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The Effect of Green Tax and Green Accounting on Firm Value Moderated by the Environmental Disclosure Index

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Abstract

The global environmental crisis necessitates the integration of sustainability dimensions into corporate financial and accounting systems. This study aims to examine the effect of green tax and green accounting on firm value, with the environmental disclosure index (EDI) acting as a moderating variable. The study focuses on the consumer non-cyclicals sector listed on the Indonesia Stock Exchange for the period 2022–2024, using a quantitative associative approach with panel data. The estimation model employs the Estimated Generalized Least Squares (EGLS) method to address heteroskedasticity and autocorrelation issues. Results reveal that green accounting significantly and positively affects firm value, while green tax is not significant directly but becomes positively significant when moderated by EDI. Conversely, the interaction between green accounting and EDI shows a significant negative effect, indicating potential greenwashing or inconsistencies between disclosure and operational practices. These findings underscore the strategic importance of credible environmental disclosure in enhancing corporate legitimacy and market perception of sustainability strategies. This study offers updated empirical insights for strengthening environmental fiscal policy and corporate governance in emerging economies.

Keywords: green tax; green accounting; environmental disclosure index; firm value; corporate sustainability.

1 Introduction

The global environmental crisis has transformed into a multidimensional threat that not only endangers the preservation of ecosystems but also directly affects social structures, political stability, and the sustainability of the global economy. Climate change, air and water pollution, biodiversity loss, and ecological disasters such as floods and forest fires are manifestations of economic activities that fail to account for the carrying capacity of the environment (Fitria & Nurcahyani, 2024). Without immediate responses through progressive policies, such environmental degradation risks creating systemic disruptions to long-term economic growth. To address these challenges, the international community formulated the Sustainable Development Goals (SDGs) 2030, which emphasize the integration of economic development, social justice, and environmental sustainability (United Nations, 2023). One of the prominent approaches within this framework is the green economy, a growth model that prioritizes resource efficiency, low-carbon development, and social equity (Fitria & Asyriyanti, 2023; Yulianti, 2020).

Advanced economies have demonstrated the effectiveness of synergies between green taxation, green accounting, and environmental information disclosure in accelerating the transformation toward a green economy. For instance, Sweden and Germany have implemented green tax rates of up to €115 per ton of CO_2, adopted environmental accounting based on the System of Environmental-Economic Accounting (SEEA), and mandated reporting frameworks such as GRI and CSRD (World Bank, 2024; United Nations, 2023; CDP, 2024). Similarly, Canada and Singapore have shown comparable progress, with medium-level carbon tax rates (C$50 and S$25 per ton), the adoption of green accounting, and high Environmental Disclosure Index (EDI) scores (OECD, 2023; GRI, 2023). In contrast, Indonesia faces structural challenges in integrating environmental dimensions into its fiscal and accounting systems. The green tax scheme was only piloted in 2022 and has not yet fully functioned as an effective environmental incentive or disincentive instrument (Saputra, 2024; Sari, 2023). Likewise, the implementation of green accounting in Indonesia remains sporadic and has yet to be mainstreamed in corporate financial reporting systems (Santoso et al., 2016; Dillard et al., 2019). The national EDI score also remains low (74 out of 140) compared to benchmark countries (GRI, 2023), reflecting limited environmental transparency.

From a business practice perspective, the consumer non-cyclicals sector has become a strategic concern due to its high production scale, energy consumption, and carbon emissions. Of the 597 manufacturing firms listed on the Indonesia Stock Exchange (IDX), only 23 are categorized as “green companies” (Fitria & Nurcahyani, 2024). This illustrates the limited adoption of sustainable business practices in a sector vital to fulfilling society’s basic needs (Nurcahya, 2020). In the context of corporate strategic decision-making, the Environmental Disclosure Index (EDI) plays a critical role as an indicator of transparency and accountability regarding environmental issues. Furthermore, EDI may function as a moderating variable that strengthens or weakens the relationship between environmental policies (green tax and green accounting) and firm value (GRI, 2023; CDP, 2024).

