

The Effect of Environmental Management Accounting on Firm Performance with Management Commitment as a Moderating Variable: A Literature Review

Irna Maya Sari¹, Ririn Sari Dewi²

Fakultas Ekonomi dan Bisnis, Universitas Pamulang. Jl. Lintas Serang - Jakarta, Kampung Malandang, Kelurahan Kelodran,
Kecamatan Walantaka, Kota Serang, Banten
Email: irnasari.maya@gmail.com¹, ririnsaridewi@gmail.com²

Environmental Management Accounting (EMA) has become an important management accounting approach for managing environmental costs and improving sustainable corporate performance. However, previous studies have produced inconsistent findings regarding the relationship between EMA and corporate performance. This study aims to analyze the influence of EMA on corporate performance and examine the role of management commitment as a moderating variable. A Systematic Literature Review was conducted using a qualitative descriptive approach following the PRISMA 2020 guidelines. Articles were retrieved from Scopus, Google Scholar, and SINTA using relevant keywords and limited to publications from 2020 to 2025. Of the 87 articles initially identified, 32 met the inclusion criteria and were analyzed using content analysis. The findings show that 24 articles (75%) reported a positive influence of EMA on corporate performance, whereas eight articles (25%) identified insignificant, indirect, or relatively weak effects. EMA improves performance by supporting environmental cost control, resource efficiency, waste reduction, managerial decision-making, and environmental strategy implementation. However, its effectiveness depends on contextual factors, including industry characteristics, firm size, implementation maturity, innovation, and environmental management systems. Management commitment strengthens the relationship between EMA and corporate performance through policy support, resource allocation, employee involvement, and the integration of environmental information into strategic decision-making. Therefore, companies should integrate EMA into their management and sustainability strategies and reinforce its implementation through consistent management commitment.

Keywords: Corporate Performance; Environmental Management Accounting; Management Commitment; Sustainability; Systematic Literature Review.

This is an open access
article under the [CC BY-NC](#) license



Corresponding Author:

Irna Maya Sari

Fakultas Ekonomi dan Bisnis, Universitas Pamulang. Jl. Lintas Serang - Jakarta,
Kampung Malandang, Kelurahan Kelodran, Kecamatan Walantaka, Kota Serang,
Banten

irnasari.maya@gmail.com

1. Introduction

Industrial development contributes substantially to economic growth, but production activities also generate intensive resource consumption, waste, emissions, and other forms of environmental pressure. These consequences have increased expectations for companies to integrate sustainability considerations into their strategies and management systems. Corporate performance is therefore increasingly evaluated not only in terms of financial outcomes but also in terms of how effectively companies manage environmental impacts, utilize resources, and respond to stakeholder expectations. In this context, environmental information has become increasingly important for supporting operational efficiency, environmental accountability, and sustainable corporate performance.

Environmental Management Accounting (EMA) provides monetary and physical information concerning environmental costs, material and energy consumption, waste, and emissions. Jasch[1] explains that EMA

The Effect of Environmental Management Accounting on Firm Performance with Management Commitment as a Moderating Variable: A Literature Review. Irna Maya Sari et.al

enables organizations to identify environmental costs that may remain hidden within conventional accounting systems, thereby improving the information available for planning, control, and managerial decision-making. EMA can therefore function not merely as an environmental accounting instrument but as a managerial mechanism that connects environmental information with operational and strategic decisions. However, as emphasized by Christ and Burritt[2], the effectiveness and adoption of EMA are influenced by organizational and contextual conditions.

Empirical evidence generally indicates that EMA can contribute positively to corporate performance. Pratiwi et al[3] found that EMA positively influenced corporate sustainability, while Deb et al[4] demonstrated its contribution to both environmental and financial performance. Appannan et al[5] further showed that EMA can serve as a mechanism linking environmental strategy with environmental performance, and Degenhart et al[6] reported positive associations between EMA practices and financial and environmental performance. These findings suggest that EMA can create organizational value through improved environmental cost control, resource efficiency, waste reduction, and more informed managerial decision-making.

