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The Role of Board Independence in Moderating the Effect of Green Accounting and Environmental Performance on Corporate Financial Performance

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Abstract

This study aims to examine the effect of green accounting and environmental performance on financial performance, as well as the moderating role of board independence in manufacturing companies listed on the Indonesia Stock Exchange and Bursa Malaysia during the 2020-2025 period. The study employs a quantitative approach using secondary data from 1,714 firm-year observations and applies Moderated Regression Analysis (MRA) after ensuring the classical assumption test. The results show that green accounting has a positive and significant effect on financial performance, indicating that firms with better environmental management tend to achieve higher profitability. Furthermore, board independence is found to moderate the relationship between green accounting and financial performance by strengthening its effect. Similarly, board independence also strengthens the relationship between environmental performance and financial performance. These findings suggest that effective corporate governance and financial performance are closely related. These findings suggest that effective corporate governance enhances the value relevance of environmental practices. The study concludes that environmental performance has a stronger influence on financial performance compared to green accounting, and that the effectiveness provides implications for firms to integrate environmental strategies into corporate governance structures and for regulators to strengthen sustainability reports and board oversight mechanisms.

Keywords: Green accounting; environmental performance; financial performance; board independence; moderation

Abstrak

Penelitian ini bertujuan untuk menguji pengaruh akuntansi hijau dan kinerja lingkungan terhadap kinerja keuangan, serta peran moderasi independensi dewan pada perusahaan manufaktur yang terdaftar di Bursa Efek Indonesia dan Bursa Malaysia selama periode 2020-2025. Penelitian ini menggunakan pendekatan kuantitatif dengan data sekunder dari 1.714 observasi perusahaan-tahun dan

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menerapkan analisis regresi moderasi setelah memastikan terpenuhinya uji asumsi klasik. Hasil penelitian menunjukkan bahwa akuntansi hijau berpengaruh positif dan signifikan terhadap kinerja keuangan, yang mengindikasikan bahwa perusahaan dengan pengelolaan lingkungan yang lebih baik cenderung mencapai profitabilitas yang lebih tinggi. Selain itu, ditemukan bahwa independensi dewan memoderasi hubungan antara akuntansi hijau dan kinerja keuangan dengan cara memperkuat pengaruhnya. Demikian pula, independensi dewan juga memperkuat hubungan antara kinerja lingkungan dan kinerja keuangan. Temuan ini mengisyaratkan adanya keterkaitan erat antara tata kelola perusahaan yang efektif dan kinerja keuangan, serta menunjukkan bahwa tata kelola perusahaan yang efektif meningkatkan relevansi nilai dari praktik-praktik lingkungan. Penelitian ini menyimpulkan bahwa kinerja lingkungan memiliki pengaruh yang lebih kuat terhadap kinerja keuangan dibandingkan dengan akuntansi hijau, dan efektivitas tersebut memberikan implikasi bagi perusahaan untuk mengintegrasikan strategi lingkungan ke dalam struktur tata kelola perusahaan, serta bagi regulator untuk memperkuat laporan keberlanjutan dan mekanisme pengawasan dewan.

Kata kunci: akuntansi hijau; kinerja lingkungan; kinerja keuangan; independensi dewan; moderasi

1. Introduction

In recent years, growing global concerns regarding environmental degradation and climate change have intensified pressure on corporations to integrate sustainability principles into their business strategies. Industrial activities, particularly in the manufacturing sector, have been identified as a significant contributor to environmental damage through carbon emissions. This condition has encouraged stakeholders, including governments, investors, and society, to demand greater corporate responsibility in balancing financial objectives with environmental sustainability (Abdillah et al., 2023; Adams et al., 2022; Heras-Saizarbitoria et al., 2020). In response, companies are increasingly expected to adopt sustainability accounting and governance practices that reflect environmental accountability and long-term value creation. One of the emerging approaches in addressing sustainability issues is green accounting, which integrates environmental costs and benefits into corporate financial reporting systems. Green accounting enables firms to identify, measure, and disclose environmental and sustainability initiatives (Surbakti et al., 2025; Zhang, 2022). By incorporating environmental considerations into accounting practices, companies are expected to improve transparency, enhance decision-making quality, and strengthen stakeholder trust. In addition, environmental performance has become a critical indicator of corporate sustainability, reflecting a firm's effectiveness in managing its ecological impact through emission reduction, resource efficiency, and regulatory compliance (Yue et al., 2023).

