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Determination of Environmental Performance through Environmental Management Accounting: Empirical Evidence from Manufacturing Companies in Indonesia

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Abstract: Environmental sustainability has become a strategic priority for organizations due to increasing ecological challenges, stakeholder expectations, and regulatory pressures. This study aims to examine the effects of market competition, company size, and corporate governance on environmental performance, while also investigating the mediating role of Environmental Management Accounting (EMA). A quantitative explanatory approach was employed using a cross-sectional survey of 126 managers, accounting professionals, environmental managers, and sustainability officers from manufacturing and industrial companies listed on the Indonesia Stock Exchange. Data were collected through structured questionnaires and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with WarpPLS 8.0. The results indicate that market competition, company size, and corporate governance have significant positive effects on environmental performance. Additionally, all three factors significantly influence the adoption of EMA, with corporate governance demonstrating the strongest effect. EMA was also found to positively affect environmental performance, confirming its strategic role in supporting sustainability-oriented decision-making. Mediation analysis further revealed that EMA significantly mediates the relationships between market competition, company size, corporate governance, and environmental performance. These findings suggest that environmental performance is shaped not only by external competitive pressures and internal organizational characteristics but also by the extent to which environmental information is systematically incorporated into managerial processes. The study contributes to the environmental accounting literature by providing an integrated framework that combines organizational, institutional, and accounting perspectives. Practically, the findings highlight the importance of strengthening EMA practices to support corporate sustainability initiatives, improve environmental outcomes, and enhance long-term organizational competitiveness and legitimacy.

Keywords: Corporate Governance; Environmental Management Accounting; Environmental Performance; Market Competition.

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INTRODUCTION

Environmental sustainability has become one of the most important strategic concerns for contemporary organizations due to increasing ecological degradation, climate change, resource scarcity, and stakeholder expectations. Companies are no longer evaluated solely based

on financial performance but also on their ability to manage environmental impacts responsibly and transparently. Environmental performance reflects the extent to which organizations reduce emissions, improve resource efficiency, minimize waste generation, and comply with environmental regulations. In recent years, governments, investors, consumers, and international organizations have intensified their pressure on firms to integrate sustainability into business operations and decision-making processes (Alqatan 2025; Meyer et al. 2023). Consequently, environmental performance has evolved from a voluntary corporate initiative into a critical component of long-term competitiveness and organizational legitimacy. Organizations that demonstrate superior environmental performance are more likely to gain stakeholder trust, strengthen corporate reputation, and achieve sustainable growth. Therefore, understanding the factors that drive environmental performance has become increasingly important in both academic and managerial contexts.

The growing emphasis on sustainability has been particularly evident in environmentally sensitive industries such as manufacturing, where production activities often generate substantial emissions, waste, and resource consumption. Manufacturing companies in emerging economies face increasing challenges in balancing economic objectives with environmental responsibilities. In Indonesia, stricter environmental regulations, public scrutiny, and international sustainability standards have encouraged firms to improve environmental management practices. At the same time, competitive market conditions require organizations to continuously enhance operational efficiency while responding to stakeholder demands for sustainable production. Despite these pressures, environmental performance among firms remains heterogeneous, indicating that organizations differ considerably in their ability to adopt and implement effective environmental strategies (Qi and Chen 2026; Sun and Luo 2026; Wang, Yin, and Zhu 2022). Such variation suggests that organizational and institutional factors play a significant role in shaping environmental outcomes. Consequently, identifying the determinants of environmental performance remains a relevant and necessary area of investigation.

From a managerial perspective, environmental performance is influenced by both external and internal organizational conditions. Externally, market competition creates pressure for firms to innovate, improve efficiency, and differentiate themselves through environmentally responsible products and processes. Internally, organizational resources and governance structures determine the extent to which environmental initiatives can be effectively implemented and monitored. Large firms generally possess greater financial capacity, technological infrastructure, and managerial expertise to invest in sustainability programs, whereas strong corporate governance mechanisms enhance accountability and strategic oversight regarding environmental issues (Oldemeyer, Jede, and Teuteberg 2025; Prasad Agrawal 2024; Shahadat et al. 2023). As environmental concerns become increasingly integrated into corporate strategy, firms are expected to develop management systems capable of translating competitive pressures and organizational capabilities into measurable environmental outcomes. Therefore, investigating how these factors interact in influencing environmental performance is of substantial theoretical and practical importance.

