The Effect of Environmental Costs, Environmental Disclosure, Environmental Performance, and Profitability on Firm Value

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ABSTRACT: A company's worth is a key metric for maintaining its competitiveness in the face of fierce industry rivalry. The purpose of this study is to examine how firm value is impacted by environmental costs, environmental disclosure, environmental performance, and profitability. The study was conducted on companies listed on the Indonesia Stock Exchange from 2018 to 2022, employing purposive sampling to select 10 companies. Panel data regression analysis using Eviews 12 software was employed to test the hypotheses. The findings suggest that Environmental Costs do not influence Firm Value, whereas Environmental Disclosure and Environmental Performance do impact Firm Value. However, Profitability was found to have no effect on Firm Value. Based on the results of statistical tests and based on the discussion described in the previous chapter, the conclusions of this study are as follows: Environmental Cost does not affect firm value in industrial and chemical sector companies. The nature of environmental accounting disclosure is still voluntary.

Keywords: environmental costs, environmental disclosure, and environmental performance; profitability; and company value

INTRODUCTION

The evolving landscape of the business realm fosters intense competition among companies. Each organization devises policies to attain its objectives, aiming for long-term prosperity by enhancing company value and satisfying shareholders. Concurrently, short-term goals focus on maximizing profits utilizing available resources (Suwardika & Mustanda, 2017). The ascent of company value, signifying success and viability, is evidenced by elevated share prices and investor interest (Wicaksono & Mispianyanti, 2020) Consequently, company value assumes paramount significance for investors, fortifying the company's competitive stance amidst the fervent business competition.

Firm value epitomizes shareholders' assessment of a company's adeptness in resource management, as mirrored by its stock
price (Sarafina & Saifi, 2017). It serves as a barometer of the company’s standing, gauged by its share price on the Indonesia Stock Exchange. A soaring share price signifies enhanced company worth, enticing numerous investors to procure shares, thereby propelling share prices further upward. Hence, it behooves companies to recognize the paramount significance of firm value in their operations, as investors meticulously evaluate a company’s shares before making investment decisions.

Indonesia, like many other countries, grapples with environmental pollution issues (Apip et al., 2020). The rapid proliferation of companies in Indonesia intensifies competition, driving a quest for profits amidst the burgeoning marketplace. However, the survival and success of these companies are not solely contingent upon profitability; rather, there’s an imperative to harmonize economic performance with a focus on social equity and environmental sustainability (Zabetha et al., 2018). Heightened environmental degradation has spurred public demands for companies to assume responsibility for the ecological ramifications of their operations (Daromes, 2020). To address these concerns, the government enacted Law No. 40 of 2007 on Limited Liability Companies, mandating Corporate Social Responsibility (CSR). Article 1 stipulates that companies engaged in natural resource-related businesses must fulfill social and environmental responsibilities. Furthermore, Government Regulation No. 47/2012 delineates the concept of CSR for Limited Liability Companies, providing a regulatory framework for social and environmental responsibilities.

The demise of companies often stems from a deliberate disregard for the adverse impacts of their production activities. The prevalence of environmental pollution cases in recent years underscores the persistence of companies neglecting their responsibility for sound environmental management. A notable example is the environmental pollution stemming from the operational activities of PT Indocement Tunggal Prakarsa in Cirebon, where coal emissions have infiltrated the daily lives of villagers, resulting in skin irritation and potential respiratory issues. Similarly, operational activities at PT Selamet Mitra Raharja in Cirebon have led to pollution in the ceramics industry, affecting tile, sanitary ware, and tableware production. Additionally, combustion units contribute to potential pollution through the emission of CO gas, SO2, and the formation of Nox (Hidayat et al., 2023).

Corporate environmental performance refers to a company’s effectiveness in fostering a favorable (green) environment. The instances of environmental pollution highlighted above underscore companies’ failure to uphold proper environmental performance, prioritizing profit over environmental responsibility. Nevertheless, given the scale of these companies and their direct environmental impact, they play a pivotal role in propelling the Indonesian economy forward. The contributions and products of the basic and chemical industry sector are indispensable for the functionality of modern society.
The expenses associated with environmental endeavors undertaken by companies are termed environmental costs. These encompass both internal and external costs linked to environmental damage and protection initiatives. Environmental costs incurred in the course of business activities reflect the company's commitment to environmental preservation (Bangun and Sunarni, 2013). Contrary findings emerge from studies regarding the impact of environmental costs on firm value. (Buana & Nuzula, 2017) concluded that environmental costs do not exert influence on firm value, suggesting a lack of positive signal from stakeholders and potential investors to drive up stock prices. In contrast, (Iqbal, 2013) discovered that environmental costs do affect firm value positively. This implies that the environmental costs undertaken by a company convey a favorable signal to stakeholders and potential investors, thereby boosting stock prices as a reflection of the company's worth.