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Parallel to the increasing importance of environmental responsibility, corporate governance mechanisms also play a vital role in ensuring that sustainability practices are effectively implemented. One of the key governance structures is board independence, which refers to the presence of independent commissions that are not involved in day-to-day management activities. An independent board is expected to provide objective oversight, enhance transparency, and ensure that managerial decisions align with both shareholders' interests and broader stakeholder expectations (Batista et al., 2018; Yu et al., 2020). In the context of sustainability, board independence is considered essential in strengthening the credibility and effectiveness of environmental initiatives, including green accounting implementation and environmental performance improvement. Empirical studies have shown that green accounting and environmental performance can positively influence corporate financial performance. Firms that adopt environmentally responsible practices tend to experience improved reputation, cost efficiency, and investor confidence, which ultimately contribute to higher profitability (He et al., 2023). However, inconsistent findings still exist in the literature. Some studies report that environmental costs have insignificant or even negative effects on financial performance (De Villiers et al., 2024). These contradictory results indicate that the relationship between environmental practices and financial outcomes remains inconclusive and context-dependent.

Furthermore, the role of corporate governance, particularly board independence, in moderating these relationships has also produced mixed evidence. Some studies suggest that an independent board enhances the effectiveness of environmental initiatives by improving monitoring and strategic alignment, thereby strengthening the positive impact of green accountability and environmental performance on financial outcomes (Aini et al., 2022; Alareeni et al., 2020). Conversely, other studies argue that board independence may weaken this relationship due to a limited understanding of environmental accounting practices or symbolic governance structures. These inconsistencies highlight the importance of further investigation into the moderating role of board independence. The selection of manufacturing companies in Indonesia and Malaysia as research objects is based on several considerations. Both countries share similar industrial structures, where the manufacturing sector plays a significant role in economic development and environmental impact generation (Broadstock et al., 2021). However, differences exist in the level of sustainability implementation and corporate governance maturity between the two countries. Malaysia is generally considered more advanced in ESG implementation and regulatory enforcement, while Indonesia is still in the developmental stage of sustainability reporting practices (Aulia et al., 2023; Baucal et al., 2023). The difference provides an interesting context to examine how board independence moderates the relationship between environmental practices and financial performance in emerging markets.

The institutional environment of Indonesia and Malaysia also differs in terms of environmental governance mechanisms. In Indonesia, corporate environmental

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performance is formally evaluated through the program for Pollution Control Evaluation and Rating (PROPER), which serves as a regulatory instrument that assesses firms' environmental compliance and encourages improvements in environmental management. In contrast, Malaysia emphasizes ESG implementation through both countries promote sustainable business practices, but they employ different institutional approaches that may influence firms' environmental strategies and financial outcomes. These institutional differences provide an important context for examining whether board independence performs a similar moderating role across the five countries.

Despite the increasing attention to sustainability issues, there is still limited empirical evidence examining the combined effect of green accounting, environmental performance, and board independence on financial performance in a cross-country context, particularly in Indonesia and Malaysia. Moreover, few studies have explicitly compared how differences in institutional settings influence the effectiveness of board independence in strengthening the relationship between environmental initiatives and financial performance.

Most prior studies tend to focus on developed markets or single-country analysis, resulting in a research gap regarding emerging economies. In addition, inconsistencies in previous findings indicate the need for a more comprehensive model that incorporates governance mechanisms as moderating variables. Based on these gaps. This study aims to analyze the effect of green accounting and environmental performance on financial performance, as well as the moderating role of board independence in manufacturing companies in Indonesia and Malaysia during the 2020-2025 period. Unlike previous studies that mainly focus on a single country or examine a direct relationship, this study compares two emerging economies with different institutional environmental and investigates board independence as a moderating mechanism. This study is expected to provide empirical evidence on how environmental accounting practices and corporate governance interact in influencing financial outcomes.

From a theoretical perspective, this study contributes to stakeholder theory, legitimacy theory, and agency theory by explaining how environmental responsibility and governance mechanisms jointly affect corporate performance. From a practical perspective, the findings are expected to provide insights for companies in strengthening sustainability practices, for investors in evaluating firm value, and for regulators in designing effective sustainability and governance policies.

2. THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Green accounting, often referred to as environmental accounting, represents an extension of traditional accounting systems by incorporating environmental costs and benefits into corporate financial reporting. This approach enables firms to systematically identify, measure, and disclose the environmental impact of their operational activities, thereby supporting more sustainable decision-making

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processes (Arayssi et al., 2020; Aris et al., 2021). In this context, green accountability serves not only as a reporting mechanism but also as a strategic tool that aligns environmental responsibility with economic objectives. By recognizing environmental costs, companies can improve resource efficiency, reduce waste, and enhance long-term profitability (Albitar et al., 2020). From a theoretical perspective, stakeholder theory provides a strong foundation for explaining the relevance of green accounting. According to Birindelli et al. (2018), companies are expected to create value not only for shareholders but also for a broader group of stakeholders, including communities, regulators, and the environment. The implementation of green accounting reflects a commitment to transparency and accountability, which can enhance stakeholder trust and corporate reputation. In line with legitimacy theory, environmental disclosure is also used by firms to gain social acceptance and maintain legitimacy within their operating environment (Harfiahani, 2022; Rassiah et al., 2024). Companies that actively disclose environmental information are perceived as more responsible, which strengthens their position in the market.

Empirical evidence generally supports the positive relationship between green accounting and financial performance. Ningtyas (2024) found that transparent environmental reporting improves corporate reputation and stakeholder confidence, ultimately leading to better financial outcomes. Similarly, Tang (2023) Demonstrated that firms implementing green accounting practices tend to achieve higher operational efficiency and profitability, as reflected in improved Return on Assets (ROA). Octavio et al. (2025) Further argue that although environmental accounting may involve short-term costs, its long-term benefits outweigh these expenses by enhancing competitiveness and financial stability. However, some studies report contracting findings, suggesting that high environmental costs may reduce short-term profitability (Pinheiro et al., 2024; Schanzenbach et al., 2020; Yorke et al., 2023). These mixed results indicate the need for further investigation, particularly in emerging markets.

H1: Green Accounting has a positive effect on Financial Performance

Environmental performance reflects a firm's ability to manage and minimize the ecological impact ot its operation through efficient resource utilization, pollution control, and compliance with environmental regulations (Rumefi et al., 2024; Zahid et al., 2023). It represents the practical implementation of sustainability strategies within corporate operations and is often used as an indicator of a company's environmental responsibility. Firms with strong environmental performance are generally perceived as more resilient and capable of managing environmental risk, which can enhance their reputation and market value. The relationship between environmental performance and financial performance can be explained through the resource-based view (RBV), which posits that a firm can achieve a competitive advantage by effectively utilizing valuable, rare, and inimitable resources (Z. Li et al., 2021; Yuliana et al., 2023). Environmental capabilities, such as efficient waste management and energy utilization, can be

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considered a strategic resource that improves operational efficiency and reduce costs, in addition, the Porter Hypothesis suggests that well-designed environmental practices can stimulate innovation and improve firm competitiveness, ultimately leading to better financial outcomes (Fuadah et al., 2022). Empirical studies consistently show a positive association between environmental performance and financial performance. Z. Chen et al. (2022) Found that companies that actively reduce emissions and improve resource efficiency experience cost savings and increased profitability. Similarly, (Adu et al., 2023) Reported that firms with higher environmental performance scores tend to achieve superior financial results due to improved operational efficiency and enhanced stakeholder trust. These findings suggest that environmental performance should not be viewed as a cost burden but as a strategic investment that contributes to long-term financial success.
H2: Environmental Performance has a positive effect on Financial Performance

