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The Influence of Environmental Costs and Performance Environment on Financial Performance

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ABSTRACT

Objective: *This study aims to examine the impact of environmental costs and environmental performance on financial performance. Environmental costs, including expenditures for natural resource management, emission control, and waste management, are hypothesized to influence profitability. Meanwhile, environmental performance, which reflects the extent to which companies implement corporate social responsibility (CSR) principles, is analyzed for its effect on financial results.* ***Method:*** *The study employs a quantitative approach using regression analysis to investigate the relationships between environmental costs, environmental performance, and financial performance. The population consists of non-cyclical consumer companies listed on the Indonesia Stock Exchange (IDX) for the period 2022- 2023. Using purposive sampling, 98 companies were selected based on specific criteria.* ***Results:*** *This suggests that companies investing in sustainability and environmental initiatives can achieve long-term financial benefits.* ***Novelty:*** *This study highlights the relationship between environmental factors and financial outcomes within the context of non-cyclical consumer companies in Indonesia, a sector that has received limited attention in prior research. The results underscore the importance of integrating environmental sustainability into corporate strategies to enhance financial performance.*

INTRODUCTION

To improve the economy, a company not only focuses on the sale and production of a product but also on increasing awareness of the environment such as the environmental impact of company operations and providing positive things to the environment in the community. Companies and society are life partners who give and need each other [1] Regulations that have been enacted to require companies to comply with environmental standards set by the Financial Services Authority. Failure to meet these requirements can result in financial penalties that negatively impact financial performance. Speaking of environmental awareness, one important aspect that needs to be considered is environmental costs. Environmental costs must be informed separately according to the classification of the burden [2] These costs include all expenses related to managing the environmental impacts of the company's operational activities. Effective management of environmental costs can contribute to improved environmental performance. Environmental performance refers to the extent to which the company manages and minimizes the impact of its operational activities on the environment covering various aspects related to sustainability and corporate social responsibility. Environmental costs and environmental performance are closely related to the financial performance of a company. Environmental costs and environmental performance are closely interrelated with financial performance, where poor management of environmental impacts can result in significant costs. Conversely, good environmental

performance through sustainable impacts and social responsibility can enhance reputation, operational efficiency and competitiveness, all of which contribute positively to long-term financial performance.

Financial performance retrieved to how the company's condition is in financial terms, and what has been obtained, achieved and produced by the company [3] One of the events related to the environment to financial performance that has been circulating at this time is the "Timah Corruption Case that Caused Environmental Losses of IDR 271 T" Quoted through an article on detik.news, this case is about PT Timah Tbk's land management cooperation with private parties illegally. The results of the management were sold back to PT Timah Tbk, potentially causing state losses. This case is still in process, but the Attorney General's Office has raised allegations of environmental losses. Where did the figure of Rp 271 trillion come from? On February 19, 2024, the Attorney General's Office presented environmental expert from Bogor Agricultural University (IPB) Bambang Hero Saharjo, to calculate the losses caused by forest damage in Babylon as a result of the alleged corruption, referring to the Minister of Environment Regulation (Permen LH) Number 7 of 2014 concerning Environmental Losses Due to Pollution and/ or Environmental Damage.

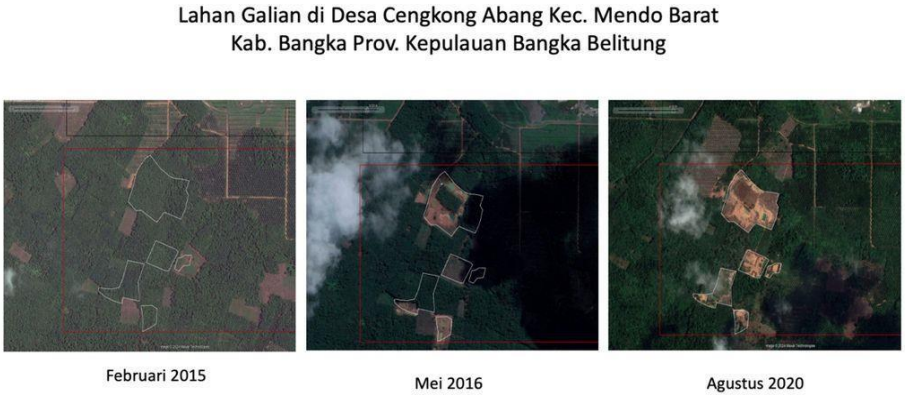

Figure 1. Excavated Land in Cengkong Village (https://www.kompas.id).

