

Analysis of the influence of environmental performance and environmental costs on financial performance: The role of corporate social responsibility (CSR) as a moderating variable

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Abstract

This study aims to analyze corporate social responsibility (CSR) in moderating the effect of environmental performance and environmental costs on financial performance in manufacturing companies that are members of the Company Performance Rating Assessment Program (PROPER). This study uses secondary data from the annual financial reports of companies listed on the Indonesia Stock Exchange (IDX) for the period 2019-2023. The analysis techniques used include multiple linear regression tests and Moderated Regression Analysis (MRA) tests. Samples were obtained using the purposive sampling method and resulted in 156 observations. The results of the study indicate that environmental performance has an effect on financial performance, while environmental costs have a negative impact on financial performance. CSR as a moderating variable is able to strengthen the effect of environmental performance on financial performance, but cannot strengthen the effect of environmental costs on financial performance.

Public interest statements

This study is expected to contribute to companies listed on the Indonesia Stock Exchange to manage their companies properly and comply with government regulations, so that they can improve the company's financial performance.

Keywords: Corporate social responsibility; environmental costs; environmental performance; financial performance.

Paper type: Research paper

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Received 11/3/2024
Revised 12/2/2024
Accepted 12/16/2024
Online First 12/23/2024



AKURASI: Jurnal Riset
Akuntansi dan Keuangan,
Vol 6, No. 3, 2024, 367-384
eISSN 2685-2888

Abstrak

Penelitian ini bertujuan untuk menganalisis tanggung jawab sosial perusahaan (CSR) dalam memoderasi pengaruh kinerja lingkungan dan biaya lingkungan terhadap kinerja keuangan pada perusahaan manufaktur yang tergabung dalam Program Penilaian Peringkat Kinerja Perusahaan (PROPER). Penelitian ini menggunakan data sekunder dari laporan keuangan tahunan perusahaan yang terdaftar di Bursa Efek Indonesia (BEI) periode 2019-2023. Teknik analisis yang digunakan meliputi uji regresi linier berganda dan uji Moderated Regression Analysis (MRA). Sampel diperoleh dengan metode purposive sampling dan menghasilkan 156 observasi. Hasil penelitian menunjukkan bahwa kinerja lingkungan berpengaruh terhadap kinerja keuangan, sedangkan biaya lingkungan berdampak negatif terhadap kinerja keuangan. CSR sebagai variabel moderasi mampu memperkuat pengaruh kinerja lingkungan terhadap kinerja keuangan, tetapi tidak dapat memperkuat pengaruh biaya lingkungan terhadap kinerja keuangan.

Pernyataan kepentingan publik

Penelitian ini diharapkan dapat memberikan kontribusi bagi perusahaan yang terdaftar di Bursa Efek Indonesia untuk mengelola perusahaan dengan baik dan mematuhi peraturan pemerintah, sehingga dapat meningkatkan kinerja keuangan perusahaan.

Kata Kunci: Biaya lingkungan; corporate social responsibility; kinerja lingkungan; kinerja keuangan.

INTRODUCTION

In general, every company has goals and interests in assessing its financial performance. Sintyana and Artini (2018) stated that the main goal of every company is to obtain maximum profits or profits from its operational activities. Financial performance measures a company's ability to generate profits. However, profit is not only an indicator of a company's ability to meet its commitments to investors, but it also reflects its future prospects. Good financial performance shows that the company is able to generate high profits (Widhiastuti et al., 2017). Even so, companies often only focus on achieving optimal profits without paying attention to the impact on the environment and the surrounding community. In an effort to improve financial performance, many companies fail to realize the damaging impact of their business activities on the environment, reflecting a lack of compliance with environmental regulations and laws.

Based on the 2022-2023 Company Performance Rating Assessment Program (PROPER), out of 3,694 participating companies, as many as 1,077 companies have not complied with environmental regulations (<https://proper.menlhk.go.id>). This shows that there are still many companies that have not managed the environment properly. Today, people are increasingly aware that profit-oriented business activities can have a negative impact on the environment and society. Therefore, the community demands companies to overcome these impacts (Wulandari et al., 2023). One of the improvement efforts is to improve the company's environmental performance.

To encourage this, the government issued Regulation No. 1 of 2021 on PROPER, which emphasizes the importance of environmental performance and costs. High environmental performance ratings are proven to be associated with better financial performance compared to low ratings (Kinasih et al., 2022). In addition, companies are required to implement corporate social responsibility (CSR), even though environmental disclosure is still voluntary, except for

companies in the field of natural resources in accordance with Law Number 40 of 2007 and Government Regulation Number 74 of 2012.

In this study, CSR is measured using environmental indicators from the Global Reporting Initiative (GRI), which include economic, environmental, employment, human rights, social, and product aspects (Daromes et al., 2023). CSR not only aims to increase financial returns, but also supports sustainable development in social, economic, and environmental aspects (D.P.S.W & Novianty, 2019). Choi et al. (2010) found that CSR has a significant relationship with financial performance. The implementation of CSR not only improves financial performance but also builds a positive image of the company.