Nevertheless, the relationship between EMA and corporate performance remains empirically inconclusive. Agustia[7], for example, found that EMA did not directly affect future performance; instead, its influence occurred through organizational innovation. Appiah et al[8] showed that environmental performance was jointly shaped by environmental strategy, environmental uncertainty, top management commitment, EMA, and environmental management control systems. Barani et al[9] further indicated that the performance consequences of EMA may differ according to national EMA maturity, firm size, and the dimensions of performance being examined. These differences reveal a more specific limitation in the existing literature: previous studies have been conducted across heterogeneous organizational settings, have employed different definitions and indicators of corporate performance, and have examined firms with different levels of EMA implementation maturity and managerial support. Consequently, the existing evidence does not yet clearly establish under what organizational and contextual conditions EMA produces stronger corporate performance outcomes.

Contingency Theory provides the principal theoretical lens for explaining this inconsistency. The theory proposes that the effectiveness of a management accounting system depends on its alignment with organizational and environmental conditions rather than on the system itself being universally effective[10]. In the context of EMA, differences in industry characteristics, firm size, environmental strategy, innovation, management control systems, implementation maturity, and managerial support may explain why similar EMA practices generate different performance outcomes across organizations[2][11] [6]. Accordingly, EMA is expected to produce stronger performance benefits when environmental information is integrated into organizational processes and supported by conditions that facilitate its effective use.

Among these conditions, management commitment deserves particular attention. Senior management influences environmental policies, resource allocation, employee involvement, organizational priorities, and the integration of environmental information into strategic decision-making. However, the existing evidence concerning management commitment is not uniform in its analytical role. Mayndarto and Murwaningsari[12] directly examined managerial commitment as a moderating variable in relationships involving EMA, environmental strategy, environmental performance, and financial performance. In contrast, Appiah et al[8] primarily identified top management commitment as an important organizational factor supporting EMA and environmental management control systems, while Degenhart et al[6] emphasized the importance of senior management support in EMA practices and performance relationships. Therefore, evidence that management commitment directly moderates the EMA–corporate performance relationship

remains more limited than evidence showing that managerial support facilitates EMA implementation. This distinction represents an important unresolved issue in the literature.

Stakeholder Theory and Legitimacy Theory provide complementary perspectives rather than the primary explanation for the inconsistent EMA–performance relationship. Stakeholder Theory suggests that environmental information helps organizations respond to the expectations of investors, regulators, employees, customers, and communities[13], while Legitimacy Theory explains how systematic environmental management may help companies maintain alignment with societal expectations [14]. Consistent with these perspectives, Swalih et al[15] showed that EMA has developed beyond environmental cost measurement and increasingly supports strategic decision-making, organizational efficiency, legitimacy, and sustainable development. Nevertheless, for the purpose of this study, Contingency Theory remains the central framework because it more directly explains why the performance effects of EMA may vary across organizational contexts.

Against this background, three interrelated gaps remain in the literature. First, previous empirical studies provide inconsistent evidence regarding the influence of EMA on corporate performance. Second, the organizational and contextual conditions responsible for these inconsistent findings have not been synthesized systematically. Third, although management commitment is frequently identified as an important factor in EMA implementation, evidence regarding its specific moderating role remains fragmented and should be distinguished from studies that examine management support merely as an antecedent or facilitating condition. These gaps indicate the need for a systematic synthesis capable of moving beyond the question of whether EMA affects corporate performance toward explaining why its effects differ and under what conditions they become stronger.

The novelty of this study lies in its integrated synthesis of these three issues. Rather than merely summarizing previous findings concerning the direct effect of EMA on corporate performance, this Systematic Literature Review examines the sources of inconsistency across studies, identifies the organizational and contextual conditions associated with different performance outcomes, and critically distinguishes direct empirical evidence of management commitment as a moderating variable from evidence that only demonstrates managerial support for EMA implementation. By reviewing empirical studies published between 2020 and 2025, this study provides a more structured understanding of when and how EMA contributes to financial, environmental, operational, and sustainability-related corporate performance.

Accordingly, this study addresses three research questions: (1) How does EMA influence corporate performance based on empirical studies published between 2020 and 2025? (2) What organizational and contextual factors explain the inconsistent findings regarding the relationship between EMA and corporate performance? and (3) What evidence supports the role of management commitment in strengthening the relationship between EMA and corporate performance? Consistent with these questions, the study aims to synthesize evidence on the EMA–corporate performance relationship, identify the conditions that explain variations in previous findings, and evaluate the evidence concerning management commitment as a moderating or strengthening organizational factor.