Although numerous studies have examined green taxation and green accounting, most have tended to analyze these variables separately, focusing only on their effects on profitability or financial performance in general (Wangi & Lestari, 2020; Utami & Nuraini, 2020; Yuliani & Prijanto, 2022). Empirical studies that integrate green tax, green accounting, and the Environmental Disclosure Index into a single model to examine their simultaneous effect on firm value—particularly through a moderating approach—remain scarce. Moreover, few studies have explored the consumer non-cyclicals sector, despite its significant contribution to emissions and environmental risks, as well as its strategic role as an energy-intensive industry (Nurcahya, 2020; Sijabat et al., 2024). This study also utilizes recent data (2022–2024), representing the initial phase of Indonesia’s national green tax implementation, thereby providing relevant empirical evidence for the formulation of fiscal and corporate sustainability policies.

Accordingly, the novelty of this study lies in three aspects: (1) the integration of three key variables—green tax, green accounting, and the Environmental Disclosure Index—in simultaneously analyzing firm value; (2) its focus on the consumer non-cyclicals sector, which is rarely examined in depth in the context of sustainability within emerging markets; and (3) the observation period of 2022–2024, which offers the most recent empirical contribution regarding the effectiveness of environmental fiscal policies in Indonesia.

2 Literature Review

Stakeholder Theory and Legitimacy Theory

Stakeholder Theory (Freeman, 1984) emphasizes that corporations have responsibilities not only to shareholders but also to all stakeholders, including society and the environment. Within the context of green accounting and environmental disclosure, this theory underpins the argument that the disclosure

of environmental information is necessary to meet stakeholders' expectations for transparency and corporate social responsibility (Utami & Nuraini, 2020). The theory posits that effective environmental management and reporting enhance stakeholder trust and loyalty, thereby reinforcing firm value.

Legitimacy Theory, as a complementary perspective, argues that organizations continuously strive to ensure their activities are perceived as "legitimate" by society according to prevailing social norms (Suchman, 1995). Environmental disclosure through the Environmental Disclosure Index (EDI) and the adoption of green accounting practices are considered legitimacy strategies used by corporations to maintain public support and secure access to economic resources (Wangi & Lestari, 2020). Together, these two theories provide the conceptual foundation for understanding why companies engage in environmental reporting and how such practices contribute to shaping firm value in the eyes of the public.

Signaling Theory dan *Institutional Theory*

Signaling Theory (Spence, 1973) explains how firms convey information to markets and investors as signals of their internal quality. In this context, environmental disclosure, the adoption of green accounting, and compliance with green taxation serve as positive signals that demonstrate good corporate governance and a commitment to sustainability (An & Zhang, 2020). Such information influences investor perceptions, enhances corporate reputation, and contributes to an increase in firm value (Kurniawan & Widiastuti, 2022).

Institutional Theory (DiMaggio & Powell, 1983) posits that organizations are shaped by institutional pressures, including government regulations, industry norms, and social demands, which encourage firms to adopt environmentally responsible practices. For example, regulations on green taxation or sustainability reporting incentivize companies to adapt in order to maintain legitimacy. In this regard, the implementation of green taxation and environmental disclosure can be seen as corporate responses to institutional pressures that indirectly affect firm value**.**

Green Tax

A green tax represents an environmental tax imposed to internalize the negative externalities of corporate activities that damage the environment. Its primary aim is to encourage behavioral change toward more environmentally friendly practices and to provide incentives for businesses to develop clean technologies (Purba & Arfan, 2020). In the Indonesian context, the application of green taxation remains limited, but it has become an important discourse in the country's pursuit of sustainable development. Research by An and Zhang (2020) revealed that green taxation not only impacts corporate compliance in environmental reporting but also conveys a positive signal to investors regarding a firm's environmental responsibility, ultimately shaping perceptions of firm value.