The increasing complexity of sustainability challenges has also highlighted the importance of management accounting systems that support environmental decision-making. Traditional accounting approaches primarily focus on financial information and often fail to capture environmental costs and resource consumption accurately. In response, Environmental Management Accounting (EMA) has emerged as a strategic tool that integrates environmental and economic information to support planning, control, and performance evaluation. EMA enables

organizations to identify environmental costs, monitor material and energy flows, evaluate environmental investments, and improve resource (Ali, Kausar, and Amir 2023; Gunarathne, Lee, and Hitigala Kaluarachchilage 2022). By providing relevant environmental information for managerial decision-making, EMA helps organizations align operational activities with sustainability objectives. Consequently, EMA has increasingly been recognized as an important mechanism through which firms can enhance environmental performance and achieve sustainable competitive advantages.

Previous studies have extensively examined the determinants of environmental performance. Research has shown that market competition can motivate firms to adopt environmentally friendly innovations and sustainability-oriented business strategies as a means of maintaining competitiveness and legitimacy (Andersén 2022; Mady, Anwar, and Abdelkareem 2026; Zameer et al. 2024). Similarly, firm size has been identified as a significant predictor of environmental performance because larger organizations generally possess greater resources to implement environmental initiatives and comply with regulatory (Ahmed et al. 2023; Fang et al. 2022). Corporate governance has also been found to contribute positively to environmental performance through enhanced transparency, accountability, and stakeholder responsiveness (Lin and Qamruzzaman 2023; Özparlak and Gürol 2025; Salehi, Ammar Ajel, and Zimon 2022). Furthermore, recent studies suggest that organizations with stronger environmental management systems tend to achieve superior environmental outcomes compared to firms with less developed sustainability practices (Cao et al. 2024; Oduro 2024).

A growing body of literature has also investigated Environmental Management Accounting as a strategic organizational capability. Studies indicate that EMA improves environmental performance by providing managers with comprehensive information regarding environmental costs, resource utilization, and sustainability-related risks (Deb, Rahman, and Rahman 2022; Gunarathne, Lee, and Hitigala Kaluarachchilage 2022; Hasan et al. 2024). Other scholars have demonstrated that organizational characteristics such as governance quality, competitive pressure, and resource availability can encourage EMA adoption and utilization (Kramar 2022; Tanova and Bayighomog 2022). Although these findings collectively support the strategic role of EMA, the majority of existing studies have focused either on the direct determinants of environmental performance or on the independent effects of EMA. Consequently, the mechanisms through which organizational and environmental factors influence environmental performance remain only partially understood.

Despite the increasing attention devoted to environmental performance and EMA, several important gaps remain in the literature. First, prior studies frequently examine market competition, firm size, corporate governance, and EMA separately, resulting in a fragmented understanding of how these variables collectively influence environmental outcomes. Second, empirical evidence regarding the mediating role of EMA remains relatively limited, particularly in emerging economies where institutional environments and sustainability practices differ from those in developed countries. Third, many studies emphasize direct relationships while overlooking the organizational processes through which external pressures and internal capabilities are translated into environmental performance. These limitations indicate the need for an integrated framework capable of explaining both the direct and indirect effects of organizational determinants on environmental outcomes. Addressing this gap is essential for advancing theoretical understanding and improving managerial practices related to sustainability.

Grounded in Contingency Theory and Institutional Theory, this study investigates the effects of market competition, company size, and corporate governance on environmental performance, with Environmental Management Accounting serving as a mediating variable. The study seeks to explain how external competitive pressures and internal organizational characteristics influence environmental outcomes through the implementation of EMA practices. Theoretically, this research contributes to the environmental accounting literature by developing an integrated model that combines organizational, institutional, and accounting perspectives in explaining environmental performance. It also extends previous research by clarifying the mediating role of EMA within the relationship between organizational determinants and environmental outcomes. Practically, the findings are expected to provide valuable insights for managers, policymakers, and regulators regarding the strategic importance of environmental accounting systems in supporting corporate sustainability initiatives. Ultimately, the study contributes to the growing global discourse on how organizations can achieve superior environmental performance while maintaining long-term competitiveness and legitimacy.