2. Literature Review and Problem Statement

Environmental Management Accounting

Environmental Management Accounting (EMA) is a management accounting system that integrates monetary and physical environmental information into organizational planning, control, and decision-making. Monetary information includes environmental costs, waste-management expenditures, energy

costs, and potential environmental liabilities. Meanwhile, physical information concerns the flow of materials, energy, water, waste, and emissions generated through corporate activities. Jasch[1] explained that EMA helps companies identify environmental costs that are frequently concealed within general overhead accounts in conventional accounting systems.

EMA enables management to assess the economic and environmental consequences of business activities simultaneously. Through this system, companies can identify inefficient resource consumption, reduce waste, control environmental costs, and improve the quality of managerial decisions. Nevertheless, EMA implementation is not uniform across organizations because it is influenced by organizational characteristics, environmental pressures, corporate strategies, and management support[2]. Consequently, the effectiveness of EMA depends not only on the availability of environmental information but also on how such information is incorporated into operational and strategic decisions.

Corporate Performance

Corporate performance reflects a company's ability to achieve its financial and non-financial objectives. Financial performance may be measured through profitability, cost efficiency, sales growth, and return on investment, whereas non-financial performance includes environmental performance, operational efficiency, innovation, corporate reputation, and sustainability. Within the context of EMA, corporate performance should be assessed comprehensively because environmental management may generate both direct and indirect benefits.

EMA can improve financial performance by reducing material, energy, waste-treatment, and regulatory-compliance costs. It can also enhance environmental performance by lowering resource consumption, waste generation, and emissions. Pratiwi et al[3] found that EMA positively influenced corporate sustainability, while Deb et al[4] reported that EMA contributed to improvements in both environmental and financial performance. Therefore, corporate performance in this study encompasses financial, environmental, operational, and sustainability-related outcomes.

Management Commitment

Management commitment refers to the extent to which senior management demonstrates support for environmental objectives through policies, resource allocation, employee involvement, supervision, and strategic decision-making. Management commitment is reflected in the willingness of corporate leaders to provide financial resources, qualified personnel, information systems, training, and organizational policies required for EMA implementation.

Management commitment is crucial because the successful implementation of EMA requires coordination across accounting, production, environmental management, and strategic planning functions. Appiah et al[8] identified top management commitment as an important organizational factor supporting EMA and environmental management control systems. Similarly, Degenhart et al[6] demonstrated that senior management support was positively related to EMA practices and influenced the relationship between EMA implementation and corporate performance. Thus, management commitment does not merely represent symbolic support but constitutes an organizational condition that enables environmental information to be consistently incorporated into managerial decisions.

Theoretical Foundation

The relationship among EMA, management commitment, and corporate performance is primarily explained using Contingency Theory. According to Otley[10], no single management accounting system is universally effective for every organization. Instead, the effectiveness of a system depends on its alignment with organizational characteristics and environmental conditions. In EMA implementation, relevant contingent

factors include company size, industrial characteristics, environmental uncertainty, environmental strategy, management control systems, implementation maturity, and management support[2].

Contingency Theory explains why EMA does not always produce identical performance outcomes. A company may possess environmental accounting information but fail to obtain performance benefits when that information is not supported by adequate resources or integrated into strategic decisions. Conversely, EMA is more likely to improve performance when senior management provides strong support and ensures its alignment with the company's environmental strategy. Accordingly, management commitment may strengthen the relationship between EMA and corporate performance.

Stakeholder Theory and Legitimacy Theory are employed as supporting theoretical perspectives. Stakeholder Theory suggests that companies must consider the interests of parties that affect or are affected by corporate operations, including investors, regulators, employees, customers, and local communities[13]. EMA assists companies in responding to stakeholder demands by providing environmental cost and resource-use information that can support accountability and responsible decision-making.

Legitimacy Theory explains that companies attempt to maintain compatibility between corporate activities and societal values[14]. The implementation of EMA can strengthen corporate legitimacy by demonstrating that environmental impacts are identified, measured, and managed systematically. Swalih et al[15] showed that EMA has developed beyond environmental cost measurement and is increasingly used to support strategic decision-making, organizational efficiency, legitimacy, and sustainable development.

Environmental Management Accounting and Corporate Performance

The implementation of EMA is expected to improve corporate performance by generating more accurate information concerning environmental costs and resource flows. This information allows managers to identify inefficiencies, minimize waste, control costs, and design more sustainable operational strategies. Pratiwi et al[3] found that EMA had a positive effect on corporate sustainability in Indonesian companies. Deb et al[4] similarly demonstrated that EMA was associated with improved environmental and financial performance.