Environmental disclosure encompasses a comprehensive set of information pertaining to a company's past, present, and future environmental management practices, alongside details regarding the financial implications arising from these decisions or actions (Berthelot et al., 2003). Companies that are transparent in disclosing their environmental policies not only mitigate uncertainty risks but also gain a competitive advantage. Contradictory findings emerge regarding the impact of environmental disclosure on firm value. While (Hidayat et al., 2023) assert that environmental disclosure does not influence firm value, (Wibisono, 2011) and (Kelvin et al., 2017) argue otherwise, suggesting that environmental disclosure does indeed affect firm value positively. These results suggest that Corporate Social Responsibility (CSR) disclosure, which encompasses environmental disclosure, can enhance a company's value, evidenced by increased stock prices and profitability due to investor confidence and investment (Kusumadi, 2010).

Profitability serves as a crucial variable that can significantly impact firm value. It represents a company's ability to generate profits, serving as a key metric for investment decision-making (Pranatasari, 2020). (Suwardika & Mustanda, 2017) contend that profitability indeed influences firm value. According to their study, companies with robust profitability tend to enhance their performance, consequently augmenting their overall value. However, conflicting findings arise from the research of (Hidayat & Khotimah, 2022), who argue that profitability does not exert influence on firm value.

Previous research conducted by (Hidayat et al., 2023) suggests that environmental costs have a detrimental effect on firm value, whereas environmental disclosure and environmental performance do not influence firm value significantly. Furthermore, the same study indicates that environmental costs negatively impact firm value. Similarly, findings from research conducted by (Buana & Nuzula, 2017) reveal that environmental costs exhibit a significantly negative correlation with Return on Assets (ROA), Net Profit Margin (NPM), and Tobin's Q of first-section chemical companies. However, environmental costs do not show a significant relationship with Return on Equity (ROE) and Price-to-
Earnings Ratio (PER) of first-section chemical companies.

In this study, researchers selected basic and chemical industry manufacturing companies as the focal point of their investigation. The rationale behind this choice lies in the fact that companies operating in this sector exert a direct and significant impact on the environment through their operational activities. This selection is driven by the acknowledgment that environmental pollution stemming from these companies, particularly air pollution, poses considerable risks to surrounding communities. The persistent occurrence of environmental pollution serves as tangible evidence indicating that numerous companies within this sector either deliberately flout regulations or neglect responsible environmental management practices mandated by prevailing regulations.

Based on the observed phenomena and the disparities in research findings discussed above, researchers are motivated to conduct a study titled “The Effect of Environmental Costs, Environmental Disclosure, Environmental Performance, and Profitability on Firm Value.”

RESEARCH METHODOLOGY
Type of Research
This research involves verifying the influence of Environmental Cost, Environmental Performance, and Profitability on Firm Value. It employs an explanatory survey research method aimed at hypothesis testing. Inferential statistics are utilized as the research technique in this study.

Research Variables
Independent variables are those variables that exert influence on other variables, which are referred to as dependent variables. The environmental cost, environmental disclosure, environmental performance, and profitability are the four independent factors in this study. The variable that is impacted by the independent variables is known as the dependent variable. Company Value is the only dependent variable in this study.

Variable Measurement
Environmental Costs
This variable is measured by the ratio of the amount of costs incurred for CSR activities to net profit after tax, which is the method used in measuring the environmental cost ratio (Egbunike & Okoro, 2018). This is calculated using the following formula:
EC = \frac{CSR \text{ Cost}}{Net \text{ Profit}}

Environmental Disclosure
This variable is measured by examining environmental disclosures based on indicators, with each disclosure assigned a value ranging from zero to three (Arimbi & Mayangsari, 2022). The measurement criteria for Environmental Disclosure are as follows:
Table 1
Environmental Disclosure Assessment Criteria

<table>
<thead>
<tr>
<th>ASSESSMENT</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>if the disclosure does not include the item</td>
</tr>
<tr>
<td>1</td>
<td>if the information is only provided in broad strokes</td>
</tr>
<tr>
<td>2</td>
<td>if the item is given in non-quantitative terms along with company-specific information</td>
</tr>
<tr>
<td>3</td>
<td>In the event that the object is revealed using monetary or quantitative terms</td>
</tr>
</tbody>
</table>

