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The Impact of Environmental Performance on Environmental Disclosure and Detailed Environmental Reporting in Companies

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ABSTRACT

Objective: This study aims to explore the impact of Environmental Performance on Environmental Disclosure and Hard Environmental Disclosure among companies listed on the Indonesia Stock Exchange (IDX) from 2018 to 2023. It also examines the influence of company size, leverage, and profitability on these disclosure practices.

Methods: A mixed-methods approach is employed, combining quantitative data from annual and sustainability reports with PROPER ratings. The analysis utilizes multiple regression to assess the relationships between Environmental Performance, Environmental Disclosure, and Hard Environmental Disclosure, with classical assumption tests conducted to ensure the validity of the regression model.

Results: The analysis reveals that higher Environmental Performance is positively associated with increased Environmental Disclosure. Additionally, more comprehensive Environmental Disclosure correlates with more detailed Hard Environmental Disclosure. Among the control variables, Company Size and Profitability significantly affect both Environmental Disclosure and Hard Environmental Disclosure, while Leverage does not show a significant impact.

Novelty: This study advances the understanding of how Environmental Performance influences disclosure practices in Indonesian firms and highlights the role of company-specific factors such as size and profitability in shaping the extent and detail of environmental reporting.

Implication: The findings suggest that improving Environmental Performance can lead to more extensive and detailed Environmental Disclosure. For policymakers and practitioners, this underscores the need for strategies and regulations that promote transparent environmental reporting, particularly considering the varying impacts of company size and profitability.

1. Introduction

Since the dawn of the environmental movement in the early 1970s, issues pertaining to our vulnerable planet have increasingly captured worldwide concern, culminating in the pivotal 1972 United Nations Conference on the Human Environment in Stockholm and the subsequent more extensive 1992 Earth Summit held in Rio de Janeiro, during which participating nations formally acknowledged global warming as a defining challenge of the times which demanded coordinated international action (Egelston 2022). As awareness of environmental degradation has swelled globally, industrial practices have come under heavier scrutiny with respect to their environmental consequences (Destek 2021). Corporations now face growing public pressure to directly address environmental issues and to report their ecological impact in extensive detail (Tang and

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Tang 2018). Recent academic analyses emphasize the surging significance of transparent environmental disclosure as a means for companies to exhibit their commitment to sustainable methods and to mitigate the environmental damages potentially resulting from production and distribution networks (Simsekler, Ward, and Clarkson 2018). This evolutionary shift mirrors societal movement toward a greater demand for transparency and liability pertaining to environmental administration on a broad scale.

Despite growing awareness of environmental issues, many companies still neglect the ecological and social impacts of their operations. This lack of attention often exacerbates environmental degradation, as some organizations may disregard their full responsibilities to safeguard natural systems (Lashitew 2021). Government bodies including the United States Environmental Protection Agency and the Global Reporting Initiative have developed frameworks aiming to boost reporting on environmental performance. However, the efficacy of these initiatives can differ extensively between regions and business sectors, with deficiencies uncovered in implementation (Hardy & Frost, 2001). In Indonesia, while regulations such as the comprehensive Government Regulation No. 47/2012 now mandate disclosure, inconsistencies in adherence to these rules highlight the persistent obstacles to ensuring diligent environmental transparency (Lindrianasari, 2007).

Theoretical stances on ecological transparency highlight the character of corporate social accountability (CSR) in molding environmental reporting practices (Shahab and Ye 2018). Stakeholder hypothesis asserts that businesses expose ecological data to handle stakeholder issues and heighten legitimacy (Clarkson et al., 2011). This hypothesis positions that enterprises with robust ecological execution are more prone to engage in extensive ecological transparency to maintain a positive corporate picture and meet stakeholder anticipations (Lu and Wang 2021). In contrast, organizations with poorer ecological execution may engage in expanded disclosure as a type of harm control (Terlaak, Kim, and Roh 2018). This scholarly structure gives a establishment for understanding the inspirations behind natural reporting and the potential effect of ecological execution on disclosure practices (Rabaya and Saleh 2022). Moreover, companies pursuing legitimacy often provide varied details regarding environmental performance through disclosures, with some paragraphs featuring complex data alongside more succinct impact summaries (Beske, Haustein, and Lorson 2020). Context and nuance are likewise important to consider, as stakeholder needs and concerns regarding disclosure regularly change (Rabaya and Saleh 2022).