More specifically, this 271 trillion corruption is not only detrimental in terms of state finances but also the loss of funds that should have been allocated for the environment. When these funds are misused, the state has to incur additional costs to repair the damage caused, which could have been avoided if the funds were used properly. In accordance with these provisions, the state is responsible for ensuring environmental restoration. The state's authority is not only to regulate, manage, make policies, or conduct supervision, but is also responsible for preventing environmental pollution and damage. Therefore, effective integration between environment and finance is key to achieving sustainability and promoting sustainable economic growth. Based on the research taken, the researcher took the title "The Effect of Environmental Costs and Environmental Performance on Financial Performance". The data analysis techniques applied to test the hypothesis in this study include the classic assumption test analysis technique, multiple linear regression analysis techniques, and hypothesis testing. Among them, the Classical

Assumption Test includes a test that calculates an indication of the presence and absence of observed data errors based on the distribution index, correlation, and variety of indicators on the variable. The introduction needs to relate to the problems or issues being recognised and eventually leading the research questions. The structuring of the introduction part may vary. This section discusses the results and conclusions of previously published studies, to help explain why the current study is of scientific interest.

RESEARCH METHOD

Stakeholder Theory

Stakeholder theory was first developed by R. Edward Freeman in his book Strategic Management: A Stakeholder Approach in 1984 which was further developed with a literature review by [4] entitled A Stakeholder Approach to Strategic Management. The literature review explains that the purpose of stakeholder theory is to design methods for managing various groups and which result in a strategic way.

Legitimacy Theory

Legitimacy theory was first proposed by [5] entitled "Organizational Legitimacy: Social Values and Organizational Behavior" they describe that legitimacy is the need for an organization to ensure that its activities are considered in accordance with prevailing social norms and values, so that its existence can be accepted.

This research uses quantitative methods [6] states that this method is a scientific method because it fulfills scientific principles, namely concreteempirical, objective, measurable, rational, and systematic. This method is also called the discovery method, because with this method various new science and technology can be discovered and developed. It is called a quantitative method because the research data is in the form of numbers and analysis using statistics. According to the book [7] the stages of quantitative method research, research starts with a problem that can be explored from empirical and theoretical sources, as a preliminary research activity (pre-research). For the problem to be found properly requires empirical facts and is accompanied by mastery of the theory obtained from studying. The research population is all Non-Cyclical Consumer sector companies listed on the IDX in 2021-2022, with samples using purposive sampling techniques based on certain criteria relevant to the research objectives:

Table 1. Population and Sample Criteria.

No	Sample Criteria	Total
1	The number of CNC sector companies listed on the IDX	129
2	CNC sector companies listed below the 2021 period	-16
3	CNC sector companies that didn't publish Annual Report	-23
4	CNC sector companies that didn't publish Sustainability Report	-1

No	Sample Criteria	Total
5	CNC sector company that is experiencing losses	-29
6	CNC sector company with AR in dollar units	-2
	Total companies that meet the criteria	**58**
	Research period	2
	Number of data: 58 x 2 years	116

The companies used as research samples were 116 companies to be used as research samples. This study uses 129 data on non-cyclical consumer sector companies listed on the Indonesia Stock Exchange in 2021 - 2022. The following is the panel data regression analysis model equation for this study:

$$Y = \alpha + \beta 1\ BL + \beta 2\ KL + e$$

Where:
Y = Financial Performance α = constant
β = Regression Coefficient X1 = Environmental Costs
X2 = Environmental Performance e = Error

Data analysis uses descriptive statistics, classical assumption tests, and panel data regression with the help of the Stata-17 application test tool. Research results must be supported by valid data. The research results must answer the research problems that have been determined. In the research results, subtitles can be made as needed.