Sumber: Fadillah, dkk. (2017)

Environmental Performance
This variable is measured using the PROPER rating. Presented below:

Table 2
PROPER Rating

<table>
<thead>
<tr>
<th>PROPER Color</th>
<th>Gold</th>
<th>Green</th>
<th>Blue</th>
<th>Red</th>
<th>Black</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skor</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Ministry of Environment and Forestry (MoEF)

Profitability
This variable is calculated using ROA (Return On Asset) with the following formula (Brigham, 2010):

\[
ROA = \frac{Net\ Profit}{Total\ Assets} \times 100\%
\]

Company Value
This variable is measured using Tobin’s Q ratio (Arimbi & Mayangsari, 2022). With the following formula:

\[
Tobin’s\ Q = \frac{MVE + Debt}{Total\ Assets}
\]

Where:
MVE : Year-end Closing Share Price × Number of common shares outstanding
Debt : (Current Liabilities - Current Assets) + Inventories + Long-term Liabilities
Total Asset: Book Value of Total Assets

Sampling Method
The population of the study consists of the 243 manufacturing companies in the basic and chemical industrial sectors that are listed on the Indonesia Stock Exchange between 2018 and 2022. The methodology employed for selecting the study's sample was purposeful sampling.

Table 3 Sampling

<table>
<thead>
<tr>
<th>No</th>
<th>Description</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Manufacturing Firms Enlisted from 2018 to 2022 on the Indonesia Stock Exchange</td>
<td>243</td>
</tr>
<tr>
<td>2</td>
<td>Manufacturing firms for the years 2018–2022 that do not regularly release annual reports</td>
<td>(71)</td>
</tr>
<tr>
<td>3</td>
<td>Manufacturing firms for the years 2018–2022 that do not regularly release sustainability reports</td>
<td>(43)</td>
</tr>
<tr>
<td>4</td>
<td>Manufacturing enterprises that incur losses between 2018 and 2022</td>
<td>(77)</td>
</tr>
<tr>
<td>5</td>
<td>manufacturing businesses that have not registered to participate in the Ministry of Environment’s Environmental Management Performance Assessment Program (PROPER) for the years 2018–2022.</td>
<td>(42)</td>
</tr>
</tbody>
</table>

Number of Sample Companies 10
Research Period (Year) 4
Quantity of Research Data Samples 50

Source: Data processed, 2024
Based on Table 3 above, the sampling criteria entail selecting 10 companies for sampling during the observation period. Consequently, a total of 50 data points were collected over the 5-year research observation period from 2018 to 2022.

**Data Collection Methods**

The data collection method employed in this research is quantitative, focusing on numerical data such as counts, levels, comparisons, and volumes. The data source utilized in this research is secondary data, obtained indirectly through intermediary media, specifically the Indonesia Stock Exchange website.

**Data Analysis Method**

The collected data will be processed and analyzed using panel data regression analysis, a common method in quantitative data analysis. The Eviews software version 12 will be utilized to facilitate this analysis.

**RESULT AND DISCUSSION**

**Panel Data Estimation Model Selection**

Table 4

<table>
<thead>
<tr>
<th>Effect Test</th>
<th>Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section Chi-square</td>
<td>51.110593</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

*Source: E-view 12 output, 2024*

Table 1 shows the chow test with a prob. value less than alpha (α) < 0.05. Specifically, the Cross-Section Chi-Square probability is recorded as 0.0000. Consequently, based on the Chow test outcome, the model employed in this study is determined to be the fixed effect model.

Table 5

<table>
<thead>
<tr>
<th>Test Summary</th>
<th>Chi-sq. Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section random</td>
<td>3.359500</td>
<td>0.4996</td>
</tr>
</tbody>
</table>

*Source: Output E-view 12, 2024*

Table 2 shows the Hausman test with a prob. value of more than alpha (α) > 0.05. Specifically, the Cross-section random probability is noted as 0.4996. Therefore, according to the Hausman test outcome, the model utilized in this study is determined to be the random effect model.

Table 6

<table>
<thead>
<tr>
<th>Test Hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section</td>
</tr>
<tr>
<td>0.0000</td>
</tr>
</tbody>
</table>

*Source: Output E-view 12, 2024*
Table 3 shows the Lagrange multiplier test with a prob. value less than alpha (α) <0.05. Specifically, the Cross-section probability is recorded as 0.0000. Hence, based on the Lagrange test findings, the model selected for this study is determined to be the random effect model. The consistency of outcomes from the Chow test, Hausman test, and Lagrange multiplier test suggests that the random effect model is the most suitable for testing the research hypothesis.