Corporate governance mechanisms, particularly board independence, play a critical role in determining how environmental initiatives are translated into financial outcomes. Board independence refers to the proportion of independent directors who are not involved in the daily management of the firm and are expected to provide objective oversight (Albitar et al., 2020; Aslam et al., 2021; Atan et al., 2018). Independent boards enhance transparency, accountability, and monitoring effectiveness, thereby reducing agency conflicts between management and shareholders. Agency theory explains that independent directors act as monitoring mechanisms to ensure that managerial decisions align with the interests of stakeholders (Aureli et al., 2020; Deswanto et al., 2018). In the context of sustainability practices, ensure that such initiatives are implemented effectively. They also enhance the credibility of environmental disclosures, which can strengthen investor confidence and firm value (Deswanto et al., 2018; Kouloukoui et al., 2019). In relation to green accounting, independent board members are expected to strengthen their impact on financial performance by ensuring that environmental reporting is not merely symbolic but reflects genuine corporate commitment. Ioannou et al. (2023) found that board independence encourages firms to adopt more comprehensive environmental accounting practices, which ensures that environmental investments are aligned with long-term strategic goals rather than short-term managerial interests.
H3: Board Independence moderates the relationship between Green Accounting and Financial Performance

Board independence also plays a significant role in strengthening the relationship between environmental performance and financial performance. Independent directors are generally more proactive in promoting sustainability initiatives, as they are less influenced by managerial opportunism (P. Chen et al., 2023; Ferrón-Vílchez et al., 2021; Yeow et al., 2021). They encourage firms to adopt environmentally responsible strategies that improve both operational efficiency and corporate reputation. Empirical evidence supports the moderating role of board independence in this relationship. Xia et al. (2023) Found that firms with higher board independence exhibit better environmental performance and

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stronger financial outcomes. Similarly Shi et al. (2023) and Wang et al. (2018) Showed that an independent board enhance environmental disclosure quality and stakeholder trust, which ultimately improves financial performance. These findings suggest that board independence strengthens the effectiveness of environmental initiatives in creating financial value.

H4: Board Independence moderates the relationship between Environmental Performance and Financial Performance.

Conceptual Framework

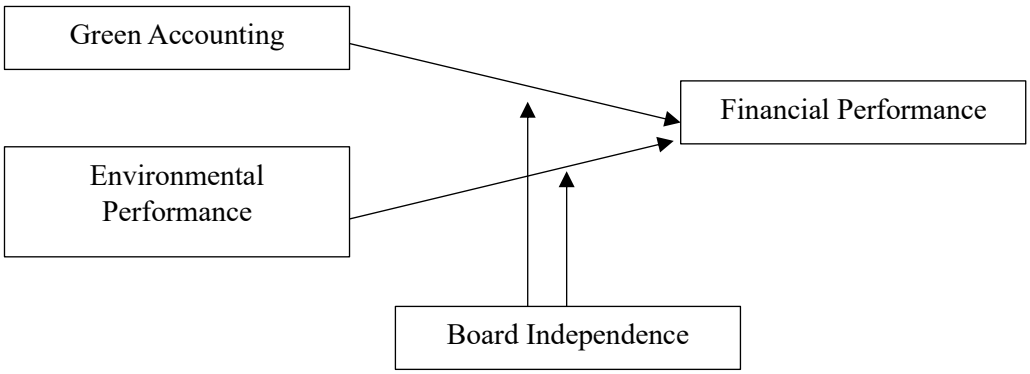

Figure 1. Theoretical Framework

3. RESEARCH METHOD

This study employs a quantitative research based on the positivist paradigm, which emphasizes hypothesis testing through measurable variables and statistical analysis (Liao et al., 2023; Nishitani et al., 2021). The objective of this study is to examine the effect of green accounting and environmental performance on financial performance, with board independence as a moderating variable, in manufacturing companies listed on the Indonesia Stock Exchange (IDX) and Bursa Malaysia Berhad during the period 2020-2025. The population consists of all manufacturing companies consistently listed on the IDX and Bursa Malaysia over the observation period. The sample was selected using a purposive sampling technique based on specific criteria relevant to the research objectives, resulting in a final dataset of 1,714 firm-year observations. The criteria include companies that publish complete annual reports, disclose environmental information, and provide consistent environmental performance data, while outlier data are excluded to ensure the robustness of the analysis.

The data used in this study are secondary data obtained from annual reports, sustainability reports, the Bloomberg ESG database, and the Osiris database. The data analysis technique employed is multiple linear regression with moderation,

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commonly referred to as Moderated Regression Analysis (MRA). Before hypothesis testing, classical assumption tests are conducted, including normality, multicollinearity, heteroscedasticity, and autocorrelation tests, to ensure the validity of the regression model. This study consists of dependent, independent, and moderating variables. The dependent variable is financial performance, measured as Return on Assets (ROA), which reflects the company's ability to generate profit from its Total Assets (Popescu et al., 2021; Rahman et al., 2023).