Research conducted by Meiyana & Aisyah (2019) and Setyaningsih & Asyik (2016) indicates that environmental performance does not have a positive effect on financial performance. Additionally, their findings suggest that the interaction between PROPER and CSR also fails to positively influence financial performance. This contrasts with studies by Subakhtiar et al. (2022) and Evelyn et al. (2022), which assert that both environmental performance and environmental costs do impact financial performance positively.

Ikhsan & Muharam (2016) further support this notion, stating that improvements in a company's environmental performance significantly enhance its financial performance. Similarly, research by Widhiastuti et al. (2017) reveals that manufacturing companies with higher PROPER ratings tend to exhibit better financial performance, as measured by return on assets (ROA) and stock returns. This suggests that enhanced environmental performance can lead to increased financial outcomes, aligning with the primary objective of companies to generate optimal profits.

The profit generated by the company can be measured by the Return on Asset (ROA) ratio. ROA is a ratio used to measure the net profit generated by the company from the use of the company's assets (Kaat & Sofian, 2023). By examining the ROA in the company's financial statements, one can assess if the business activities have effectively utilized the company's assets. The results of research conducted Putra, (2018) stated that environmental performance has no effect on financial performance. It can be stated that companies failing to optimize their environmental performance can impact their financial performance. According to the stakeholder theory implemented by the company in its business operations, the company engages in CSR activities within the community where it operates. Stakeholder theory assumes that the existence of a company requires stakeholder support, so that company activities must consider stakeholder approval (Tania & Herawaty, 2019).

Although there have been many studies on the relationship between environmental performance, environmental costs, and financial performance, as well as the role of CSR as mediation, there are still few that investigate how CSR functions as a moderating variable between environmental performance and financial performance (Setyaningsih & Asyik, 2016), (Safitri, 2021). In this case, CSR can be used as a moderating variable because CSR can change stakeholder perceptions, influence the company's reputation, and create greater value, so that it functions as a variable that can strengthen the influence of environmental performance and environmental costs on financial performance (Bolin, 2002). This study aims to fill this gap, by clarifying the impact of environmental performance and environmental costs on financial performance with CSR as a moderating variable. Based on the description above, the following research problems can be formulated: (1) Does environmental performance affect the Company's financial performance; (2) Does environmental cost affect the Company's financial performance; (3) Is Corporate Social Responsibility (CSR) able to strengthen the influence of environmental performance on the Company's financial performance; (4) Is Corporate Social Responsibility

(CSR) able to strengthen the influence of environmental costs on the Company's financial performance.

THEORETICAL FRAMEWORK AND HYPOTHESIS

Theory of Legitimacy

The theory of legitimacy states that organizations are constantly trying to ensure that they carry out activities in accordance with the limits and norms of the society in which they are located (Setyaningsih & Asyik, 2016). The company as part of the community, in carrying out operational activities has an obligation to obey and act in accordance with the values, norms, and regulations that exist in society, so there is a threat to the sustainability of the company's life. Subakhtiar et al., (2022) states that the postulate of the theory of legitimacy is that organizations must not only pay attention to the rights of investors but also to the rights of the public in general. Community legitimacy is a strategic factor of the company in the context of developing the company in the future, this can be used as a vehicle to construct the company's strategy, especially related to efforts to position itself in the midst of an increasingly advanced community environment (Drianita & Hasibuan, 2021). Companies that carry out their operational activities have contracts with the community to carry out their activities based on the norms and values that apply in society, and how the company responds to various interest groups to legitimize the interests of the company.

Stakeholder Theories

Stakeholder theory is a theory about what causes a company to disclose its social responsibility to the community where the company carries out its activities (Latifah & Widiatmoko, 2022). Corporate social responsibility disclosure aims to show the public about the social activities that have been carried out by the company and its impact on society. Primary stakeholders are parties where without their continuous participation, the organization cannot survive. While secondary stakeholders are parties that influence or are influenced by the company, but they are not involved in transactions with the company and are not so meaningful to the survival of the company. Corporate social responsibility disclosure aims to show the public about the social activities that have been carried out by the company and its impact on society. Stakeholder theory assumes that the existence of a company requires stakeholder support, so the company's activities must consider the approval of stakeholders (Latifah & Widiatmoko, 2022).

Financial Performance

Financial performance can be defined as a tool or benchmark to be able to assess that a company in its business activities has made financial statements in accordance with the provisions of the Financial Accounting Standards (SAK) (Santiara Dewi & Sudaryati, 2020). Meanwhile, financial statements are a source of information used to measure the extent of the company's performance in carrying out its business activities. According to Maulidia & Prima, (2021) financial performance assessment can be measured using several ratios such as Debt Equity Ratio (DER), Current Assets (CA), quick acid ratio, Price Book Value (PBV), Return on Investment (ROI), Return on Asset (ROA), Return on Equity (ROE), and Net Profit Margin (NPM). Financial performance can

be a measure that can measure the success of a company in obtaining profits. Profitability is the net end result of various policies and decisions made by the Company (Ningtyas & Triyanto, 2019)

Hypothesis development

Environmental performance

The company's environmental performance according to Subakhtiar et al., (2022) is a company's activity in creating a good (*green*) environment. The company's environmental performance is one of the factors that describe the business of an entity or company in overcoming the adverse impacts caused by the company's business activities. Companies often ignore the link between the environment and the company's activities, so that the concept of corporate environmental performance to create a good environment (green) is not achieved. If the company can increase the company's concern in the field of environmental management, it can provide added value for the company. According to Setyaningsih & Asyik, (2016) improving environmental performance is an important source of information so that companies can achieve efficient production levels, improvements in accordance with safety standards, cost reduction caused by environmental damage and opportunities to gain new markets. In Indonesia, the Ministry of Environment (MoEF) has implemented PROPER as a tool to see a company's environmental performance rating.