Green Accounting

Green accounting, also known as environmental accounting, is an approach that incorporates environmental aspects into corporate financial reporting systems. This concept was introduced as a form of corporate accountability for the environmental impacts of operational activities (Yuliani & Prijanto, 2022). Green accounting encompasses not only environmental costs and benefits but also the measurement, recording, and disclosure of environmental information in annual reports. By implementing green accounting, companies can enhance transparency toward stakeholders regarding their environmental conservation efforts (Fitriyah & Anisykurlillah, 2021).

The adoption of green accounting has gained increasing importance in the context of globalization and growing environmental awareness, particularly in response to stakeholder pressures and government regulations. Empirical evidence from Sari and Sudana (2022) indicates that green accounting positively influences firm value, especially in industries with high environmental risk.

Environmental Disclosure Index (EDI)

The Environmental Disclosure Index (EDI) is employed to measure the extent to which firms disclose environmental information in their financial reports. Such disclosures may cover policies, activities, and the outcomes of environmental management practices. A higher disclosure index indicates greater transparency and accountability in addressing environmental impacts (Wangi & Lestari, 2020). The EDI serves as a key indicator of environmental reporting quality, which is of critical interest to both investors and regulators. Nurcahya (2020) found that firms with higher EDI scores tend to enjoy higher firm value as a result of greater public and market trust.

Firm Value

Firm value reflects the market's perception of the overall economic worth of a company, typically manifested in stock prices or measured using indicators such as Tobin's Q. Investors tend to assign higher valuations to companies that not only demonstrate strong financial performance but also exhibit social and environmental responsibility (Kurniawan & Widiastuti, 2022). Within the framework of stakeholder theory, companies that account for the interests of all parties—including environmental stakeholders—gain trust and loyalty from investors, customers, and society at large (Utami & Nuraini, 2020). Accordingly, environmental information disclosure through green accounting and EDI contributes positively to the formation of firm value.

Research Hypotheses

Based on the theoretical foundations and prior empirical findings outlined in the literature review, the hypotheses of this study are formulated as follows:

H1: Green tax has a significant effect on firm value.
H2: Green accounting has a significant effect on firm value.
H3: Green tax and green accounting simultaneously have a significant effect on firm value.
H4: The Environmental Disclosure Index (EDI) moderates the effect of green tax on firm value.
H5: The Environmental Disclosure Index (EDI) moderates the effect of green accounting on firm value.
H6: The Environmental Disclosure Index (EDI) moderates the simultaneous effect of green tax and green accounting on firm value.

3 Research Methodology

Research Design

This study is designed as an associative research employing a quantitative approach. The quantitative approach is used to measure relationships between variables numerically and to analyze the data with statistical tools, with the objective of testing the hypotheses formulated earlier. Associative research aims to identify both causal and correlational relationships among the observed variables without manipulating the independent variables.

The research procedure begins with a phenomenon analysis, literature review, and in-depth problem formulation. Subsequently, a mapping of the state of the art and identification of research novelty are conducted based on gaps in the literature and previous findings. This process is structured into a flowchart (Figures 3 and 4), which serves as a reference for each stage of the research, including planning, data collection, processing, analysis, and the expected outputs.

Population and Sample

The population of this study comprises all companies listed on the Indonesia Stock Exchange (IDX) in the consumer non-cyclicals sector during the 2022–2024 period. The sampling technique applied is purposive sampling, a method that selects samples based on specific criteria relevant to the research objectives.

The inclusion criteria for sample selection are as follows:

1. Companies that have conducted an Initial Public Offering (IPO) and remain actively listed on the IDX during 2022–2024.
2. Companies that consistently publish complete financial statements, annual reports, and sustainability reports throughout 2022–2024.
3. Companies classified under the consumer non-cyclicals sector according to IDX sectoral classifications.

This sampling approach ensures that the collected data meets the requirements of relevance, timeliness, and completeness for the analysis.