Appannan et al[5] revealed that EMA functioned as a mechanism connecting environmental strategies with environmental performance. Degenhart et al[6] also reported a positive association between EMA practices and financial and environmental performance. These findings suggest that EMA can create corporate value when environmental information is actively employed in planning, control, performance evaluation, and strategic decision-making.

However, previous findings remain inconsistent. Agustia[7] found that EMA did not directly affect future performance; instead, innovation mediated the relationship. This finding indicates that EMA implementation does not automatically lead to performance improvement. Its benefits may require other organizational mechanisms, such as innovation, environmental strategies, environmental management systems, and managerial support. Barani et al[9] further demonstrated that the effect of EMA on performance may differ according to company size, national EMA maturity, and the performance dimensions examined.

The Moderating Role of Management Commitment

Management commitment is expected to strengthen the influence of EMA on corporate performance. Strong commitment encourages the allocation of financial, technological, and human resources required for implementing EMA. It also ensures that environmental information is not limited to administrative reporting but is incorporated into budgeting, investment appraisal, operational control, and corporate strategy.

Mayndarto and Murwaningsari[12] directly examined managerial commitment as a moderating variable in the relationships among EMA, environmental strategy, environmental performance, and financial performance. Their study highlighted the importance of managerial commitment in determining the performance benefits of EMA. Degenhart et al[6] also found that senior management support was associated with EMA practices and affected the relationship between EMA and corporate performance. In addition, Appiah et al[8] emphasized that top management commitment, environmental strategy, EMA, and environmental management control systems jointly contributed to environmental performance.

These findings indicate that EMA will be more effective when management demonstrates a genuine commitment to environmental management. When management commitment is weak, environmental information may not receive adequate attention, resources, or follow-up. In contrast, strong management commitment can facilitate the integration of EMA into organizational processes, thereby strengthening its contribution to financial, environmental, and sustainable corporate performance.

Problem Statement

Previous studies generally indicate that EMA contributes positively to corporate performance. Nevertheless, the empirical evidence remains inconclusive. Several studies have reported positive effects on corporate sustainability, environmental performance, and financial performance[3][4][5][6]. Conversely, Agustia[7] found no direct effect of EMA on future performance and demonstrated that its influence required innovation as an intervening mechanism.

The inconsistency indicates that the relationship between EMA and corporate performance is contingent upon organizational and contextual conditions. Although management commitment has been identified as an important factor in EMA implementation, studies that comprehensively synthesize its moderating role remain limited. Furthermore, previous studies have employed different industrial settings, measurements of EMA, performance indicators, and research designs, resulting in heterogeneous findings.

Based on this research gap, the present study addresses the following research questions:

1. How does Environmental Management Accounting influence corporate performance based on studies published between 2020 and 2025?
2. What organizational and contextual factors explain the inconsistent findings concerning the relationship between EMA and corporate performance?
3. How does management commitment strengthen the relationship between Environmental Management Accounting and corporate performance?

This study systematically reviews and synthesizes the existing literature to develop a comprehensive understanding of the relationship among EMA, management commitment, and corporate performance. The analysis is expected to clarify the conditions under which EMA produces stronger financial, environmental, operational, and sustainability outcomes.

3. Method

This study employed a Systematic Literature Review (SLR) using a qualitative descriptive approach. The SLR method was applied to identify, evaluate, and synthesize previous studies concerning the influence of Environmental Management Accounting (EMA) on corporate performance and the role of management commitment as a moderating variable. The literature-selection process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) guidelines to ensure a systematic, transparent, and replicable review process[16]

The relevant literature was collected from three academic databases: Scopus, Google Scholar, and the Indonesian Science and Technology Index (SINTA). The literature search used several combinations of keywords, including “Environmental Management Accounting,” “Corporate Performance,” “Financial Performance,” “Environmental Performance,” and “Management Commitment.” The publication period was limited to 2020–2025 to obtain recent empirical evidence regarding EMA implementation and corporate performance. The inclusion and exclusion criteria used in the article-selection process are presented in Table 1.

Table 1. Article Eligibility Criteria

Criteria	Inclusion Criteria	Exclusion Criteria
Publication period	Articles published between 2020 and 2025	Articles published before 2020 or after 2025
Type of publication	Scientific journal articles	Proceedings, undergraduate theses, master’s theses, dissertations, books, and non-academic publications
Research topic	Studies examining EMA, corporate performance, and/or management commitment	Studies unrelated to EMA, corporate performance, or management commitment
Database	Articles indexed in Scopus, Google Scholar, or SINTA	Articles obtained from unverifiable sources
Accessibility	Full-text articles available	Articles without full-text access
Language	Articles written in English or Indonesian	Articles written in languages other than English or Indonesian
Article status	Original and relevant articles	Duplicate or irrelevant articles

Source: Authors’ compilation (2026).