The urgency of this research stems from the observed discrepancies in previous studies regarding the relationship between environmental performance and environmental disclosure (Li et al. 2018). Some studies, such as those by Epstein (1994), found no significant relationship between environmental performance and disclosure levels. In contrast, other research by Clarkson et al. (2008) identified a positive correlation, suggesting that firms with superior environmental performance are more likely to provide detailed and credible environmental reports (Latan et al. 2018). These conflicting findings highlight a research gap that this study aims to address by examining the impact of environmental performance on both general and hard environmental disclosure in the context of Indonesian companies (Arena, Azzone, and Mapelli 2018; Latan et al. 2018). This research is particularly timely given the recent regulatory developments and the need for more robust empirical evidence on environmental reporting practices (Kannenberg and Schreck 2019; Karaman, Kilic, and Uyar 2020).

The primary objectives of this study are to analyze the influence of environmental performance on the level of environmental disclosure by companies and to investigate the impact of environmental performance on detailed environmental reporting. By achieving these objectives, the study aims to contribute valuable insights into the effectiveness of current environmental disclosure practices and the implications of environmental performance for corporate transparency in Indonesia.

2. Method Innovation

2.1. Experimental Design

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The experimental design of this study is meticulously crafted to evaluate the effects of various independent variables on Environmental Disclosure (ED) and Hard Environmental Disclosure (HED) among companies listed on the Indonesia Stock Exchange (IDX) from 2018 to 2023. This design incorporates both quantitative and qualitative methods to offer a holistic analysis of environmental reporting practices. The dependent variables include Environmental Disclosure (ED), which is measured using the (Baalouch, Ayadi, and Hussainey 2019). This index, consisting of seven categories (A1-A7), provides a comprehensive framework for evaluating the breadth and depth of environmental disclosures across multiple dimensions (Simsekler et al. 2018). Hard Environmental Disclosure (HED) specifically focuses on detailed disclosures related to governance structures, credibility, performance indicators, and expenditures, as outlined, emphasizing the specificity and reliability of the information disclosed.

The independent variable is Environmental Performance (EP), assessed using the PROPER rating system from the Ministry of Environment and Forestry (Nguyen et al. 2023). This system categorizes environmental performance into five color-coded ratings, offering a structured measure of a company's environmental impact and practices (Nguyen et al. 2023). Control variables include Company Size (CSE), represented by total assets and transformed using natural logarithms to normalize data and account for scale effects. Leverage (LEV), measured as the ratio of total debt to equity, provides insight into financial risk, while Profitability (ROE), indicating Return on Equity, measures the efficiency of profit generation relative to shareholder equity, highlighting the financial performance that may influence or be influenced by environmental practices.

The study is guided by three research hypotheses: H1 posits that higher Environmental Performance is positively associated with greater Environmental Disclosure, suggesting that companies with superior environmental performance are likely to engage in more comprehensive environmental reporting. H2 hypothesizes that greater Environmental Disclosure correlates with more detailed Hard Environmental Disclosure, implying that extensive environmental reporting is associated with the provision of more specific and detailed information. H3 suggests that Company Size, Leverage, and Profitability significantly impact both Environmental Disclosure and Hard Environmental Disclosure, indicating that these control variables influence the extent and detail of environmental disclosures (Kılıç and Kuzey 2018).

Data collection methods include the analysis of annual and sustainability reports obtained from the IDX and company websites, which provide insights into corporate environmental disclosure practices (Gunawan, Permatasari, and Fauzi 2022). Additionally, PROPER ratings are sourced from the Ministry of Environment and Forestry website, offering standardized measures of environmental performance (Latan, Chiappetta Jabbour, and Lopes de Sousa Jabbour 2019; Lo-Iacono-Ferreira, Capuz-Rizo, and Torregrosa-López 2018). This integrated approach ensures a comprehensive evaluation of environmental disclosure practices and their determinants (Kılıç and Kuzey 2018).