METHOD

This study employed a quantitative explanatory research design using a cross-sectional survey approach to examine the relationships among market competition, company size, corporate governance, Environmental Management Accounting (EMA), and environmental performance. A quantitative design was selected because the objective of the study was to test a theoretically derived causal model and evaluate both direct and indirect relationships among multiple latent variables. The study specifically investigated the mediating role of EMA in explaining how organizational and environmental factors influence environmental performance. Given the complexity of the proposed model and the presence of mediation effects, Structural Equation Modeling based on Partial Least Squares (PLS-SEM) was considered the most appropriate analytical approach. This method allows simultaneous assessment of measurement quality and structural relationships while accommodating predictive research objectives and relatively complex latent constructs.

The study was conducted in Indonesia between January and April 2025. The research context focused on manufacturing and industrial companies listed on the Indonesia Stock Exchange (IDX), as these sectors are characterized by intensive resource utilization, environmental impacts, and increasing regulatory scrutiny regarding sustainability practices. Manufacturing companies were selected because they face substantial environmental challenges associated with energy consumption, emissions, waste generation, and environmental compliance. Furthermore, these industries have been encouraged to adopt environmental management systems and sustainability-oriented accounting practices as part of national and international environmental initiatives. Consequently, the selected context provides an appropriate setting for examining the determinants of environmental performance and the strategic role of EMA.

The target population consisted of senior managers, accounting professionals, environmental managers, sustainability officers, chief financial officers, and other executives directly involved in environmental management, accounting practices, and corporate governance processes within manufacturing and industrial firms listed on the IDX. Respondents were required to have at least three years of professional experience and sufficient knowledge of their organizations' environmental and managerial accounting practices. Employees without managerial responsibilities or limited involvement in environmental decision-making were

excluded from participation. A stratified random sampling technique was employed to ensure adequate representation across different manufacturing subsectors and organizational sizes. Based on the Krejcie and Morgan sampling framework and recommendations for PLS-SEM studies, questionnaires were distributed to 384 potential respondents. After data screening, elimination of incomplete responses, and verification of response consistency, 126 valid questionnaires were retained for final analysis.

Data were collected using a structured self-administered questionnaire developed from established instruments in the environmental accounting and sustainability literature. All items were measured using a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"), except for organizational size indicators that were measured using objective organizational characteristics. Market competition was measured using five indicators adapted from competitive pressure dimensions derived from Porter's Five Forces framework and subsequent empirical studies. These indicators captured competitive intensity, threats from new entrants, bargaining power of customers, pressure from substitute products, and supplier influence. Company size was measured using organizational scale indicators including the number of employees, number of departments, and operational scope. Corporate governance was assessed through five indicators reflecting board independence, audit committee effectiveness, sustainability oversight, executive compensation alignment with environmental targets, and shareholder engagement in environmental strategy. Environmental Management Accounting was measured through five indicators representing environmental cost tracking, integration of environmental costs into product costing systems, environmental performance reporting, environmentally oriented capital budgeting, and strategic utilization of EMA information. Environmental performance was evaluated using five indicators related to energy efficiency, waste reduction, regulatory compliance, environmentally friendly product development, and stakeholder perceptions of environmental responsibility.

Prior to the main survey, the questionnaire underwent a content validation process involving three experts in accounting, sustainability management, and environmental governance. Their feedback was used to improve item clarity, construct relevance, and contextual appropriateness. A pilot study involving 30 respondents from companies with characteristics similar to those of the target sample was subsequently conducted to evaluate instrument reliability and comprehensibility. Construct validity was assessed through convergent validity and discriminant validity analyses. Convergent validity was evaluated using factor loadings, Average Variance Extracted (AVE), and Composite Reliability (CR). Indicators with factor loadings above 0.60, AVE values exceeding 0.50, and CR values above 0.70 were considered acceptable. Internal consistency reliability was assessed using both Cronbach's Alpha and Composite Reliability coefficients, with minimum thresholds of 0.70. Discriminant validity was examined using the Fornell–Larcker criterion and cross-loading analysis to ensure that each construct measured distinct conceptual dimensions.