ROA = Net Income/ Total Assets

The independent variables in this study are:

Green Accounting (GA)

Green accounting is measured using an Environmental Disclosure Index based on the extent of environmental information disclosure in annual or sustainability reports. The indicators include environmental costs, emission and waste management, energy efficiency investments, and sustainability policies (Yeow et al., 2021). Each item is scored 1 if it discloses and 0 if not. The measurement formula is as follows:

$$Environmental\ Disclosure\ Score\ = \frac{Number\ of\ Indicators\ Disclosed}{Total\ Indicators}$$

Environmental performance (EP)

Environmental performance is measured using the Environmental Score obtained from the Bloomberg ESG database. This score ranges from 0 to 100, where values indicate better environmental performance, including emissions, energy use, waste management, and environmental policies.

The moderating variables in this study are:

Board Independence (BI)

Board independence is measured by the proportion of independent commissioners relative to the total board members (Yorke et al., 2023). The formula is as follows:

$$Board\ Independence\ = \frac{Total\ Board\ Members}{Number\ of\ Independent\ Board\ Members}\ \text{X}\ 100\%$$

To test the hypotheses, this study applies two regression models. The first model examines the direct effects of green accounting and environmental performance on financial performance.

$$FP = \beta_0 + \beta_1 GA + \beta_2 EP + \varepsilon$$

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The second model examines the moderating role of board independence:

$$FP = \beta_0 + \beta_1 GA + \beta_2 EP + \beta_3 BI + \beta_4 (GA \times BI) + \beta_5 (EP \times BI) + \varepsilon$$

Where:

β_0 = constant

β_1 = coefficient of Green Accounting (GA)

β_2 = coefficient of Environmental Performance (EP)

ε = error term

4. RESULT AND DISCUSSION

Based on the results presented in Table 1, the descriptive statistical analysis of 1,714 observations provides an overview of the characteristic of the main research variables, namely Green Accounting (GA), Environmental Performance (EP), Financial Performance (FP), and Board Independence (BI). The Green Accounting (GA) variable has a minimum value of 0 and a maximum value of 3, with a mean of 0.930 and a standard deviation of 0.235. The relatively low mean value indicates that the level of environmental accounting disclosure among manufacturing firms in Indonesia and Malaysia remains limited. The low standard deviation suggests that most firms exhibit similar disclosure behavior, primarily at a basic level. This finding implies that the implementation of green accounting practices has not yet been fully integrated into corporate financial reporting systems.

Table 1. Descriptive Statistics Analysis Results

Variables	N	Minimum	Maximum	Mean	Std. Deviation
Green Accounting (GA)	1.714	0.000	3.000	0.930	0.235
Environmental performance (EP)	1.714	0.000	5.000	3.678	0.467
Financial Performance (FP)	1.714	0.004	0.672	2.189	0.138
Board Independence (BI)	1.714	0.005	0.187	43.291	1.256
Valid N (listwise)	1.714				

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The Environmental Performance (FP) variable shows a mean value of 3.678 and a standard deviation of 0.467. This indicates that, on average, firms demonstrate relatively good environmental performance, particularly in terms of regulatory compliance and environmentally responsible practices. The low variability suggests a consistent level of environmental management across firms, reflecting the effectiveness of environmental regulation, such as the PROPER program in Indonesia and ESG-based assessments in Malaysia. For Financial Performance (FP), the mean value is 2.189 with a standard deviation of 0.138, indicating that manufacturing firms generally maintain stable financial performance throughout the observation period. The low dispersion implies limited fluctuations in profitability across firms, providing a reliable basis for further inferential analysis. Meanwhile, Board independence (BI) has a mean of 43.291 and a standard deviation of 1.256. This relatively high mean indicates that most firms have a substantial proportion of independent board members, suggesting compliance with corporate governance standards. The low variability further reflects a relatively uniform board structure across firms in both countries.

Table 2 presents the correlation matrix among the research variables. The results indicate that all variables are positively correlated and statistically significant at various levels. Green Accounting (GA) is positively correlated with Financial Performance (FP) (r=0.312), suggesting that firms with higher levels of environmental disclosure tend to exhibit better financial outcomes. This relationship provides preliminary support for the argument that environmental transparency enhances stakeholder trust and corporate reputation.