Data Collection Techniques

The data employed in this study are secondary data. The types of data collected include annual financial statements, sustainability reports, annual reports, and other information published by companies through the official IDX website as well as other financial data provider platforms. In addition, secondary data from the literature—such as books, e-books, scholarly journals, and relevant articles—are also utilized to strengthen the theoretical foundation and conceptual framework of the study.

Hypothesis Testing

This study applies a quantitative approach with panel data analysis techniques to examine the effect of green tax and green accounting on firm value, with the Environmental Disclosure Index (EDI) as a moderating variable. The model is designed to identify both direct effects and interaction (moderating) effects among variables while considering individual firm-specific effects during the observation period of 2022–2024.

To test the research hypotheses, several statistical procedures are employed as follows:

1. Classical Assumption Tests: including tests for multicollinearity, autocorrelation, and heteroskedasticity to ensure the robustness of the regression model. Since panel data are prone to cross-sectional heteroskedasticity and time-series autocorrelation, the following methods are applied:

   a. Modified Wald Test to detect heteroskedasticity.
   b. Wooldridge Test to examine autocorrelation.

   If both issues are detected, the Estimated Generalized Least Squares (EGLS) method with cross-section weights is used to obtain efficient and unbiased coefficient estimates.
2. Chow Test: applied to determine whether the appropriate panel data model is Pooled Least Squares (PLS) or Fixed Effect Model (FEM). The null hypothesis states that PLS is the best model, while the alternative hypothesis suggests FEM is more appropriate. A p-value < 0.05 indicates that FEM is the correct choice.
3. Hausman Test: following the decision between FEM and Random Effect Model (REM), the Hausman test is conducted to select the most suitable model. A p-value < 0.05 indicates that the Fixed Effect Model should be used, as it implies correlation between individual effects and the independent variables. This result further justifies the use of fixed effects in panel regression.
4. Multiple Regression and Moderated Regression Analysis (MRA): employed to analyze the effects of independent variables on the dependent variable, both with and without the inclusion

of the moderating variable. MRA is particularly effective in identifying interaction effects between two variables on the dependent variable.

5. Coefficient of Determination (R^2): used to assess the proportion of variance in the dependent variable that can be explained by the variance in the independent and moderating variables.
6. Significance Tests (t-test and F-test): conducted to evaluate partial and simultaneous effects among variables.

The data analysis process is carried out using the E-Views application, which is widely recognized in quantitative and econometric statistical analysis. All processed data are analyzed both descriptively and inferentially to generate meaningful interpretations and to determine whether the proposed hypotheses are supported or rejected based on empirical evidence.

4 Results and Discussion

Results

Assumption Tests

The multicollinearity test indicates that all independent variables have Variance Inflation Factor (VIF) values below 10, suggesting no serious multicollinearity issues. The Chow and Hausman tests reveal that the Fixed Effect Model (FEM) is more appropriate compared to the Pooled Least Squares (PLS) or Random Effect Model (REM). In addition, the heteroskedasticity test (Modified Wald Test) and autocorrelation test (Wooldridge Test) indicate violations of classical assumptions. Therefore, the final model is estimated using the Estimated Generalized Least Squares (EGLS) method with cross-section weights to obtain efficient estimates.

Estimation Results of the Baseline Model (Without Moderation)

The first model is employed to test the direct effects of Green Tax (X1) and Green Accounting (X2) on firm value (Y). The results are presented in Table 1.

Table 1. Estimation Results of the Baseline Model (Without Moderation)

Variabel	Koefisien	Std. Error	t-Statistik	Prob.
C	39.330	0.481	81.776	0.000
X1	-0.205	0.515	-0.397	0.692
X2	0.015	0.005	2.722	0.007

The results indicate that Green Accounting has a positive and significant effect on firm value (p = 0.007), supporting the findings that effective environmental accounting practices enhance investor perceptions (Setiawan & Basuki, 2020). In contrast, Green Tax does not show a significant effect (p = 0.692), suggesting that without the support of communication strategies or cost efficiency measures, environmental taxes may be perceived merely as a burden with no direct impact on firm value (Fitri & Nuzula, 2019).