Environmental performance describes how the company cares about the surrounding environment. If the environment and resources surrounding the company are well-preserved, the company's environmental performance is sure to be positive. The company must maintain its environmental performance to ensure it remains positive. This is to avoid demands from the community or stakeholders, so that the sustainability of the company will continue (Wulandari et al., 2023). The better the company's PROPER, it can affect the increase in financial performance. The company cares about the surrounding environment, so it will be responded well which can get a positive image from investors so that it will also improve good financial performance (Kinasih et al., 2022). Research Domineka, (2023), Subakhtiar et al., (2022), and Ramadhani et al., (2022) suggest that environmental performance affects financial performance. This means that environmental performance in manufacturing companies that increases certainly also improves the company's financial performance, also with good environmental performance will get a good response from investors and stakeholders and also have an impact on increasing revenue in the long term. In addition, the company will provide good news to stakeholders which can increase the value of the company because the company is considered to have concern for the environment. Thus, the first hypothesis in this study is:

H1: Environmental performance affects financial performance

Environmental costs

According to Setiadi, (2021) environmental costs are costs incurred by the company for environmental remediation programs that are damaged by environmental pollution caused by the company, either intentionally or unintentionally. Siregar & Maqsudi, (2024) stated that environmental costs are calculated by comparing the costs incurred for CSR activities with net profit. According to Ikhsan (2009), environmental costs are basically related to the cost of products, processes, systems or facilities that are important for better management decision-making. The goal of environmental cost acquisition is how to reduce environmental costs, increase revenue, and improve environmental performance by paying attention to the current situation, future and potential management costs. Environmental costs include both internal and external

costs when it comes to all costs incurred in relation to environmental damage and protection. Babalola (2012) and Hadi (2011) stated that *environmental costs* are calculated by comparing the costs incurred for CSR activities with net profit.

Astuti et al., (2014) suggest that a clear allocation of environmental costs in the company's annual report will illustrate how much the company contributes in realizing its concern for social and environmental preservation. Through the disclosure of environmental costs, it will reflect the business ethics run by the company, as well as responsible resource management. This assertion aligns with legitimacy theory, which posits that companies must conduct their operations within the values and norms of the community in which they are situated. With the increasing allocation of environmental activity costs, it shows the company's awareness that CSR is an obligation that must be carried out by the company, so that the company is able to gain legitimacy from the community around the company Irfansyah et al., (2018). Research Daffa & Hasnawati, (2024), Subakhtiar et al., (2022), and Siregar & Maqsudi, (2024) suggest that environmental costs affect financial performance. This means that companies allocating funds for environmental initiatives can generate large profits in the future by improving the company's reputation. Thus, the second hypothesis in this study is:

H2: Environmental costs affect financial performance

Corporate social responsibility (CSR)

Corporate Social Responsibility (CSR) is defined as voluntary actions taken by companies that go beyond legal obligations to support community welfare and environmental sustainability (Chopra et al., 2024). CSR plays an important role in encouraging sustainable development by aligning business interests with community needs and environmental management. CSR is also a form of sustainable development of the company through social, economic, and environmental responsibility for the impact of its operational activities. The implementation of CSR is expected to have a positive impact on the company's economy, social, and environment (A. Pratiwi et al., 2020). CSR disclosure refers to the Global Reporting Initiative (GRI) guidelines, which focus on three main aspects: social, economic, and environmental.

Companies that implement strong CSR policies will have a positive impact on improving environmental performance on financial performance. If companies demonstrate a commitment to greater social and environmental responsibility, then companies with a good reputation due to consistent CSR practices are more likely to attract and retain customers, thereby increasing revenue (Setyaningsih & Asyik, 2016). Investors are more likely to invest in companies that not only focus on financial returns, but also pay attention to aspects of sustainability and social responsibility. Good CSR practices can serve as protection against reputational and legal risks, which can impact the financial stability of the company. Environmental performance has the potential to support a company's financial performance when coupled with effective CSR practices (Safitri, 2021). Research Safitri, (2021) and Putri et al., (2024) suggest that CSR is able to moderate the influence of environmental performance on financial performance. This means that CSR functions to strengthen the relationship between environmental performance and financial performance by helping companies manage stakeholder expectations, improve corporate reputation, and reduce risks, thus creating a positive impact on financial performance. Thus, the third hypothesis in this study is:

H3: CSR is able to strengthen the influence of environmental performance on financial performance