The data collection procedure was implemented in several stages. First, a database of eligible companies was compiled using information from the Indonesia Stock Exchange and publicly available corporate reports. Second, permission requests and research invitations were sent to targeted organizations through email and professional networks. Third, questionnaires were distributed electronically using a secure online survey platform. Respondents received an explanation of the study objectives, participation requirements, confidentiality assurances, and estimated completion time before accessing the questionnaire. Follow-up reminders were sent at two-week intervals to increase response rates. Upon completion of data collection, responses

were screened for missing values, duplicate submissions, inconsistent response patterns, and outliers. Only complete and valid responses were included in the final dataset for statistical analysis. The overall research procedure is summarized in Figure 1.

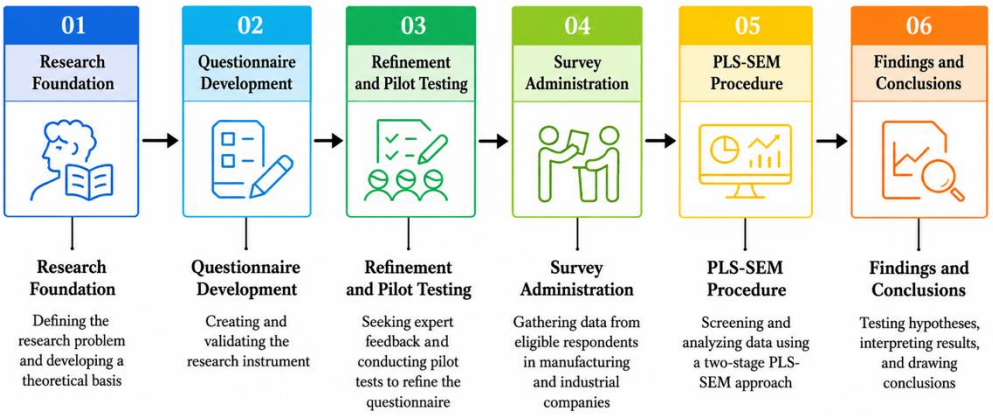

Figure 1. Research Flowchart

Data analysis was performed using WarpPLS version 8.0. The analysis followed the two-stage PLS-SEM procedure recommended by Hair et al. (2022). The first stage involved evaluating the measurement model through assessments of indicator reliability, internal consistency reliability, convergent validity, discriminant validity, and multicollinearity. Multicollinearity was assessed using Variance Inflation Factor (VIF) values, with values below 5.0 indicating acceptable levels. The second stage involved evaluation of the structural model through examination of path coefficients, coefficients of determination (R^2), predictive relevance (Q^2), effect sizes (f^2), and model fit indices. Hypotheses were tested using a bootstrapping procedure with 5,000 resamples. A significance level of 0.05 was adopted, and hypotheses were considered supported when the corresponding p-values were below 0.05. The mediating role of EMA was evaluated through indirect effect analysis and variance accounted for (VAF) calculations to determine the magnitude of mediation effects.

The study adhered to established ethical principles governing social science research. Participation was entirely voluntary, and informed consent was obtained from all respondents before data collection commenced. Participants were informed about the purpose of the study, their right to withdraw at any stage without consequences, and the confidentiality of their responses. No personally identifiable information was collected, and all data were anonymized prior to analysis. The collected information was used exclusively for academic purposes and stored securely to prevent unauthorized access. Throughout the research process, the principles of integrity, transparency, confidentiality, and respect for participants were strictly maintained.

RESULTS AND DISCUSSION

Results

1. Measurement Model Assessment

Before testing the structural relationships, the measurement model was evaluated to assess indicator reliability, internal consistency reliability, convergent validity, and multicollinearity. Indicator reliability was examined through outer loadings, where most indicators exceeded the recommended threshold of 0.60. As shown in Table 1, the loadings ranged from 0.634 to 0.828 for the majority of indicators, indicating satisfactory item reliability. However,

the loading of EP1 (0.266) was substantially below the recommended threshold and therefore should be interpreted with caution.