Estimation Results of the Moderation Model (with EDI)

In the second model, the moderating variable Environmental Disclosure Index (EDI) and its interaction with the independent variables are included. The regression results are presented in Table 2.

Table 2. Estimation Results of the Moderation Model (with EDI)

Variabel	Koefisien	Std. Error	t-Statistik	Prob.
C	42.893	3.745	11.453	0.000
X1	-8.775	4.019	-2.184	0.030
X2	1.931	0.282	6.839	0.000
Z	-22.369	6.655	-3.361	0.001
X1*Z	29.119	6.618	4.400	0.000
X2*Z	-2.321	0.337	-6.890	0.000

The results reveal the following:

1. Green Tax has a negative effect on firm value (p = 0.030); however, its effect becomes positive and significant when moderated by the Environmental Disclosure Index (EDI) (X1*Z; p = 0.000). This finding suggests that environmental disclosure can transform the market's negative perception of tax burdens into a signal of corporate social responsibility that enhances firm value (Asri & Dewi, 2022).
2. Green Accounting continues to have a positive and significant effect (p = 0.000), yet its interaction with EDI shows a significant negative effect (p = 0.000). This indicates that excessive environmental disclosure, when not accompanied by substantive performance, may reduce investor trust—an indication of potential greenwashing practices (Purnamasari et al., 2020).

The moderation model yields an Adjusted R-squared value of 0.974, demonstrating that nearly 97% of the variation in firm value is explained by the model. The Durbin–Watson statistic of 2.71 further confirms the absence of serious autocorrelation, thereby strengthening the model's validity.

Discussion

Analysis of the Effect of Green Tax and Green Accounting on Firm Value

The initial estimation using the Panel EGLS model (cross-section weights) with the fixed effect approach shows that Green Accounting (X2) has a positive and significant effect on firm value ($p < 0.01$), whereas Green Tax (X1) does not demonstrate a significant effect ($p > 0.10$). These findings reflect that the recognition and reporting of environmental costs as part of a company's accounting system are valued more highly by the market than fiscal obligations related to emissions or environmental damage.

Theoretically, these results reinforce Stakeholder Theory (Freeman, 1984), which emphasizes the importance of corporate responsibility toward all stakeholders, not merely shareholders. Green Accounting functions as a reporting mechanism that demonstrates a company's efforts to internalize environmental externalities into its financial system (Gray et al., 2014). In other words, the market perceives Green Accounting as a signal of a company's genuine commitment to implementing sustainability principles.

Conversely, the insignificance of Green Tax in relation to firm value suggests that the market has not yet assigned additional value to this fiscal burden, possibly because it is not understood as a form of voluntary contribution or corporate social responsibility. In many cases, environmental taxes are perceived merely as regulatory obligations that reduce net profit margins, rather than as signals of value creation or reputation (Fitri & Nuzula, 2019).

The baseline model records a very high R-squared value (> 0.98), indicating that the independent variables can explain most of the variation in firm value. However, since the moderating variable was not included, the model remains partial and has not yet captured the dynamics of inter-variable relationships in the context of environmental disclosure.

The Moderating Effect of the Environmental Disclosure Index (EDI)

When the moderating variable Environmental Disclosure Index (Z) is included in the model, substantial changes occur in the direction and significance of inter-variable relationships. The results show that Green Tax (X1), which was previously insignificant, becomes significantly negative ($\beta = -8.775$; $p < 0.05$), while its interaction with EDI (X1·Z) demonstrates a significant positive effect ($\beta = +29.119$; $p < 0.01$). This indicates that the moderating effect strengthens and reverses the direction of influence, from negative to positive, when firms have a high level of environmental disclosure.

The logical implication of this finding is that EDI serves as a signal amplifier that can shift investor interpretations of Green Tax. When disclosure is low, environmental taxes are viewed merely as expenses. However, when disclosure is high, the market perceives the company not only as compliant with regulations but also as transparent, responsible, and aligned with Environmental, Social, and Governance (ESG) principles. This finding is consistent with Legitimacy Theory, which posits that firms gain social legitimacy through practices and communications that align with societal values (Suchman, 1995; Michelon et al., 2015).