CSR represents a company's dedication to contributing to sustainable social, economic, and environmental development (Daffa & Hasnawati, 2024). It encompasses various activities, such as sustainability policies, management of social impacts, and support for the community. Investments made for good environmental performance are not always a detrimental expense; with CSR. Companies that are active in CSR can improve brand reputation. When customers and communities see that a company is committed to sustainability, they are more likely to support the business. This can increase sales and, in turn, financial performance. Investors are increasingly looking for companies that demonstrate social responsibility and sustainability (Fahira & Yusrawati, 2023). By implementing strong CSR, companies can increase attractiveness in the eyes of investors, which can result in increased capital inflow and financial performance (A. Pratiwi et al., 2020). Research Putri et al., (2024) suggests that CSR is able to moderate the influence of environmental costs (green accounting) on financial performance. This means that effective CSR can help companies manage legal and reputational risks, which may arise from negative environmental impacts. By reducing these risks, companies can lower associated costs and maintain financial stability. Environmental costs are not always a detrimental expense; through good CSR practices, these costs can contribute to strengthening reputation and improving financial performance. Companies that manage environmental costs well and are committed to CSR tend to experience more significant improvements in financial performance (Daffa & Hasnawati, 2024). Thus, the fourth hypothesis in this study is:

H4: CSR is able to strengthen the influence of environmental costs on financial performance.

Based on the concepts mentioned above on the subject of the problem, the problem can be described as follows:

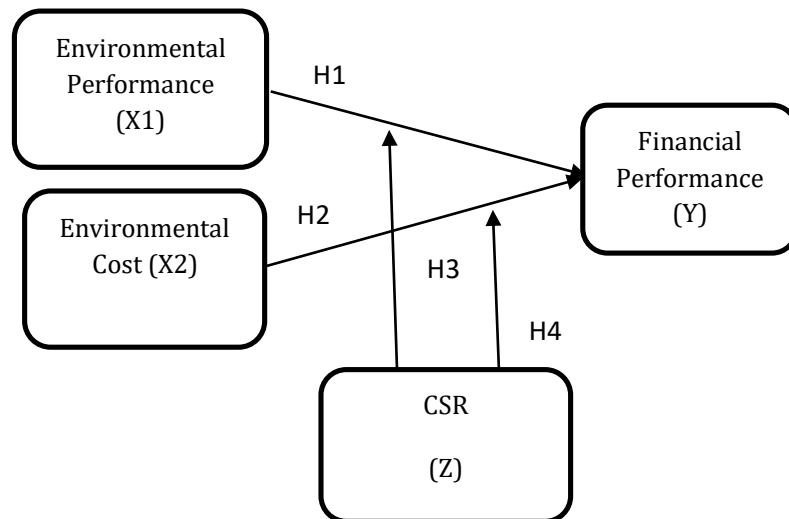


Figure 2.1.
Conceptual Framework

METHODS

This research is a quantitative study, where the data used is secondary data derived from the annual financial statements of companies listed on the Indonesia Stock Exchange (IDX) and incorporated in the Company Performance Rating Assessment Program (PROPER) in Environmental Management for five consecutive years for the period 2019-2023. The necessary research data include environmental performance, environmental costs, financial performance, and Corporate Social Responsibility (CSR) reported by the company. Environmental performance data is obtained from the color rating of the Ministry of Environment and Forestry through PROPER, environmental costs, and financial performance obtained from the company's financial statements, and CSR disclosure based on the Global Reporting Initiative (GRI) version 4.

The population used in this study are manufacturing companies listed on the Indonesia Stock Exchange (BEI) and participating in PROPER. While the research sample is manufacturing companies listed on the IDX and participating in PROPER during the 2019-2023 Period, and the company has included CSR in the annual financial report or sustainability report. While sampling using purposive sampling technique.

Measures

This study consists of two independent variables, one dependent variable and one moderating variable. The first independent variable in this study is environmental performance. The program is one of the efforts made by the Ministry of Environment and Forestry (KEMENLHK) to encourage corporate structuring in environmental management through information instruments (Meiyana & Aisyah, 2019). The performance rating system, in PROPER includes ranking companies in five colors, namely:

Gold	: very very good	score = 5
Green	: very good	score = 4
Blue	: good	score = 3
Red	: bad	score = 2
Black	: very bad	score = 1

The second independent variable is environmental costs, which are costs allocated by the company to anticipate potential environmental damage and to deal with adverse impacts that may arise from the company's operational activities (Setyaningsih & Asyik, 2016). Environmental costs can be calculated by the formula: $\text{Environmental Cost} = \text{Cost}/\text{Net Profit}$. The dependent variable in this study is financial performance.

Measurement of financial performance in this study using Return on Asset (ROA). Why use ROA, because ROA is a measure or formula used to assess the rate of return on total assets or total company investment with management performance on the profits generated by the company (Wibowo & Sabillilah, 2016). ROA is used to determine the profit level or profitability of a company. ROA can be calculated with the following formula: $\text{ROA} = (\text{Net Profit})/(\text{Total Asset}) \times 100\%$. Moderating variables are variables that strengthen or weaken the relationship between one variable and another. In this study, the moderating variable used is *Corporate Social Responsibility* (CSR). Social disclosure has 6 disclosure indicators, namely economy, environment, labor performance, human rights, social, and product (Wibowo & Sabillilah, 2016). In this study, one indicator that supports CSR is used, namely the environmental performance indicator.