Table 1. Indicator Loadings

Construct	Indicator	Loading
Market Competition	MC1	0.663
	MC2	0.648
	MC3	0.709
	MC4	0.738
	MC5	0.746
Organization Size	OS1	0.800
	OS2	0.742
	OS3	0.807
Corporate Governance	CG1	0.721
	CG2	0.676
	CG3	0.716
	CG4	0.828
Environmental Management Accounting	CG5	0.766
	EMA1	0.634
	EMA2	0.815
	EMA3	0.638
	EMA4	0.821
	EMA5	0.812
Environmental Performance	EP1	0.266
	EP2	0.692
	EP3	0.816
	EP4	0.779
	EP5	0.814

The reliability and validity results are presented in Table 2. Composite Reliability values ranged from 0.819 to 0.863, exceeding the minimum recommended value of 0.70. Cronbach's Alpha values ranged from 0.684 to 0.800, indicating acceptable internal consistency. The Average Variance Extracted (AVE) values ranged from 0.492 to 0.613. Although the AVE values for Market Competition (0.492) and Environmental Performance (0.497) were slightly below the recommended threshold of 0.50, the values were considered acceptable given the satisfactory composite reliability values. Full collinearity VIF values ranged from 1.020 to 2.783, indicating the absence of multicollinearity issues.

Table 2. Reliability and Convergent Validity Assessment

Construct	CR	Alpha	AVE	VIF
MC	0.829	0.741	0.492	2.571
OS	0.826	0.684	0.613	2.168
CG	0.860	0.796	0.552	2.624
EMA	0.863	0.800	0.561	2.783
EP	0.819	0.719	0.497	1.020

Overall, the measurement model demonstrated acceptable levels of reliability and convergent validity.

2. Structural Model Assessment

The structural model was evaluated using several model fit indices. The Average Path Coefficient (APC = 0.190, p = 0.007), Average R-squared (ARS = 0.398, p < 0.001), and Average Adjusted R-squared (AARS = 0.379, p < 0.001) were all statistically significant. Furthermore, AVIF (1.706) and AFVIF (2.233) were below the recommended threshold of 5.0, indicating no multicollinearity concerns.

The overall goodness-of-fit statistics also indicated an acceptable model fit, with GoF = 0.465, SPR = 1.000, RSCR = 1.000, SSR = 1.000, and NLBCDR = 0.857. These results suggest that the proposed model adequately represents the relationships among the constructs.

The coefficient of determination (R^2) for EMA was 0.726, indicating that market competition, company size, and corporate governance jointly explained 72.6% of the variance in Environmental Management Accounting. Meanwhile, the R^2 value for Environmental Performance was 0.070, indicating that the model explained 7.0% of the variance in environmental performance.

3. Hypothesis Testing

The results of the structural model analysis are presented in Table 3. Market Competition had a positive and significant effect on EMA (β = 0.36, p < 0.05), supporting H5. Organization Size also positively influenced EMA (β = 0.08, p < 0.05), supporting H6. Corporate Governance demonstrated the strongest effect on EMA (β = 0.58, p < 0.05), supporting H7.

Regarding environmental performance, EMA exerted a positive and significant effect on Environmental Performance (β = 0.06, p < 0.05), supporting H4. Market Competition also positively influenced Environmental Performance (β = 0.23, p < 0.05), supporting H1. Likewise, Organization Size (β = 0.01, p < 0.05) and Corporate Governance (β = 0.01, p < 0.05) showed significant positive effects on Environmental Performance, supporting H2 and H3 respectively.

Table 3. Structural Model Results

Hypothesis	Path	β	p-value	Results
H1	MC → EP	0.23	<0.05	Supported
H2	OS → EP	0.01	<0.05	Supported
H3	CG → EP	0.01	<0.05	Supported
H4	EMA → EP	0.06	<0.05	Supported
H5	MC → EMA	0.36	<0.05	Supported
H6	OS → EMA	0.08	<0.05	Supported
H7	CG → EMA	0.58	<0.05	Supported

4. Mediation Analysis

The mediating role of Environmental Management Accounting was examined through indirect effect analysis. The results revealed that EMA significantly mediated the relationship between Market Competition and Environmental Performance (β = 0.142, p < 0.05), supporting H8. Similarly, EMA mediated the relationship between Organization Size and Environmental Performance (β = 0.060, p < 0.05), supporting H9. Furthermore, EMA significantly mediated the relationship between Corporate Governance and Environmental Performance (β = 0.065, p < 0.05), supporting H10.

Table 4. Indirect Effects and Mediation Results

Hypothesis	Path	β	p-value	Results
H8	MC → EMA → EP	0.142	<0.05	Supported
H9	OS → EMA → EP	0.060	<0.05	Supported
H10	CG → EMA → EP	0.065	<0.05	Supported

The mediation findings indicate that Environmental Management Accounting serves as an important organizational mechanism through which market competition, company size, and corporate governance contribute to improved environmental performance.