2.2. Theoretical Predictions

The theoretical framework for this study is rooted in environmental economics and corporate disclosure theories (Qin, Harrison, and Chen 2019). It posits that Environmental Performance significantly influences the extent of Environmental Disclosure due to heightened regulatory pressures and increased stakeholder expectations (Clarkson et al. 2008). Companies with superior environmental performance are expected to provide more comprehensive disclosures as a response to these pressures and as a strategic move to enhance their reputation and meet stakeholder demands. Furthermore, the study hypothesizes that Environmental Disclosure enhances the clarity of Hard Environmental Disclosure by offering detailed performance indicators and strategies (Clarkson et al. 2008). This enhancement occurs because comprehensive environmental reporting typically includes more granular details that facilitate clearer understanding and evaluation of a company's environmental practices (Lu and Wang 2021). The resource-based view (RBV) supports this framework by suggesting that firms with better environmental performance are inclined to disclose extensive information to leverage their competitive advantage and reinforce their market position (Robins and Wiersema 1995).

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2.3. Experimental Procedures

Data for this study were sourced from annual reports, sustainability reports, and PROPER ratings spanning from 2018 to 2023. The content analysis method was used to score environmental disclosure items according to the Clarkson Index. This involved a meticulous review of annual reports to identify the presence of specific disclosure items related to environmental practices (Saini et al. 2022). The content analysis ensured that each disclosure item was accurately captured and assessed, providing a reliable measure of environmental reporting (Pitrakkos and Maroun 2020).

Data analysis included several steps: Descriptive Statistics were used to summarize the distribution and central tendencies of the variables, providing an overview of the data characteristics (Cooksey 2020). Classical Assumption Tests, including tests for normality, multicollinearity, and heteroskedasticity, were conducted to validate the assumptions of the regression model (Knief and Forstmeier 2021). Multiple Regression Analysis was then applied to evaluate the relationships between Environmental Performance, Environmental Disclosure, and Hard Environmental Disclosure, while controlling for Company Size, Leverage, and Profitability (Acar and Temiz 2020). This analysis aimed to determine the impact of these variables on the extent and detail of environmental reporting.Reliability of the study was ensured by employing multiple coders in the content analysis process to minimize bias and enhance consistency (Choudhary, Merkley, and Schipper 2021). Validity was achieved by aligning the study design with established indices and theoretical frameworks, ensuring that the measures used accurately reflected the constructs being studied (Fernandez et al. 2018).

2.4. The Sample

The sample for this study consists of non-financial companies listed on the IDX from 2018 to 2023. A purposive sampling technique was used to select companies that met specific criteria: they were listed on the IDX during the study period, published annual and/or sustainability reports for the years 2018-2023, and participated in the PROPER program. The sample distribution by sector is detailed in the following table:

Table 1. Sample Distribution by Sector

Sector	Number of Companies	Sample Size
Manufacturing	50	15
Energy	30	10
Agriculture	20	8
Services	40	12
Total	**140**	**45**

3. Results of Research Data

This section presents the findings from the study, including the results of the classical assumption tests and the multiple regression analysis (Sarstedt and Mooi 2019). The analysis focuses on evaluating the relationships between Environmental Performance (EP), Environmental Disclosure (ED), and Hard Environmental Disclosure (HED), while controlling for Company Size (CSE), Leverage (LEV), and Profitability (ROE) (Aigbedo 2019; Shen et al. 2019). The results are discussed in terms of descriptive statistics, classical assumption tests, and regression analysis.

3.1. Descriptive Statistics

Table 1 summarizes the descriptive statistics for the variables used in this study. The table includes means, standard deviations, minimum, and maximum values for Environmental Performance (EP), Environmental

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Disclosure (ED), Hard Environmental Disclosure (HED), Company Size (CSE), Leverage (LEV), and Profitability (ROE).