Environmental accounting disclosure is accounting information related to the environment in the financial statements (Ningtyas & Triyanto, 2019). The benchmark in measuring the disclosure of accounting information is the Global Reporting Initiative (GRI) version 4 which consists of 91 disclosure items, namely as follows: $N = (\sum \text{items disclosed by the company}) / (\sum \text{items of GRI environmental disclosure})$.

Data analysis

The data analysis method used in this research is quantitative analysis in the form of numerical calculations using statistical methods with the help of the SPSS program. The initial phase is the Classical Assumption Test, which involves conducting normality tests, multicollinearity tests, autocorrelation tests, and heteroscedasticity tests. The second stage is continued with the Hypothesis Test which consists of a partial test (T test), and analysis of the coefficient of determination (R^2). The third stage is carried out multiple linear tests with the regression model as follows: $ROA = \alpha + \beta_1 EP + \beta_2 EC + e$

The fourth step is the Moderated Regression Analysis (MRA) test, with the following model: $ROA = \alpha + \beta_1 EP + \beta_2 EC + \beta_3 CSR + \beta_4 EP*CSR + \beta_5 EC*CSR + e$

Description:

ROA = Financial Performance

a = Constant

$\beta_1 EP$ = Environmental Performance

$\beta_2 EC$ = Environmental Cost

$\beta_3 CSR$ = Corporate Social Responsibility

$\beta_4 EP*CSR$ = Interaction of Environmental Performance with CSR

$\beta_5 EC*CSR$ = Interaction of Environmental Cost with CSR

e = Error

RESULTS AND DISCUSSION

The research objects used in this study are all manufacturing companies listed on the Indonesia Stock Exchange (IDX) for the 2019-2023 period. Based on the criteria in determining the sample using purposive sampling, a total sample of 36 companies was obtained during the 5-year observation period 2019-2023. The following are the criteria for companies that are sampled:

Table 1.

Research Sample Determination

No.	Sample Criteria	Total
1	Manufacturing companies listed on the IDX during the 2019-2023 period	156
2	Manufacturing companies that do not report consecutive financial reports in the 2019-2023 Period	(5)
3	The company did not participate in PROPOER in Environmental Management for the 2019-2023 Period	(81)
4	Companies that do not disclose CSR Period 2019-2023	(15)
5	The company does not have complete financial statements and does not make a profit	(19)
Sample Quantity		36
Total Data (36x5)		180
Number of Outlier Data		(24)
Total Data		156

Source: Data processed

In the Table 1 it appears that the number of samples that meet the criteria is 36 companies, so that for 5 years as much as 180 data, but from this data 24 outlier data were found so that the amount that can be processed is 156 data. The data analysis method used in this research is multiple linear regression analysis and using the MRA test. The following are the results of descriptive statistical tests,

Table 2.*Descriptive Statistical Test*

	N	Minimum	Maximum	Mean	Std. Deviation
EP	156	10986.00	16094.00	11500.122	1261.053
EC	156	3.00	1544.00	232.699	293.227
CSR	156	440.00	3956.00	1775.115	829.289
ROA	156	15.00	2288.00	797.295	545.921
Valid N (listwise)	156				

Source: Data processed by SPSS 26

The Table 2 shows that the total observation data in this study is 156 data. The dependent variable in this study is environmental performance (EP) as measured by PROPER which has the highest value, and the environmental cost variable (EC) has the lowest value. Additionally, the classical assumption test includes normality testing, multicollinearity testing, heteroscedasticity testing, and autocorrelation testing. In this study, the normality test employs the one-sample Kolmogorov-Smirnov test, focusing on the Asymp. Sig. or probability value.

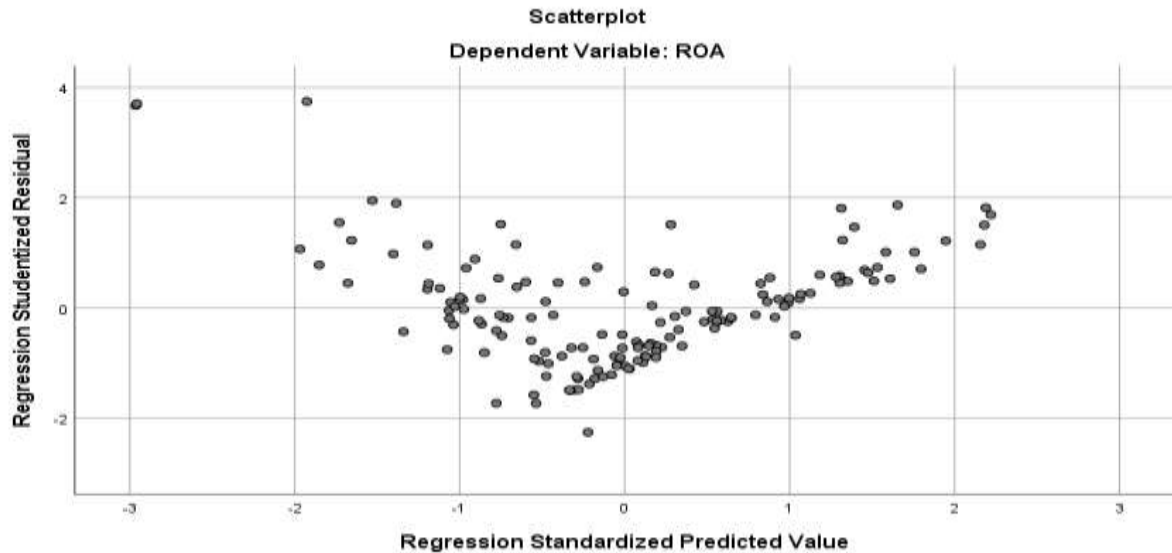
Table 3.*Normality Test After Data Transformation*