Discussion

The findings demonstrate that market competition positively influences environmental performance, suggesting that competitive pressures can function as an external catalyst for environmental improvement. This result indicates that firms operating in highly competitive environments are more likely to adopt environmentally responsible practices as a means of maintaining legitimacy, differentiating products, and strengthening market position. From the perspective of Contingency Theory, organizations adjust their managerial systems and strategic priorities in response to environmental conditions, including competitive (Alsharari 2023; Chatterjee et al. 2024). In this context, environmental performance emerges not only as a compliance requirement but also as a strategic response to market demands. The result is consistent with recent studies reporting that competitive markets encourage firms to pursue sustainability-oriented innovations and environmentally responsible operations (Hassanein and Elmaghrabi 2024; Rahman et al. 2024; Wan, Zhang, and Li 2024). However, unlike some studies that argue intense competition may reduce environmental investment due to cost pressures, the present findings suggest that Indonesian manufacturing firms increasingly perceive sustainability as a source of competitive advantage rather than a financial burden. This finding extends previous literature by highlighting that environmental initiatives can be driven simultaneously by economic incentives and legitimacy considerations.

The positive relationship between company size and environmental performance further confirms the importance of organizational resources in achieving sustainability objectives. Although the direct effect is statistically significant, its relatively small coefficient suggests that organizational scale alone does not automatically translate into superior environmental outcomes. According to the Resource-Based View, larger firms possess greater financial capacity, technological infrastructure, and managerial expertise that can support environmental initiatives (Agrawal et al. 2024; Chen et al. 2025). Nevertheless, resource availability must be effectively transformed into environmental capabilities before measurable performance improvements can occur. This interpretation aligns with studies by Guan et al. (2023), Ghobakhloo et al. (2026), and Mesquita (2024), which found that larger organizations generally exhibit stronger environmental performance due to greater access to sustainability-related investments. At the same time, the relatively modest effect observed in this study suggests that organizational complexity and bureaucratic structures may partially offset the advantages associated with firm size. Consequently, the findings contribute to the growing debate regarding whether organizational scale functions as a direct determinant or merely an enabling condition for environmental sustainability.

Corporate governance was also found to positively influence environmental performance, reinforcing the argument that governance mechanisms are central to organizational accountability and sustainability management. Strong governance structures create formal oversight systems that ensure environmental considerations are incorporated into strategic decision-making processes. This finding is consistent with Institutional Theory, which posits that organizations adopt governance practices to satisfy stakeholder expectations and maintain legitimacy within their institutional environment (Lee, Pak, and Roh 2024; Prasad Agrawal 2024). The result supports previous evidence showing that board independence, audit committee

effectiveness, and sustainability oversight contribute to improved environmental (Dimitropoulos 2024; Li, Jia, and Chapple 2022). Nevertheless, the relatively small direct coefficient indicates that governance may exert a stronger influence through organizational processes rather than through direct operational interventions. In other words, governance establishes the conditions under which environmental initiatives can be developed and monitored, but it does not necessarily guarantee environmental improvement unless supported by appropriate management systems. This interpretation provides a more nuanced understanding of governance by emphasizing its enabling rather than purely deterministic role.

An important contribution of this study lies in demonstrating the positive effect of Environmental Management Accounting on environmental performance. The finding confirms that EMA serves as more than a technical accounting tool; it functions as a strategic management mechanism that transforms environmental information into actionable organizational knowledge. Through systematic identification, measurement, and reporting of environmental costs and resource utilization, EMA enables managers to make more informed decisions regarding sustainability initiatives. This result supports Stakeholder Theory and Legitimacy Theory, which emphasize the importance of transparent environmental information in meeting stakeholder expectations and maintaining organizational (Itan et al. 2025; Reid, Ringel, and Pendleton 2023). The finding is consistent with studies by Burritt Shorey and Ng (2022), Bleidorn et al. (2022), and Janis (2022). all of which identified EMA as a significant driver of environmental improvement. However, the relatively modest direct coefficient suggests that EMA should not be viewed as an independent solution but rather as part of a broader organizational ecosystem involving governance quality, strategic commitment, and resource availability. Therefore, the effectiveness of EMA depends not only on information generation but also on how such information is integrated into managerial decision-making.