Table 2. Correlation Matrix

Variable	Green Accounting	Environmental Performance	Financial Performance	Board Independence
Green Accounting (GA)	1.000			
Environmental performance (EP)	0.427***	1.000		
Financial Performance (FP)	0.312***	0.365***	1.000	
Board Independence (BI)	0.145*	0.178**	0.201**	1.000

***p < 0.01, **p < 0.05, *p < 0.10

Environmental Performance (EP) shows a stronger positive correlation with Financial Performance (FP) (r=0.365), indicating that firms with superior environmental practices are more likely to achieve higher profitability. This finding aligns with the notion that efficient resource utilization and environmental

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compliance can lead to reduced operational costs and risk. Board Independence (BI) is also positively correlated with GA, EP, and FP. This suggests that forms with more independent boards are more likely to adopt sustainability practices and achieve better financial performance. These results provide initial empirical support for the proposed hypotheses and justify further regression analysis.

The regression result presented in Table 3 demonstrates that the estimated models are statistically robust. The F-statistic for both Model 1 and Model 2 is significant at the 1% level, indicating that the independent variables collectively have explanatory power in predicting Financial Performance. This confirms that the model is appropriate for further interpretation. The coefficient of determination R^2 increases from 0.327 IN Model 1 to 0.412 in Model 2 after incorporating Board Independence and the interaction terms. This improvement suggests that the inclusion of the moderating variables enhances the model's ability to explain variations in Financial Performance, highlighting the importance of governance factors in strengthening the relationship between environmental practices and firm outcomes.

Table 3. Regression Result

Variables	Model 1	Model 2
Constant	1.984***	1.791***
Green Accounting (GA)	0.214**	0.196**
Environmental performance (EP)	0.289***	0.254***
Board Independence (BI)		0.118*
GA X BI		0.147**
EP X BI		0.132**
R^2	0.327	0.412
Adjusted R^2	0.324	0.406
F-Statistic	37.412***	45.783***
N	1.714	1.714
***p < 0.01, **p < 0.05, *p < 0.10		

In model 1, Green Accounting (GA) is found to have a positive and statistically significant effect on Financial Performance ($\beta = 0.214$, $p < 0.05$). This finding supports H1 and indicates that firms adopting environmental accounting practices tend to achieve better financial outcomes. The results imply that integrating environmental considerations into the accounting system may lead to cost efficiency, improved compliance with regulations, and enhanced corporate reputation, all of which contribute to stronger financial performance. Similarly, Environmental Performance (EP) exhibits a positive and highly significant effect on Financial Performance (FP) ($\beta = 0.289$, $p < 0.01$), thereby supporting H2. This result suggests that firms with higher levels of environmental performance, as reflected in effective emission control, resource efficiency, and sustainable operational practices, are more likely to achieve superior financial outcomes. The stringer coefficient of EP compared to GA also indicates that actual environmental

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performance may have a more direct economic impact than disclosure practices alone.

In model 2, Board Independence (BI) shows a positive effect on Financial Performance (FP) ($\beta = 0.118$, $p < 0.10$), suggesting that firms with a higher proportion of independent directors tend to perform better financially. This finding reflects the role of the independent board in strengthening oversight and improving decision-making quality within firms. More importantly, the interaction term (GA*BI) ($\beta = 0.214$, $p < 0.05$) and (EP*BI) ($\beta = 0.132$, $p < 0.05$). Both are positive and statistically significant. These results confirm H3 and H4, indicating that Board Independence significantly moderates the relationships between Green Accounting and Financial Performance, as well as between Environmental Performance and Financial Performance. In other words, the positive effect of environmental practices on financial outcomes becomes stronger in a firm with a more independent board. This highlights that governance mechanisms play a crucial role in ensuring that environmental initiatives are effectively translated into financial benefit.