Meanwhile, the interaction between Green Accounting (X2) and EDI (X2·Z) reveals a complex outcome: although Green Accounting itself remains positively significant ($\beta = +1.930$; $p < 0.01$), its interaction with EDI shows a significantly negative effect ($\beta = -2.321$; $p < 0.01$). This suggests a weakening moderation effect, in which EDI diminishes the strength of Green Accounting's positive impact on firm value.

This paradox, often referred to as "transparency fatigue" or "green disclosure dilution", arises when excessive disclosure without substantive content fosters investor skepticism. In this context, EDI functions not as a reinforcer but as a dampener of the effect of green accounting. This phenomenon is likely associated with symbolic disclosure or greenwashing, whereby firms embellish their environmental disclosures without fully implementing genuine green practices internally. When the market detects inconsistencies between disclosure and actual implementation, the reputational benefits of Green Accounting may diminish or even turn negative (Purnamasari et al., 2020).

The managerial implication is that sustainability reporting should be not only quantitative but also narrative-rich, audit-credible, and consistent across reporting periods. Environmental disclosure practices must reflect real environmental performance, rather than serving as symbolic compliance with regulatory frameworks or capital market expectations.

5 Conclusion and Recommendations

Conclusion

Based on the results of an investigation involving 100 companies in the consumer non-cyclicals sector during the 2022–2024 period, this study concludes that the implementation of green accounting significantly and positively contributes to firm value. This finding demonstrates that the integration of environmental costs and activities into financial reporting systems strengthens market perceptions of corporate sustainability.

Conversely, green tax directly exerts a negative effect on firm value; however, this effect becomes positive and significant when moderated by the Environmental Disclosure Index (EDI). This indicates that the quality of environmental disclosure plays a strategic role in transforming regulatory burdens into instruments of market legitimacy.

Nevertheless, the negative interaction between green accounting and EDI suggests that disproportionate or excessive disclosure, when not aligned with operational practices, may reduce firm value due to perceived inconsistencies between sustainability narratives and actions. Thus, the main conclusion of this study is that firm value is not determined solely by internal environmental policies but is also strongly influenced by the credibility, context, and balance of environmental disclosure practices, which may function either as reinforcers or weakeners of the relationship between green strategies and market valuation.

Recommendations

Based on the empirical findings and analytical conclusions, several strategic and practical recommendations are addressed to four key stakeholder groups, with emphasis on strengthening the quality of sustainability practices and disclosures at the systemic, policy, and market levels.

For Corporate Management:

1. Integrating Green Accounting into Systemic Sustainability Frameworks. Companies are advised to establish value-based environmental accounting systems rather than relying solely on technical compliance. Such systems should capture quantitative measures of emissions, waste, energy efficiency, and natural resource conservation, in line with GRI 300 standards and Financial Services Authority (OJK) Regulation No. 51/2017 on Sustainable Finance.
2. Enhancing the Quality and Credibility of Environmental Disclosure. Environmental disclosure should be incorporated within an integrated reporting framework, aligning sustainability reports with financial statements as a unified body of strategic information. Firms should involve independent auditors, sustainability assurance bodies, or competent third parties to enhance the integrity of ESG data in the eyes of investors and regulators.
3. Mitigating Greenwashing Risks through Substantive Programs. The finding that the interaction between green accounting and EDI may be negative indicates potential greenwashing perceptions. Sustainability narratives in reports should therefore be supported by documented key performance indicators (KPIs) with measurable impacts, ensuring that information is substantive rather than cosmetic or symbolic.
4. Adopting Standardized and Sectoral ESG Frameworks. Corporate management should refer to sector-specific ESG guidelines currently developed by OJK and IDX, such as the IDX ESG Guide (2022), while also considering the SRI-KEHATI Index methodology as a benchmarking tool. This will help companies establish disclosure systems that are not only comprehensive but also aligned with the expectations of both domestic and global institutional investors.