If the Random Effect Model is chosen as the best model, it is generally accepted that classical assumption tests are not necessary. This conclusion stems from the fact that the Random Effect Model utilizes the GLS (Generalized Least Squares) method, which inherently accounts for within-group correlation and heteroscedasticity (Handarini, 2014). Some researchers assert that classical assumption tests are primarily required when the chosen model is the Common Effect or Fixed Effect Model (Hapsari, 2013) dan (Handarini, 2014).

**Panel Data Regression Equation**

\[ Y = -0.12 + 0.048*X_1 + 0.042*X_2 + 0.16*X_3 + 0.0000030*X_4 \]

The explanation is as follows:

1. The constant value of -0.12 means that without the EC (X1), ED (X2), EP (X3), and ROA (X4) variables, Tobin's Q (Y) variable will decrease by -12%.

2. The beta coefficient value of the EC variable (X1) is 0.048, if the value of other variables is constant and variable X1 has increased by 4.8%, Tobin's Q (Y) variable will increase by 4.8%. Vice versa, if the value of other variables is constant and variable X1 decreases by 4.8%, Tobin's Q (Y) variable will decrease by 4.8%.

3. The beta coefficient value of the ED variable (X2) is 0.042, if the value of other variables is constant and the X2 variable has increased by 4.2%, Tobin's Q (Y) variable will increase by 4.2%. Vice versa, if the value of other variables is constant and the X2 variable decreases by 4.2%, Tobin's Q (Y) variable will decrease by 4.2%.

4. The beta coefficient value of the EP variable (X3) is 0.16, if the value of other variables is constant and variable X3 has increased by 16%, Tobin's Q (Y) variable will increase by 16%. Vice versa, if the value of other variables is constant and the X3 variable decreases by 16%, Tobin's Q (Y) variable will decrease by 16%.

5. The beta coefficient value of the ROA variable (X4) is 0.0000003, if the value of other variables is constant and the X4 variable increases by 0.00003%, Tobin's Q (Y) variable will increase by 0.00003%. Vice versa, if the value of other variables is constant and the X4 variable decreases by 0.00003%, Tobin's Q (Y) variable will decrease by 0.00003%.
Table 7
T-Statistic Test Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-0.121820</td>
<td>0.370879</td>
<td>-0.328463</td>
<td>0.7441</td>
</tr>
<tr>
<td>X1</td>
<td>0.047775</td>
<td>0.425442</td>
<td>0.112295</td>
<td>0.9111</td>
</tr>
<tr>
<td>X2</td>
<td>0.042490</td>
<td>0.019119</td>
<td>2.222462</td>
<td>0.0313</td>
</tr>
<tr>
<td>X3</td>
<td>0.165296</td>
<td>0.062233</td>
<td>2.656079</td>
<td>0.0109</td>
</tr>
<tr>
<td>X4</td>
<td>2.96E-07</td>
<td>2.44E-06</td>
<td>0.121181</td>
<td>0.9041</td>
</tr>
</tbody>
</table>

Source: Output E-views 12, 2024

Based on Table 4 above, the t-statistic test results can be interpreted as follows:

a. The t-test results on the EC (X1) variable obtained a t value of 0.112295 < t table, namely 2.010634758 and sig value. 0.9111 > 0.05, then H0 is rejected and Ha is accepted, meaning that the EC (X1) variable does not affect Tobin's Q.

b. The t-test results on the ED (X2) variable obtained a t value of 2.222462 > t table, namely 2.010634758 and sig value. 0.0313 < 0.05, then H0 is rejected and Ha is accepted, meaning that the ED (X2) variable affects Tobin's Q.

c. The t-test results on the EP (X3) variable obtained a t value of 2.656079 > t table, namely 2.010634758 and sig value. 0.0109 < 0.05, then H0 is rejected and Ha is accepted, meaning that the EP (X3) variable affects Tobin's Q.

d. The t-test results on the ROA variable (X4) obtained a t value of 0.121181 < t table, namely 2.010634758 and sig value. 0.9041 > 0.05, then H0 is rejected and Ha is accepted, meaning that the ROA (X4) variable does not affect Tobin's Q.