The empirical findings of this study provide strong support for all proposed hypotheses and offer important theoretical and practical implications. First, the positive relationship between green accounting and financial performance confirms that environmental disclosure is not merely a compliance mechanism but also a strategic instrument for value creation. This finding is consistent with stakeholder theory, which posits that firms must address the interests of various stakeholders to achieve long-term success. Companies that demonstrate transparency and accountability in environmental reporting are more likely to gain trust from investors, customers, regulators, and society at large. This trust enhances corporate reputation and legitimacy, ultimately improving financial performance (Adu et al., 2023; Ningtyas, 2024). Furthermore, this result aligns with legitimacy theory, which suggests that firms balance corporate actions and societal approval and maintain congruence between corporate actions and societal expectations (Adams et al., 2022). Therefore, H1 is supported, indicating that green accounting contributes positively to financial performance.

Second, the significant positive effect of environmental performance on financial performance reinforces the argument that sustainability-oriented practices generate tangible economic benefit. This finding is consistent with the (Ahmad et al., 2021)…, which argues that well-designed environmental regulation and strategies can stimulate innovation, improve resource efficiency, and ultimately enhance competitiveness. Firms that actively manage environmental risks through emission reduction, energy efficiency, and waste management are better positioned to reduce operational costs and improve long-term profitability (Lee et al., 2022; Yuliana et al., 2023). This also aligns with the Resource-Based View (RBV), which considers environmental capabilities as strategic resources that create sustained competitive advantage. Hence, H2 is supported, confirming that strong environmental performance enhances financial outcomes.

Third, the moderating role of board independence highlights the critical importance of corporate governance in strengthening the effectiveness of environmental strategies. From the perspective of agency theory, developed by Rassiah et al. (2024), independent directors serve as an effective monitoring

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mechanism that reduces agency conflicts and information asymmetry between management and shareholders. Their presence ensures that managerial decisions, including those related to environmental accounting and sustainability, are aligned with shareholders' and stakeholders' interests. An independent board is more likely to encourage transparency, accountability, and high-quality disclosures, thereby enhancing the credibility of green accounting practices and environmental performance (Hu et al., 2023; Johnsson et al., 2020; W. Li et al., 2023). Accordingly, H3 is supported, indicating that board independence strengthens the relationship between green accounting and financial performance.

Furthermore, board independence also strengthens the relationships between environmental performance and financial performance. From a corporate governance theory perspective, independent directors play a crucial role in ensuring effective oversight and strategic alignment. They tend to promote long-term decision-making and encourage the integration of sustainability into core business strategies (Sheehan et al., 2023; Wang et al., 2018). This ensures that environmental initiatives are not merely symbolic but are implemented efficiently and contribute to firm value creation. Independent board enhances stakeholder confidence and improves market perceptions, thereby amplifying the financial benefit of strong environmental performance. Therefore, H4 is supported, confirming that board independence enhances the impact of environmental performance on financial performance.

5. CONCLUSION

This study examines the effect of green accounting and environmental performance on financial performance, with board independence as a moderating variable, in manufacturing companies listed on the Indonesia Stock Exchange and Bursa Malaysia during the 2020-2025 period. The empirical results provide several important conclusions. First, green accounting has a positive and significant effect on financial performance. This finding indicates that companies that disclose environmental information and integrate environmental costs into their accounting systems tend to achieve better profitability. Environmental transparency not only fulfills regulatory requirements but also enhances corporate reputation and stakeholder trust, which ultimately contributes to improved financial outcomes. Second, environmental performance is also proven to have a positive and significant influence on financial performance. Companies that are able to manage environmental impacts effectively through emission reduction, efficient resource utilization, and compliance with environmental regulations are more likely to gain economic benefits. This suggest that environmental responsibility should be viewed as strategic investment rather than a cost burden, as it supports long-term competitiveness and sustainability.

Third, board independence plays a significant moderating role in strengthening the relationship between both green accounting and financial performance, as well as environmental performance and financial performance. Companies with a higher

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proportion of independent directors are more capable of ensuring that environmental initiatives are implemented with credibility of environmental disclosure and improve the efficiency of sustainability strategies, thereby amplifying their impact on financial performance. From a practical perspective, the results provide valuable insights for managers, investors, and policymakers. Companies are encouraged to strengthen environmental accounting practices and improve environmental performance, while also enhancing governance structure through greater board independence. For regulators, the findings support the importance of promoting transparency and sustainability reporting frameworks. Future research is recommended to explore additional variables, such as institutional ownership, firm size, or industry characteristics, and to expand the scope to other sectors or emerging markets to enrich the generalizability of the findings.

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