares circulate
- Debt: (Current liabilities – current assets) + book value of inventories + long-term liabilities
- TA: The book value of total assets

3. Environmental Disclosure

The environmental disclosure variable is obtained through an analysis of the items disclosed in the annual report based on the *Global Reporting Initiative on Environmental Performance*. The approach to measuring environmental disclosure is to give a score of 1 for the item disclosed, and a score of 0 for an undisclosed item. Then, the value of the items is added as a whole and divided by the maximum possible value. In accordance with content analysis techniques conducted by Clarkson (2008), environmental disclosure indicators in this study consist of seven components: (1) *environmental pollution and control policy (EPC)*; (2) *energy policy (ENP)*; (3) *impact on biodiversity (BIO)*; (4) *waste management cost (WSM)*; (5) *award received for installing environmental management system (AWR)*; (6) *environmental research and development (ERD)*; (7) *cost of compliance with environmental laws (CEL)*. The formula to calculate the extent of environmental disclosure is as follows:

$$ENP = \frac{\text{numbers of indicators disclosed}}{8}$$

$$BIO = \frac{\text{numbers of indicators disclosed}}{5}$$

$$EPC = \frac{\text{numbers of indicators disclosed}}{10}$$

4. Firm Size

Simerly and Li (2000) state that there are several ways to measure the firm size, by calculating the number of employees, the sales

volume, or the total value of assets owned by the company.

- a. Number of employees, i.e. the amount of labor required by the company in one operation period. Measured by: Ln (Number of Employees)
- b. Sales, which is the value of income earned by the company in one period. Measured by: Ln (Sales)
- c. Total Assets, i.e. the total value of assets owned by the company in one period. Measured by: Ln (TA).

### 3.3 Hypothesis Testing Technique

Hypothesis testing of the research was carried out using the *Partial Least Square (PLS) Structural Equation Model (SEM)* approach, assisted by WarpPLS 5.0 software. *Partial Least Square* is a very powerful method of analysis because it can be applied to any data scale; it does not require many assumptions and does not require large-sized samples. PLS can also be used to build relationships that have no theoretical basis or to test prepositions (Ghozali, 2006). This hypothetical test design is presented based on the purpose of the research, which is to measure the influence of independent variables separately. The significance level used is 95% so that the level of precision or limit of inaccuracies ( $\alpha$ ) is 5% = 0.05. Therefore, if the p value is greater than 0.05, then H0 is accepted and Ha is rejected. If the p value is smaller or equal to 0.05, then H0 is rejected and Ha is accepted.

## 4 ANALYSIS AND DISCUSSION

### 4.1 Descriptive Statistics

Based on the results of this study, PROPER (environmental performance) has an average score of 3.4454 with a standard deviation of 0.77325. For environmental disclosure, the average value is relatively low. Furthermore, the results of financial performance show that the average ROA score of the entire sample is 0.09701 with a standard deviation of 0.103298, while the average score of Tobin's Q for the entire sample is 2.529946 with a standard deviation of 3.218987. Finally, firm size, with a proxy of Ln total sales, has an average value of 29.5273 with a standard deviation of 1.147478.



## 4.2 Validity and Reliability Test

For the validity test, this study examined several tests. The results show that the factor loadings of each item are higher than 0.600, which indicates that the data meets convergent validity. Some of the items were deleted because they did not fulfil the criteria. In terms of discriminant validity, the values of AVE square root of each variable are higher than the coefficient of inter-correlation among variables, which means that they meet discriminant validity. Meanwhile, for the reliability test, all composite reliability values of variables met the criteria, which are higher than 0.600 (1,000 for environmental performance, 0.934 for financial performance, 0.893 for environmental disclosure, and 0.955 for firm size).

## 4.3 Hypotheses Testing Results

The results of the hypotheses testing are shown in Table 1 to Table 3.

Table 1: Summary of hypothesis 1–3 testing Results.