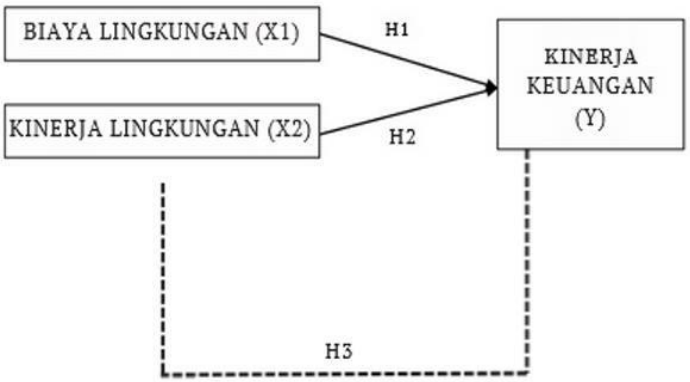

Figure 2. Conceptual framework

The hypothesis used in the study is as follows:
H1 : Environmental costs have a positive effect on financial performance.
H2 : Environmental performance has a positive effect on financial performance.
H3 : Environmental Costs and Environmental Performance have a positive effect on Financial Performance.

RESULTS AND DISCUSSION

Results

Descriptive Statistics

Table 2. Results of Descriptive Statistics.

Variabel	Obs	Minimal	Maximum	Mean	Std.Deviation
X1	116	.0001	8.0463	.1599224	.8287817
X2	116	.5098	1	.9430466	.0731816
Y	116	.0003	.3431	.0918983	.0676363

Stata-17

It can be seen that the environmental cost variable has the lowest value of .0001 and the highest value of 8.04 with a mean value of .1599224 and a standard deviation (the level of data distribution) of .8287817. The environmental performance variable has the lowest value of .5098 and the highest value of 1 with a mean value of .9430466 and a data distribution level of .0731816. The financial performance variable has the lowest value of .0003 and the highest value of .3431 with an average value of .0918983 and a data distribution rate of .0676363.

Coefficient of Determination - R square (R2)

Table 3. Results of Coefficient of Determination - R square (***R2***).

Obs	F (2, 113)	Prob > F	R - Squared	Adj R-squared	Root MSE
116	4.69	0.0111	0.0766	0.0603	0.6557

Stata-17

In table 3. The Adj R-square value is 0.0603 or 6.03%. The coefficient of determination shows that the X1 and X2 variables are able to explain the Y variable by 6.03%, while the remaining 93.97% is explained by other variables.

Hypothesis

Table 4. Results of Hypothesis.

Variabel	t	P>|t|
X1	**0.38**	**0.706**
X2	**3.06**	**0.003**
Y	**-1.89**	**0.061**

Stata-17

F-Test and T-Test

Table 5. F-Test and T-Test Result.

F-Test	T-Test
The calculated F value of 4.69> F table value of 3.07 and a significant value of 0.0111 <0.05, then H0 is rejected and H1 is accepted, meaning that the X1 and X2 variables affect Y.	1. The calculated t value of the X1 variable is 0.38 < t table value of 1.98 and the significant value is 0.706 > 0.05, then H1 is rejected and H0 is accepted,

	meaning that the X1 variable has no effect on Y. 2. The calculated t value of the X2 variable is 3.06 > the t table value is 1.98 and the significant value is 0.003 < 0.05, then H0 is rejected and H1 is accepted, meaning that the X2 variable has an effect on Y.

Classical Assumption Normality

Table 6. Result of Normality.