		Unstandardized Residual
N		156
Normal Parameters ^{a,b}	Mean	.0000000
	Std. Deviation	228.95489645
Most Extreme Differences	Absolute	.064
	Positive	.064
	Negative	-.041
Test Statistic		.064
Asymp. Sig. (2-tailed)		.200 ^{c,d}

Source: Data processed by SPSS 26

From the Table 3 the probability value is obtained above 0.05 so that it can be said that the data is normally distributed, so the research can proceed to the next stage, namely the heteroscedasticity test. Furthermore, the multicollinearity test is carried out which has the aim of testing whether there is a correlation between the independent variables in the regression model. In the multicollinearity test, Variance Inflation Factors (VIF) is used as an indicator of the presence or absence of multicollinearity between the independent variables. Furthermore, a multicollinearity test was carried out which showed that the Tolerance value was greater than 0.10 and the VIF value was less than 10, so it can be said that there was no multicollinearity problem in each variable in this study. The autocorrelation test, which follows, aims to determine if there is a correlation between the time periods tested in the linear regression model. To determine whether there is an autocorrelation by looking at the magnitude of the Durbin-Watson

value, a value of 1.008 was obtained which is located between -2 to +2, which shows that this study is free from autocorrelation problems. Furthermore, the heteroscedasticity test can be seen from the dot pattern on the Scatter Plot. The following are the results of the heteroscedasticity test.



Source: Data processed by SPSS 26

Figure 1.
Heteroscedasticity Test

Based on the results of the Scatter Plot test in the Figure 1 the points spread unevenly and do not form a clear pattern, so it can be concluded that there is no heteroscedasticity problem in each variable in this study. After the classical assumption test is carried out, hypothesis testing is then carried out which consists of multiple regression analysis, partial significance test (t-test), simultaneous significance test (F-test), coefficient of determination (R-squares) test, and moderated regression analysis (MRA) test. The following are the results of multiple linear regression testing.

Table 4.
Multiple Linear Regression Results

Variable	coeff.	SE	b	t	Sig.
EP	0.033	0.015	0.076	2.215	0.028
EC	-1.313	0.049	-0.914	-26.75	0
Adj. R square	0.822				
Durbin-Watson	1.008				

Source: Data processed by SPSS 26

Based on the Table 4 the multiple linear regression equation in this study can be formulated as follows: $ROA = 726.159 + 0.033EP - 1.313EC + e$. The equation can be described as follows, the constant of 726.159 indicates that if the independent variables of Environmental Performance (EP) and Environmental Costs (EC) are considered constant, then the average value of Financial Performance (ROA) is 726.159 units. The regression coefficient of the Environmental Performance (EP) variable is 0.033, this states that every increase in Environmental Performance

(EP) by one unit, Financial Performance (ROA) will increase by 0.033 units. The regression coefficient of the Environmental Cost (EC) variable is -1.313, this states that every increase in Environmental Cost (EC) by one unit, Financial Performance (ROA) will decrease by 1.313 units. Furthermore, the T test is used to determine the effect of the independent variables on the dependent variable partially. This test uses a significant level of 0.05. The T test results it can be seen that the significance value of environmental performance with a *sig* value of 0.028 <0.05, so it can be concluded that the environmental performance variable has an influence on the financial performance variable or H1 is accepted. The significance value of environmental costs with a *sig* value of 0.000 <0.05, so it can be concluded that the environmental cost variable has an influence on the financial performance variable or H2 is accepted. Then the F test is carried out on the basis of decision making significant value <0.05.

Furthermore, the coefficient of determination (R²) test is used to measure how much the independent variables can explain the dependent variable. The results of the coefficient of determination test can be seen in the Table 4. Based on the test results in Table 4, it shows that the coefficient of determination (Adjusted R Square) is 0.822 or 82.2%. This indicates that the independent variables in the model are able to explain 82.2% of the variation that occurs in the dependent variable. The remaining 17.8% is influenced by other variables not examined in this study. Furthermore, the MRA test was carried out, the following are the results of the MRA test;

Table 5.