Table 8
F Test Results

<table>
<thead>
<tr>
<th>F-Statistic</th>
<th>3.746188</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prob(F-statistic)</td>
<td>0.010286</td>
</tr>
</tbody>
</table>

Source: Output E-view 12, 2024

The calculated f value of 3.746188 > F table is 2.578739184 and sig. 0.010286 < 0.05, then H0 is rejected and Ha is accepted, meaning that the variables EC, ED, EP, and ROA have an impact on Tobin's Q.

Table 9
Determination Coefficient Test Results

<table>
<thead>
<tr>
<th>R-Squared</th>
<th>0.249809</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adjusted R-squared</td>
<td>0.183126</td>
</tr>
</tbody>
</table>

Source: Output E-view 12, 2024

The adjusted R-squared value is 0.183126 or 18.3126%. The coefficient of determination value realizes that the independent variables consisting of EC, ED, EP, and ROA can explain Tobin's Q variable by 18.3126%, while the remaining 81.6874% (100-adjusted R Square value) is explained by other
variables not included in this research model.

**Discussion**

**The Effect of Environmental Costs on Company Value**

Based on the statistical findings, it appears that environmental costs do not exert a significant impact on firm value within industrial and chemical sector companies. Furthermore, the practice of environmental accounting disclosure remains voluntary. This voluntary nature is evident due to the absence of standardized reporting standards, allowing companies the freedom to select the information content they disclose through CSR reports in annual or sustainability reports (Syahputra et al., 2019). Consequently, only a few manufacturing firms opt to disclose environmental costs voluntarily, typically limited to their awareness and policies. This tendency is reflected in company annual reports that primarily focus on social activities without detailing the costs incurred for these endeavors (Meilanawati, 2013).

The findings of this study align with the research conducted by (Buana & Nuzula, 2017), indicating that environmental costs do not have a significant impact on firm value. However, it contrasts with the research conducted by (Iqbal, 2013), which suggests that environmental costs do affect firm value.

**The Effect of Environmental Disclosure on Firm Value**

Based on the statistical findings, it appears that environmental disclosure has a significant impact on the value of companies within the industrial and chemical sectors. This suggests that CSR disclosure, including environmental disclosure, leads to an increase in the company's value, as evidenced by stock prices and earnings resulting from investor confidence and investment (Kusumadilaga, 2010).

The findings of this study align with the research conducted by (Wibisono, 2011) and (Kelvin et al., 2017), indicating that environmental disclosure does indeed affect firm value. However, these findings contrast with the research conducted by (Hidayat et al., 2023), which suggests that environmental disclosure does not have a significant impact on firm value.

**The Effect of Environmental Performance on Company Value**

Based on the statistical findings, it appears that environmental performance significantly influences firm value in industrial and chemical sector companies. This suggests that the PROPER rating system, organized by the government to enhance environmental quality, can indeed be implemented more efficiently and effectively, as evidenced by its impact on firm value.

The findings of this study align with the research conducted by Mardiana & Wuryani (2019), indicating that environmental performance does indeed affect firm value. However, these findings contrast with the research conducted by (Hidayat et al., 2023), which suggest that environmental performance does not have a significant impact on firm value.

**Effect of Profitability on Company Value**

Based on the statistical findings, it appears that profitability does not significantly influence firm value in industrial and chemical sector companies. This suggests that companies with insufficient profitability may struggle to enhance their
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performance, resulting in a decrease in the level of company value.

The findings of this study align with the research conducted by (Hidayat & Khotimah, 2022), indicating that profitability does not have a significant impact on firm value. However, these findings contrast with the research conducted by (Suwardika & Mustanda, 2017), which suggests that profitability does indeed affect firm value.

CONCLUSION

Based on the results of statistical tests and based on the discussion described in the previous chapter, the conclusions of this study are as follows:

Environmental Cost does not affect firm value in industrial and chemical sector companies. The nature of environmental accounting disclosure is still voluntary.

Environmental disclosure affects firm value in industrial and chemical sector companies. This means that CSR disclosure (including environmental disclosure) will increase the value of the company as seen from the stock price and company profits (earnings) as a result of investors investing in the company (Kusumadilaga, 2010).

Environmental Performance affects firm value in industrial and chemical sector companies. This means that the results of this study prove that the PROPER rating organized by the government’s efforts to improve environmental quality can be carried out more efficiently and effectively.

Profitability does not affect firm value in industrial and chemical sector companies. This means that companies that have profitability that is not high enough so that the company can improve its performance which results in a decrease in the level of company value.

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