Table 2. summarizes the descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
Environmental Performance (EP)	3.67	1.12	1	5
Environmental Disclosure (ED)	2.84	0.68	1	4
Hard Environmental Disclosure (HED)	2.23	0.75	1	4
Company Size (CSE)	9.21	1.34	6.50	12.10
Leverage (LEV)	0.45	0.23	0.10	1.20
Profitability (ROE)	12.45%	4.32%	5.00%	20.00%

Data Source; processed by the author 2024

3.2. Classical Assumption Tests

Classical assumption tests were conducted to ensure the validity of the regression model. The results of these tests are presented in Table 2.

The classical assumption tests were conducted to ensure the validity of the regression model. The normality test yielded a p-value of 0.15, indicating that the residuals are approximately normally distributed since the p-value exceeds the 0.05 threshold, which meets the assumption of normality essential for accurate hypothesis testing (Hair et al., 2010). Multicollinearity was assessed using the Variance Inflation Factor (VIF), with all values falling below the threshold of 10. This result confirms that there is no significant multicollinearity among the independent variables, thus ensuring the reliability of the coefficient estimates (Zhang, Zhou, and Liu 2020). Finally, the heteroskedasticity test produced a p-value of 0.20, suggesting that there is no evidence of heteroskedasticity in the regression model, as the p-value is greater than 0.05. This indicates that the residuals exhibit constant variance, fulfilling the assumption necessary for valid regression analysis (Schmidt and Finan 2018). These results collectively validate the robustness of the regression model, supporting its credibility in analyzing the relationships between variables (Soytas, Denizel, and Durak Usar 2019).

Table 3. Classical Assumption Tests

Test	Result	Criteria
Normality	p-value = 0.15	p-value > 0.05 (Assumption met)
Multicollinearity	VIF < 10	VIF < 10 (Assumption met)
Heteroskedasticity	p-value = 0.20	p-value > 0.05 (Assumption met)

Data Source; processed by the author 2024

3.3. Multiple Regression Analysis

The results from the multiple regression analysis, detailed in Table 4, reveal key insights into the factors affecting Environmental Disclosure (ED) and Hard Environmental Disclosure (HED). Environmental Performance (EP) has a coefficient of 0.45, with a standard error of 0.12, a t-statistic of 3.75, and a p-value of less than 0.01. This indicates a significant positive impact on Environmental Disclosure, thereby supporting Hypothesis H1, which posits that higher Environmental Performance leads to more comprehensive Environmental Disclosure (Baboukardos 2018; Baboukardos and Rimmel 2016).

Company Size (CSE) shows a coefficient of 0.22, standard error of 0.10, t-statistic of 2.20, and a p-value of 0.03. This result suggests a positive association with Environmental Disclosure, supporting Hypothesis H3, which asserts that larger companies are more likely to provide detailed disclosures (Menard, 2002). However,

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Leverage (LEV) has a coefficient of -0.12, standard error of 0.15, t-statistic of -0.80, and p-value of 0.42, indicating no significant effect on Environmental Disclosure, thus not supporting Hypothesis H3 in this case.

Profitability (ROE) demonstrates a coefficient of 0.28, standard error of 0.13, t-statistic of 2.15, and p-value of 0.04. This result supports Hypothesis H3, showing that higher profitability is positively associated with Environmental Disclosure and Hard Environmental Disclosure (Greene, 2012). Finally, the coefficient for Environmental Disclosure (ED) is 0.38, with a standard error of 0.14, a t-statistic of 2.71, and a p-value of 0.01, supporting Hypothesis H2 that greater Environmental Disclosure correlates with more detailed Hard Environmental Disclosure (Barney, 1991; Hart, 1995). These results confirm the hypothesized relationships between the variables and underscore the importance of various factors in shaping environmental disclosure practices.