Hyp	Independent Variables	Dependent Variables	$\beta$ -value	P-value	Conclusion
H1	Environmental Performance	Financial Performance	0.42	<0.01	Accepted
H2	Environmental Performance	Environmental Disclosure	0.56	<0.01	Accepted
H3	Environmental Disclosure	Financial Performance	-0.15	0.05	Rejected

*The Effect of Environmental Performance on Financial Performance.* Table 1 shows that environmental performance has a P-value of <0.01, which means that it meets the criteria  $\alpha \leq 0.05$ , so has a significant effect on financial performance. Hypothesis 1 testing yields a positive  $\beta$ -value of 0.42, which suggests that environmental

performance has a significant positive effect on financial performance.

The results are in line with the prediction of resource-based view theory, which states that companies with good environmental performance have a competitive advantage that may allow them to achieve better financial performance than other companies. Through environmental performance, a company's competitive advantage is obtained based on the existence of *pollution prevention, product stewardship, and sustainable development*, which ensures the maintenance of strategic resources that are *valuable, rare, difficult to imitate, and nonsubstitutable*, in the process (Endrikat et al., 2014).

*The Effect of Environmental Performance on Environmental Disclosure.* Table 1 shows that environmental performance has a P-value of <0.01, which means that it meets the criteria  $\alpha \leq 0.05$ , so has a significant effect on environmental disclosure. Hypothesis 2 testing yields a positive  $\beta$ -value of 0.56, which suggests that environmental performance has a significant positive effect on corporate environmental disclosure.

A company's good PROPER rating indicates its effort in implementing environmental management documentation, water pollution control, air pollution control, B3 waste management, seawater contamination, environmental damage criteria, environmental management systems, energy efficiency, emission reduction, utilization and reduction of B3 waste, application of non-B3 solid waste 3R, water conservation and water pollution load reduction, biodiversity protection, and community empowerment implementation, as regulated in the legislation of the Ministry of Environment.

*The Effect of Environmental Disclosure on Financial Performance.* Table 1 shows that environmental performance has a P-value of 0.05, which means that it meets the criteria  $\alpha \leq 0.05$ , so has a significant effect on financial performance. Hypothesis 3 testing produces a negative  $\beta$ -value of -0.13, so it can be concluded that the disclosure has a significant negative effect on the company's financial performance.

This study failed to obtain evidence to suggest that environmental disclosure positively affects financial performance. Differences in Indonesian investors' profiles, in this developing country, with the profiles of investors in developed countries are one of the factors that may have affected the negative results. Through a resource-restrictive perspective, investors will question a company's



decisions if it discloses too much environmental information and is committed to too many environmental activities (Li et al., 2017). Investors may think that a lot of resource allocation will be required, which will reduce the company's profitability in the future. Therefore, the area of environmental disclosure can be seen as a negative signal for stock market participants. The results of this research are consistent with the results of the research conducted by Li et al. (2017) and Richardson and Welker (2001), who state that environmental disclosure has a significant negative effect on financial performance.

*The Effect of Environmental Performance on Financial Performance through Environmental Disclosure.* Table 2 shows that the requirement for testing mediation relations with the VAF method has been met since all paths in the model have a  $p$ -value  $\leq 0.05$ . Based on the calculation using the VAF method, it can be seen that there is no mediation effect by environmental disclosure on the relation between environmental performance and financial performance because the VAF value is less than 20%, i.e. -25%.

Table 2 shows that environmental performance through environmental disclosure has a  $P$ -value of 0.101, which means that it does not meet the criteria  $\alpha \leq 0.05$ , so it does not have a significant effect. Therefore, based on the results of the PLS testing using the two methods described above, it can be concluded that environmental disclosure does not mediate the effect of environmental performance on financial performance. In this research, it is proven that, in general, a company's environmental

This disability is also supported by the investors' *resource-restrictive perspective*, which tends to perceive environmental disclosure as a negative signal.

These results are consistent with the research conducted by Angela and Yudianti (2015), who state that there is no effect from the mediation of environmental disclosure on the relationship between environmental performance and financial performance. In contrast, the results of this research are not consistent with the results of the research conducted by Rakhimah and Agustia (2009), who state that there is an effect from the mediation of environmental disclosure on the relationship between environmental performance and financial performance.