MRA Test Results

Variable	coeff.	SE	b	t	Sig.
EP	-0.147	0.006	-0.223	-24.206	0.000
EC	0.010	0.076	0.004	0.137	0.892
EP*CSR	8.622	0.000	1.019	81.360	0.000
EC*CSR	-3.187	0.000	-0.025	-0.850	0.396

Source: Data processed by SPSS 26

Based on the Table 5 the regression model for MRA analysis is obtained as follows; $ROA = 1718.140 - 0.147EP + 0.010EC + 8.622EP*CSR - 3.187EC*CSR + e$. The conclusion that can be drawn from the above equation is as follows; The interaction of environmental performance and CSR (EP*CSR) has a significance value of 0.000 <0.050, so it can be concluded that CSR is able to moderate the effect of environmental performance on financial performance, or H₃ is accepted. The interaction of environmental costs and CSR (EC*CSR) has a significance value of 0.396 > 0.050, so it can be concluded that CSR is not able to moderate the effect of environmental costs on financial performance, or H₄ is rejected.

Discussion

First, based on the results of the t test in Table 4, it show that the significance value of environmental performance with a *sig* value of 0.028 <0.05, it can be concluded that the environmental performance variable has an influence on the financial performance variable or H1 is accepted. This shows that the company has a good PROPER, which can affect the increase in financial performance. Companies with good PROPER will also get a good response from investors and stakeholders and have an impact on increasing profits in the long run. The company will provide good news to stakeholders which can increase company value because the company is

considered to have concern for the environment. Companies with good environmental performance will get a good response from investors and stakeholders and have an impact on increasing revenue in the long term. Good environmental performance can increase the legitimacy and trust of stakeholders towards the community, thus encouraging increased company performance, especially the company's financial performance. The results of this study are in line with research Subakhtiar et al., (2022), Ramadhani et al., (2022), Domineka, (2023), Pratiwi & Hidayah, (2023), Ermaya & Mashuri, (2020), Andriana & Panggabean, (2017) who stated that performance environment influential to performance finance, so that can it is said that Company Performance Rating in Management Environment (PROPER) carried out by the government in matter This Ministry Environment can influence stakeholder interests, especially investors and the community. However, the results of this study are not in line with the research of Meiyana & Aisyah, (2019), Azizah & Cahyaningtyas, (2023), Kaat & Sofian, (2023), Dewi & Ardianingsih, (2024), Evelyn et al., (2022), Abdullah, Mahmuda, Malik, Pratiwi, Rais, Dja'Wa, et al., (2019), Putra, (2018) which states that environmental performance has no effect on financial performance. This is indicates that stakeholders or public feel that results the No in accordance with expectations. Where many companies only fulfil effort in management environment as per what has been set up legislation. Good environmental performance or with to get PROPER rating no make profitability the company also increased

The Effect of Environmental Costs on Financial Performance

Based on the results of the t test in Table 4, it show that the significance value of environmental costs with a *sig* value of $0.000 < 0.05$, it can be concluded that the environmental cost variable has an influence on the financial performance variable or H2 is accepted, but Environmental Costs have a negative relationship and a significant effect on Financial Performance which reflects the significant burden that companies must bear in carrying out environmental practices. Although these environmental costs may have a negative impact, a good understanding and mitigation of these risks can help companies identify opportunities for efficiency and innovation that can help minimize negative impacts on financial performance. The negative effect of signalling financial performance down is because there are certain things that cause the company to be unable to make efficiency so that instead of increasing the quality of financial performance, it reduces financial performance because the costs incurred must be greater. (Siregar & Maqsudi, 2024). The results of this study are in line with research Daffa & Hasnawati, (2024), Subakhtiar et al., (2022), Ermaya & Mashuri, (2020) which states that environmental costs affect financial performance. However, the results of this study are not in line with research Domineka, (2023), Azizah & Cahyaningtyas, (2023), Dewi & Ardianingsih, (2024), Lestari, (2023), Mustika, (2017), Evelyn et al., (2022), Kaat & Sofian, (2023) which states that environmental costs have no effect on financial performance. This is indicates that cost environment not enough own consequence economy. In other words, the form, type, and social strategies carried out company nature indirect effect. The more the magnitude cost environment issued by the company will impact to instability performance finance, because cost incurred can reduce profit company.

The Influence of Environmental Performance on Financial Performance with CSR as Moderation

Based on the results of the MRA testin Tabel 6, it shows that the interaction of environmental performance and CSR (EP*CSR) has a significance value of $0.000 < 0.050$, it can be concluded that