Table 4. Multiple Regression Analysis Results

Variable	Coefficient (β)	Standard Error	t-Statistic	p-Value	Hypothesis Supported
Environmental Performance (EP)	0.45	0.12	3.75	<0.01	H1 Supported
Company Size (CSE)	0.22	0.10	2.20	0.03	H3 Supported
Leverage (LEV)	-0.12	0.15	-0.80	0.42	H3 Not Supported
Profitability (ROE)	0.28	0.13	2.15	0.04	H3 Supported
Environmental Disclosure (ED)	0.38	0.14	2.71	0.01	H2 Supported

Data Source; processed by the author 2024

4. Discusion

This study investigates the relationships between Environmental Performance (EP), Company Size (CSE), Leverage (LEV), Profitability (ROE), and their impacts on Environmental Disclosure (ED) and Hard Environmental Disclosure (HED) within companies listed on the Indonesia Stock Exchange (IDX) from 2018 to 2023. The findings contribute to the understanding of corporate environmental reporting practices and their underlying determinants.

4.1. Impact of Environmental Performance on Environmental Disclosure

The significant positive association between firm Environmental Performance and sustainability disclosures, evidenced by a coefficient of 0.45 ($p < 0.01$), lends support to Hypothesis H1. This outcome resonates with prior empirical works indicating that companies with higher eco-efficiency are more prone to unveil extensive eco-data. Clarkson et al. (2008), As Clarkson and colleagues contend, amplified statutory demands and stakeholder expectations propel corporations to bolster their sustainability communications. Enterprises that excel in environmental stewardship frequently leverage disclosures as a strategic instrument to publicize their dedication and triumphs, thereby enhancing their reputation and competitive edge (Wei et al. 2023). This finding coheres with the Resource-Based View maintaining that businesses with superior eco-achievements capitalize on their abilities to gain an advantageous position through comprehensive reporting (Robins and Wiersema 1995). The implications underscore that corporations with robust eco-markers are inspired to furnish detailed disclosures as a means of exemplifying their eco-responsibility and differentiating themselves from rivals (Cordeiro, 2021; Gerged, 2021).

4.2. Company Size and Environmental Disclosure

While organizational heft influences ecological illumination, not all firms follow suit. Gargantuan groups face intense inspection, often unfurling comprehensive sustainability reviews owing to expansive coffers and dedicated divisions. Past studies link heightened transparency in environmental declarations to colossal entities seeking legitimacy and mitigation of reproach over impacts. Remarkably, the link between magnitude

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and reporting upholds expectations for preeminent companies to exhibit loftier revelation when scale brings intricacy, public scrutiny, and stakeholder oversight. Such eminence compels accordance with societal norms and statutes through exhaustive data that fortifies perceived legitimacy while reducing potential retribution (Rabaya and Saleh 2022). Therefore, disclosing all-encompassing environmental particulars aids sizable companies aiming to validate their license to function and counter worries concerning their environmental footprint. Meanwhile, some leviathans elect concision, calculating obfuscation better preserves profits irrespective of prominence or public interest.

4.3. Leverage and Environmental Disclosure

Surprisingly, Leverage did not significantly impact Environmental Disclosure levels (coefficient of -0.12, p = 0.42), thus not supporting Hypothesis H3. This perplexing result suggests that a firm's debt load may not be a pivotal factor influencing its ecological disclosure methods. Prior analyses have generated mixed findings regarding the relationship between leverage and environmental disclosure. For example, some examinations indicate that higher leverage could lead to expanded disclosure due to intensified scrutiny from creditors Jiang, Zhang, and May (2019), while others find no noteworthy relationship (Khan 2011). The lack of meaningful outcomes in this study could be attributed to varying degrees of stakeholder demands across industries or locales (Baah, Jin, and Tang 2020). Moreover, the nature of the debt and its associated terms may influence disclosure practices differently, warranting further probing into how specific financial architectures impact ecological reporting (Kordsachia, Focke, and Velte 2022).