*The Effect of Environmental Performance on Financial Performance with Firm Size as a Moderating Variable.* Table 3 shows that the moderation effect of firm size has a  $P$ -value of 0.03,

performance only reaches the fulfillment of legislation and applicable law. Most companies are not aware of environmental performance as an obligation that must be met since they actually need community's legitimacy to conduct their business activities, as well as to receive support from stakeholders in order to be able to positively affect their financial performance. Therefore, efforts to fulfill PROPER criteria cannot maximize corporate disclosure, so that, ultimately, environmental disclosure is unable to provide a positive signal for stakeholders to voluntarily provide support to the company.

Table 2: Summary of hypothesis 4 testing results.

Hyp	Independent Variables	Mediation Variables	Dependent Variables	$P$ -value (Indirect Effect)	VAF	Conclusion
H4	Environmental Performance	Environmental Disclosure	Financial Performance	0.101	-25%	Rejected

Table 3: Summary of hypothesis 4 testing results.

Hyp	Independent Variables	Moderation Variables	Dependent Variables	$\beta$ -value	$P$ -value	Conclusion
H5	Environmental Performance	Firm Size	Financial Performance	-0.18	0.03	Accepted

which means that it meets the criteria  $\alpha \leq 0.05$  and has a significant effect on the relationship between environmental performance and financial performance. The testing of hypothesis 5 yields a negative  $\beta$ -value of -0.18, which suggests that there is a moderation effect of negative interaction between environmental performance and firm size in affecting financial performance.

These results are consistent with the results of the research conducted by Dixon-Fowler (2013), who states that firm size had a moderating effect that weakens the influence of environmental performance on the financial performance of the company. This research proves the existence of a moderation effect; a larger firm size can further weaken the relationship between environmental performance and financial performance. In other words, small firms are able to gain greater economic benefits if they demonstrate better environmental performance compared to large firms. Companies

with a fewer employees, sales, and total assets are expected to have the advantage of being flexible in order to respond to environmental challenges or organizational changes. Small companies, which have a relatively shorter chain of command, are able to implement environmental policies more quickly. In addition, smaller companies find it easier to evaluate their overall environmental performance. Thus, the environmental performance of small firms is more effective and efficient than that of large companies.

## 5 CONCLUSION

Based on the results and discussion in this research, as described above, it can be concluded that: first, the results from the testing and analysis suggest that environmental performance has a significantly positive effect on financial performance. This means that, the more a company cares about environmental performance, the better its operational efficiency. Such companies also benefit from positive appreciation from stock market participants.

Second, the results of the testing and analysis suggest that environmental performance has a significantly positive effect on environmental disclosure. These results are in accordance with the main idea of voluntary disclosure theory, which states that companies will be active in making environmental disclosures while performing well in terms of environmental performance, but will tend to be silent when performing badly.

Third, the results of the testing and analysis suggest that environmental disclosure significantly negatively affects financial performance. This means that the widespread disclosure of a company's environmental performance does not have a positive effect on its financial performance. In contrast, this will have a negative effect because of investor concerns about the high environmental costs for the company in the future.

Fourth, the results of the testing and analysis suggest that environmental disclosure does not mediate the effect of environmental performance on financial performance. This means that the environmental performance that is reflected through PROPER ratings can directly affect operational efficiency and changes in the company's stock price without the need to pay attention to the effects of the extent of environmental disclosure in the annual report.

Lastly, the results of the testing and analysis suggest that firm size is able to significantly weaken

the influence of environmental performance on financial performance. This means that, the larger the firm size, the weaker the influence of environmental performance on financial performance. In other words, small companies receive more benefits when performing well in terms of environmental performance.

The Limitations and Future research directions are explained as follows.

1. This research used only PROPER ratings and ISO certification to measure the environmental performance variables, and both measurements used ordinal data. Thus, future studies can add data measurement of a ratio to improve the accuracy of research results.
2. This study used annual report content analysis to measure environmental disclosure. Thus, future studies could use content analysis of websites to find whether or not the results obtained are consistent.
3. This study used firm size as a moderating variable for environmental performance relations and financial performance. Thus, future studies could use industry risk as a moderating variable to explore the relationship between environmental performance and financial performance.
4. Future studies could test bidirectional relationships that may occur between environmental performance and financial performance.

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