For Regulators and Government

1. Integrating Environmental Tax Policy with Sustainability Reporting. The Ministry of Finance and OJK should develop fiscal incentive schemes linked to the quality of ESG disclosure. In this way, green tax would not only serve as a fiscal burden but could also act as an indicator of environmental responsibility, offset through credible, verified, and demonstrably impactful sustainability actions.
2. Establishing and Implementing a National Environmental Disclosure Index. The government should promote the development of a sector-based national Environmental Disclosure Index (EDI), integrating the GRI framework, PROPER (Ministry of Environment and Forestry program), and OJK Regulation No. 51/2017. This index should be developed collaboratively with OJK, IDX, and academic institutions and used as a benchmark for environmental transparency across industries. Such an index would foster greater transparency and reduce disparities in disclosure practices across sectors.
3. Utilizing PROPER as an ESG Evaluation and Disclosure Tool. The Ministry of Environment and Forestry (KLHK), through its PROPER program, could adapt the system into a public ESG rating tool, aligning PROPER assessments with corporate sustainability disclosures. This would not only enhance corporate credibility in the public eye but also create a social counterbalance mechanism against opaque or manipulative ESG information.

For Investors and Stakeholders

1. Critically Evaluating the Consistency between Practice and Disclosure. Investors should strengthen ESG literacy to focus not merely on the volume of disclosed information but also on the alignment between actual sustainability practices and reported narratives. This may involve qualitative analysis of corporate environmental projects, cross-referenced with external ratings such as PROPER and SRI-KEHATI.
2. Using EDI as a Non-Financial Risk Assessment Tool. Institutional investors and shareholders should adopt the Environmental Disclosure Index (EDI) as an instrument for ESG risk

evaluation, particularly in assessing the long-term sustainability of investments. This is crucial in mitigating risks related to reputation, litigation, and performance deterioration stemming from inadequate environmental management.

3. Enhancing Participation in ESG Engagement. Stakeholders such as NGOs, academics, and civil society should actively participate in ESG dialogues facilitated by IDX, OJK, or KLHK through multi-stakeholder platforms. Such engagement can serve as a catalyst for greater corporate transparency and accountability regarding environmental impacts.

Limitations

This study has several limitations that must be considered in interpreting the findings and in designing future research. First, the scope is limited to consumer non-cyclicals companies listed on the Indonesia Stock Exchange during 2022–2024; thus, the results may not be generalizable across all industries, particularly those with higher environmental intensity such as mining and energy. Second, the measurement of EDI is based on content analysis of annual and sustainability reports, which, despite being systematic, contains elements of subjectivity and does not fully capture the substantive quality of disclosures. Third, the regression model applied is linear, without considering potential non-linear relationships or mediating effects that might provide deeper insights into variable dynamics. Fourth, while the panel EGLS method addresses heteroskedasticity and cross-section dependence, it remains limited in capturing time dynamics and unobserved latent variables. Fifth, this study does not account for other institutional factors such as corporate reputation, audit quality, or governance, which may also moderate the relationship between environmental strategies and firm value. These limitations open avenues for future research to adopt more comprehensive approaches, expand datasets across sectors, and apply more sophisticated estimation techniques to strengthen the robustness and theoretical contributions of findings.

Suggestions for Future Research

1. Expanding Analytical Dimensions and Sectoral Coverage. Future studies should extend the period of analysis and include sectors such as mining, energy, banking, and agribusiness, which are characterized by higher environmental risk intensity. This would be crucial to testing the generalizability of the model and the reliability of EDI's moderating effect across industries.
2. Developing Non-Linear and Mediation Models. Future research could explore non-linear approaches such as threshold regression or panel quantile regression to capture the asymmetric dynamics of EDI. Mediation analysis could also be applied to identify variables such as corporate reputation or cost efficiency as mediators in the relationship between green tax and firm value.

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