CSR is able to moderate the effect of environmental performance on financial performance, or H3 is accepted. This shows that the company's activities in carrying out social responsibility have a significant influence on success in improving financial performance because it supports the company's image in the eyes of the public. CSR serves as a mechanism through which companies can strengthen their commitment to sustainable business practices, which in turn can improve financial performance. Wang et al. (2016) highlighted that companies that implement effective CSR strategies are able to strengthen their reputation and build trust with stakeholders, including consumers, investors, and regulators. Good environmental performance, when supported by strong CSR policies, can translate these reputational benefits into tangible competitive advantages, such as increased sales and better access to capital, ultimately improving financial performance. Moreover, companies that invest in CSR as an integral part of their operational strategy often see environmental performance as an opportunity to create additional financial value. Thus, CSR not only strengthens environmental performance but also improves financial results. This research is in line with research conducted by Safitri, (2021) which suggests that CSR is able to moderate the effect of environmental performance on financial performance. However, this research is not in line with the results of research conducted by Setyaningsih & Asyik, (2016) which reveals that CSR is not able to moderate the effect of environmental performance on financial performance. which reveals that CSR is unable to moderate the effect of environmental performance on financial performance as measured by Return On Equity (ROE). This indicates that the company's efforts in carrying out its social responsibility have not succeeded in obtaining a positive response from the community. As a result, the CSR (Corporate Social Responsibility) program that has been carried out has not been able to strengthen the company's legitimacy in the eyes of the public or increase its efforts in environmental management. This condition makes the company unable to build a positive image among the community.

The Effect of Environmental Costs on Financial Performance with CSR as Moderation

Based on the results of the MRA test in Tabel 6, it shows that the interaction of environmental costs and CSR (EC*CSR) has a significance value of $0.396 > 0.050$, it can be concluded that CSR is not able to moderate the effect of environmental costs on financial performance, or H4 is rejected. This indicates that CSR can reduce the negative impact of environmental costs on financial performance through increased corporate reputation and stakeholder support. The level of environmental costs incurred does not ensure the extent of CSR activities implemented by the company, particularly given that most of the environmental cost data in this study falls into the low category. Furthermore, the effectiveness of CSR activities cannot be determined solely by the amount of environmental costs. In reality, effective CSR can be favorable for stakeholders and may elicit positive responses from them, ultimately benefiting the company, especially in financial terms (Meiyana & Aisyah, 2019). Wang et al., (2016) argued that although CSR can improve the company's image and increase customer loyalty, in the context of high environmental costs, these benefits are often not enough to cover the negative impact on company profitability. This study highlights that under significant environmental cost pressures, CSR initiatives often do not have sufficient economies of scale to directly improve financial performance. This study is not in line with the study conducted by Putri et al., (2024) which stated that CSR is able to moderate the influence of environmental costs on financial performance. This indicates that environmental

costs (green accounting) are a tool for identifying and measuring the costs of environmental materials and activities used as a reference for making environmental management decisions.

CONCLUSION

Based on the results of the research and discussion previously stated, it can be concluded that environmental performance affects financial performance, this shows that the Company has a good PROPER, which can affect the increase in financial performance. Companies with good PROPER will also get a good response from investors and stakeholders and have an impact on increasing profits in the long run. Environmental costs have a negative effect on financial performance, the negative effect indicates that the financial performance decreases because there are certain things that cause the company to not be able to do efficiency so that instead of increasing the quality of financial performance, it reduces financial performance because the costs incurred must be greater. CSR is able to strengthen the influence of environmental performance on financial performance, this shows that the company's activities in carrying out social responsibility have a significant influence on success in improving financial performance because it supports the company's image in the eyes of the public. CSR does not enhance the impact of environmental costs on financial performance. This indicates that the level of environmental costs incurred does not ensure the extent of CSR activities conducted by the company, particularly since most of the environmental cost data in this study falls into low categories. Additionally, the effectiveness of CSR activities cannot be assessed solely based on the amount of environmental costs.

This study is not free from limitations, including covering limited data for the period 2019 to 2023 on companies listed on the Indonesia Stock Exchange (IDX), namely the data obtained was only 156 observations, so the results may not be generalizable to other sector companies. For this reason, it is recommended for further researchers to expand the scope to test whether similar results are found in different contexts. In addition, this study only uses secondary data from annual financial reports, which may not reflect all aspects of the Company's environmental and CSR performance, for this reason the use of primary data is recommended for further researchers such as interviews or surveys of Company management, can provide a deep understanding of CSR implementation and environmental performance. For companies, it is hoped that all manufacturing companies listed on the Indonesia Stock Exchange are able to manage their companies properly and comply with regulations set by the government, so as to improve the company's financial performance.

Acknowledgment

This research is part of the external grant program of the Beginner Lecturer Research Scheme (PDP). Directorate of Research, Technology and Community Service. Directorate General of Higher Education, Research and Technology. Ministry of Education, Culture, Research and Technology.

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Funding

This research is part of the external grant program of the Beginner Lecturer Research Scheme (PDP). Directorate of Research, Technology and Community Service. Directorate General of Higher Education, Research and Technology. Ministry of Education, Culture, Research and Technology.

Availability of data and materials

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Competing interests

No potential competing interest was reported by the authors

Cite this paper

Nurdiniah, D., Meita, I., & Lestari, B. (2024). Analysis of the influence of environmental performance and environmental costs on financial performance: The role of corporate social responsibility (CSR) as a moderating variable. *AKURASI: Jurnal Riset Akuntansi Dan Keuangan*, 6(3), 367-384. <https://doi.org/10.36407/akurasi.v6i3.1515>