Observation	Prob > chi2
116	0.654

Stata-17

In table 6. Explains that the residual value at probability is 0.654> 0.05. It can be concluded that based on the Skewnes Kurtosis test the data is normally distributed.

Autocorrelation

Table 7. Result of Autocorrelation.

Prob > chi2
1.272325

Stata-17

In table 7. Based on the Breusch-Godfrey LM test above, it shows that the model does not have autocorrelation, this is indicated by the probability result of 1.272325, this value is greater than 0.05.

Heterocedasticity

Table 8. Result of Heterocedasticity.

Chi2 (1)	Prob > chi2
2.33	0.1266

Stata-17

In table 8. The results show a prob value of 0.1266> 0.05 so there is no heteroscedasticity (passes the heteroscedasticity test).

Multicollinearity

Table 9. Result Of Multicollinearity

Variabel	VIF	1/VIF
X1	1.01	0.993974
X2	1.01	0.993974
Mean VIF	1.01	

Stata-17

In table 9. If the tolerance value (1 / VIF)> 0.10 and the VIF value < 10, then there are no symptoms of multicollinearity (passes the multicollinearity test). The table above shows the variable VIF value of 1.01 < 10 and the 1 / VIF value of 0.993974> 0.10. The VIF

value of the X2 variable is 1.01 < 10 and the 1 / VIF value is 0.993974> 0.10. Then there are no symptoms of multicollinearity.

Discussion

The Influence of Environmental Costs on Financial Performance

Environmental Costs on Financial Performance is significant. This shows that the direction of the relationship between Environmental Costs and Financial Performance is positive. Thus, although there are indications that an increase in Environmental Costs can have a positive impact on Financial Performance. This may be due to other factors that influence the relationship. However, previous research by [8] states that high environmental costs cannot make financial performance good.

The Influence of Environmental Performance on Financial Performance

Overall, the F-statistic is 4.694 with a p-value of 0.01110, indicating that the model is statistically significant. However, the R-squared value of 0.07620 indicates that only about 7.62% of the variation in financial performance can be explained by environmental performance. Thus, it can be concluded that despite the overall significant effect on financial performance. In research [9] states that environmental performance affects financial performance with good environmental performance will get a good response from investors and stakeholders as well as increased revenue in the long term.

The Influence of Environmental Costs and Environmental Performance on Financial Performance

Based on the results of the regression analysis, the environmental cost variable has a coefficient of 027988. This coefficient indicates a positive relationship between environmental costs and financial performance, meaning that an increase in environmental costs tends to be followed by an increase in financial performance. environmental performance, shows different results. The coefficient for Environmental

Performance is -0.2563, which indicates a negative relationship between environmental performance and financial performance. This means that an increase in environmental performance tends to be followed by a decrease in financial performance.

The relationship between stakeholder theory and legitimacy theory, complement each other in explaining how environmental performance and environmental costs can affect financial performance. These two theories provide a framework that shows that attention to sustainability is not only a social responsibility, but also a business strategy that supports the long-term sustainability of the company.

CONCLUSION

Fundamental Finding : Fundamental Finding: Corporate expenditures on environmental costs, such as investments in waste management, emission reductions, or other sustainability programs, have a real direct impact on environmental performance

as well as improved financial performance. Efforts to improve environmental performance by companies, such as the implementation of environmentally friendly practices or compliance with strict environmental regulations. Therefore, ompanies need to strategically integrate environmental sustainability aspects into their business strategies to achieve a balance between environmental and financial performance. **Implication :** Companies should integrate sustainability into their business strategies. Company managers and leaders should not only focus on short-term financial gains, but also consider environmental impacts as part of long-term planning. **Limitation :** The data used and reliance on performance metrics are not fully standardized. Further data collection on environmental costs in different sectors could provide deeper insights and help shape more appropriate policies. **Future Research :** For future research, it would be beneficial to delve deeper into how specific factors, such as government policies or technological innovations affect the relationship between environmental costs, environmental performance, and financial performance. This could open up new opportunities in the development of more sustainable business models.

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