4.4. Profitability and Environmental Disclosure

The association between profitability and environmental disclosure, with its coefficient of 0.28 and significance of p = 0.04, validates hypothesis H3. Highly profitable companies are more inclined to engage in comprehensive environmental reporting, allowed by their ability to allocate funds towards sustainability aims and transparency (Wang et al., 2019). This finding is consistent with stakeholder theory, proposing that gainful enterprises are better positioned to satisfy stakeholder expectations and invest in thorough ecological disclosures (Freeman and David 1983). Returns bolster an organization's financial power to undertake and reveal environmental initiatives, which may further enhance its public image and relationships with stakeholders (Baah et al. 2021). This positive link underscores the role of financial performance in facilitating robust ecological disclosure, as gainful companies can leverage their assets to strengthen transparency and effectively address stakeholder matters (Hoang, Pham, and Nguyen 2023).

4.5. Environmental Disclosure and Hard Environmental Disclosure

The positive correlation between Environmental Disclosure and Hard Environmental Disclosure, with a coefficient of 0.38 and a significance level of 0.01, lends support to Hypothesis H2. Extensive Environmental Disclosure is associated with more comprehensive Hard Environmental Disclosure, highlighting the importance of complete reporting practices. This finding underscores that organizations furnishing expansive environmental data are also more inclined to include elaborate indicators relating to governance structure, performance metrics, and expenditures. Simsekler et al. (2018) found alignment with this result. This outcome coincides with the perspective that thorough environmental disclosure acts as a foundation for more detailed communications regarding specific facets of ecological performance (Wang et al. 2020). Enterprises that engage in comprehensive environmental reporting are likely to offer nuanced information about their environmental management practices, thereby fostering transparency and responsibility. Qian, Hörisch, and Schaltegger (2018) found consistency with this view.

4.6. Implications and Justifications

The research findings highlighted several vital implications for theory and practice alike (Dragomir 2018). The meaningful linkage between environmental stewardship and reporting underscores the role of sustainability achievements in shaping disclosure behaviors (Pedron et al. 2021). This emphasizes the

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importance of developing robust metrics and frameworks to boost transparency and accountability (Watson et al. 2018). Larger, high-earning companies should maximize resources to bolster ecological transparency and better satisfy interested parties (Chen et al. 2021). On the other hand, the inconsequential impact of financial leverage indicates debt may not be pivotal in outlining reporting practices (Khan 2011). Future studies should delve deeper into financial constructs and their sway on disclosure (Baalouch et al. 2019). Overall, the examination contributes to comprehending corporate environmental reporting and underscores the necessity for ongoing scrutiny of determinants. By reviewing the interplay between performance, size, leverage, and profit, this research yields valuable insights for policymakers, regulators, and practitioners hoping to enhance corporate openness and sustainability.

5. Conclusion

This analysis offers meaningful insights into the dynamics governing environmental disclosure practices among companies listed on the Indonesia Stock Exchange from 2018 through 2023. The results reveal that Environmental Performance significantly impacts Environmental Disclosure, aligning with the perspective that higher-performing firms are more prone to engage in comprehensive environmental reporting. Additionally, larger and more lucrative businesses tend to furnish more detailed environmental disclosures, underscoring the role of corporate scale and financial achievement in shaping transparency practices. In contrast, the examination finds no significant effect of Leverage on Environmental Disclosure, suggesting debt levels may not be a key determinant in environmental reporting. These conclusions contribute to a deeper comprehension of the variables impelling corporate environmental transparency and accentuate the importance of environmental performance, business scale, and profitability in influencing disclosure practices. The implications of this work extend to policymakers, regulators, and practitioners aiming to enhance corporate sustainability reporting and transparency.

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CRediT authorship contribution statement

Adhia Arbin : Conceptualization, Methodology, Data Curation, Writing – Original Draft.
Rillita Rohmatika: Formal Analysis, Data Visualization, Writing – Review & Editing.
Rillita Rohmatika: Supervision, Funding Acquisition, Project Administration.

Declaration of competing interest

The authors declare that there are no conflicts of interest to disclose. No financial or personal relationships that could be construed as a potential conflict of interest exist in relation to the work reported in this manuscript.

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Appendix A. Supplementary data

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Supplementary data related to this study, including detailed tables, figures, and additional statistical analyses, are available online at https://doi.org/10.69725/aneva.v1i1.105 or upon request from the corresponding author.

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