The results further reveal that market competition, company size, and corporate governance positively influence EMA implementation. Among these determinants, corporate governance exhibits the strongest effect, indicating that governance structures play a decisive role in promoting environmental accounting practices. This finding suggests that organizations are more likely to adopt EMA when leadership structures actively prioritize sustainability objectives and accountability mechanisms. From an institutional perspective, governance serves as a conduit through which external pressures are translated into internal management practices. Similar conclusions were reported by Su, Mahmood, and Md. Som (2024), Al Amosh (2026), and Haldorai, Kim, and Phetvaroon (2025), who found that governance quality significantly enhances environmental accounting adoption. Meanwhile, the influence of market competition supports the argument that firms facing competitive pressures require more sophisticated environmental information systems to manage costs and improve operational efficiency. The positive effect of company size further indicates that organizational resources facilitate EMA implementation, although resource availability alone remains insufficient without managerial commitment and institutional support.

The present study fills this gap by empirically confirming that EMA acts as an organizational bridge connecting strategic conditions with sustainability outcomes. Consequently, the findings extend the environmental accounting literature by positioning EMA as an active capability that converts organizational resources and institutional pressures into measurable environmental performance.

From a broader perspective, these findings contribute to the global sustainability literature by highlighting the strategic role of environmental accounting in emerging economies.

Much of the existing evidence regarding EMA and environmental performance originates from developed countries with mature regulatory systems and advanced sustainability infrastructures. By focusing on Indonesian manufacturing firms, this study demonstrates that the relationships proposed by contemporary environmental accounting theories remain relevant within emerging-market contexts characterized by different institutional conditions and regulatory capacities. Nevertheless, the relatively low explanatory power observed for environmental performance suggests that additional factors may influence sustainability outcomes beyond those included in the current model. Variables such as environmental innovation, organizational culture, green leadership, stakeholder engagement, regulatory enforcement, and digital sustainability technologies may provide alternative explanations that warrant future investigation. Therefore, while the present model contributes important theoretical insights, it should be viewed as part of a broader and evolving framework for understanding environmental performance in contemporary organizations.

Overall, the study advances current knowledge by integrating market competition, company size, corporate governance, Environmental Management Accounting, and environmental performance into a unified explanatory framework. The findings support the proposition that environmental accounting should be understood not merely as an information system but as a strategic organizational capability that links external pressures, internal resources, and sustainability outcomes. This perspective enriches the theoretical dialogue among Contingency Theory, Institutional Theory, Stakeholder Theory, and the Resource-Based View, while simultaneously providing practical guidance for managers seeking to strengthen environmental performance through evidence-based decision-making. More importantly, the study demonstrates that sustainable competitive advantage increasingly depends on an organization's ability to transform environmental information into strategic action, thereby reinforcing the central role of EMA within contemporary corporate sustainability agendas.

CONCLUSIONS

This study investigated the effects of market competition, company size, and corporate governance on environmental performance, with Environmental Management Accounting (EMA) serving as a mediating variable. The findings indicate that market competition, company size, and corporate governance positively influence environmental performance, suggesting that both external pressures and internal organizational capabilities contribute to sustainability outcomes. In addition, all three determinants significantly promote the adoption of EMA, highlighting the importance of environmental accounting systems in supporting organizational responses to environmental challenges and stakeholder expectations.

The results further demonstrate that EMA positively affects environmental performance and functions as an important mechanism through which market competition, company size, and corporate governance improve environmental outcomes. These findings suggest that environmental performance is not solely determined by organizational resources, governance structures, or competitive conditions, but also by the extent to which environmental information is systematically measured, analyzed, and incorporated into managerial decision-making. Consequently, EMA serves as a strategic capability that enables organizations to translate sustainability commitments into measurable environmental improvements.

Theoretically, this study extends the environmental accounting literature by integrating organizational, institutional, and sustainability perspectives into a unified framework and by empirically confirming the mediating role of EMA. Practically, the findings emphasize the need for

managers to strengthen environmental accounting practices as part of corporate sustainability strategies, while regulators and policymakers should encourage wider adoption of EMA to support environmental responsibility and long-term organizational sustainability. Overall, the study demonstrates that effective environmental performance is achieved through the interaction of competitive pressures, organizational capabilities, governance quality, and strategic environmental accounting practices.

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