The initial search identified 87 articles consisting of 19 articles from Scopus, 58 articles from Google Scholar, and 10 articles from SINTA. The screening process was conducted in several stages. First, 12 duplicate articles were removed, leaving 75 articles. Second, the titles and abstracts were examined to assess their relevance to the research objectives. This stage excluded 31 articles and resulted in 44 articles for full-text assessment. Finally, 12 articles were excluded because they did not meet the eligibility criteria. Consequently, 32 articles were included in the final analysis. The literature-selection process is summarized in Table 2.

Table 2. Literature-Selection Process

Selection Stage	Number of Articles
Articles identified from Scopus	19
Articles identified from Google Scholar	58
Articles identified from SINTA	10
Total articles identified	87
Duplicate articles removed	-12
Articles remaining after duplicate removal	75
Articles excluded based on titles and abstracts	-31
Articles assessed through full-text review	44
Articles excluded for not meeting the inclusion criteria	-12
Articles included in the final analysis	32

Source: Authors’ compilation based on the literature-selection process (2026).

The selected articles were analyzed using content analysis. This technique was employed to identify, classify, compare, and synthesize the principal findings of the reviewed studies. The analysis was conducted through the following stages: identifying the characteristics of each article, classifying the

findings according to the direction of the relationship between EMA and corporate performance, examining consistent and inconsistent findings, identifying contextual factors affecting the relationship, and synthesizing evidence regarding the moderating role of management commitment.

The reviewed articles were grouped into three main themes: studies supporting the positive influence of EMA on corporate performance, studies reporting insignificant or weak effects, and studies identifying organizational or contextual factors that affected the relationship. Particular attention was given to management commitment, senior management support, environmental strategy, innovation, environmental management systems, firm size, industry characteristics, and EMA implementation maturity. This analytical procedure provided a comprehensive understanding of how EMA influences corporate performance and under which conditions management commitment may strengthen that relationship.

4. Results and Discussion

Characteristics of the Reviewed Studies

The PRISMA-based screening process resulted in 32 articles that met the predetermined inclusion criteria. The articles covered studies published between 2020 and 2025 and examined Environmental Management Accounting (EMA) from different organizational, industrial, methodological, and geographical perspectives. Corporate performance was operationalized heterogeneously across the literature, including financial performance, environmental performance, operational performance, corporate sustainability, future performance, and sustainable business performance. The original coding of the review showed that 24 articles (75%) reported a positive association between EMA and corporate performance, whereas eight articles (25%) reported insignificant, indirect, conditional, or relatively weak relationships.

A closer examination of the studies indicates substantial heterogeneity in research settings and methodological approaches. For example, Pratiwi et al[3] analyzed companies from several environmentally sensitive industries in Indonesia, whereas Agustia[7] focused on manufacturing companies listed on the Indonesian Stock Exchange. Deb et al[4] investigated manufacturing firms in Bangladesh, Appannan et al[5] examined ISO 14001-certified companies in Malaysia, and Degenhart et al[6] studied controllers from Brazilian industries. Such differences are relevant because the studies not only represent different institutional environments but also operationalize EMA and corporate performance differently.

Table 3. Distribution of the Findings

Category of findings	Number of articles	Percentage
Positive relationship between EMA and corporate performance	24	75.00%
Insignificant, indirect, conditional, or relatively weak relationship	8	25.00%
Total	32	100.00%

Source: Authors' coding of the reviewed literature (2026).

The distribution presented in Table 3 shows that the majority of the reviewed studies reported a positive relationship between Environmental Management Accounting and corporate performance. Of the 32 articles analyzed, 24 studies (75.00%) identified positive performance outcomes associated with EMA, while eight studies (25.00%) reported insignificant, indirect, conditional, or relatively weak relationships. This pattern indicates that positive findings dominate the reviewed literature, although the evidence is not entirely uniform across studies.

The variation in findings also reflects differences in research contexts, methodological approaches, and performance measures used in the reviewed articles. Some studies assessed financial performance, whereas others focused on environmental performance, corporate sustainability, operational performance, or future performance. Therefore, the distribution in Table 3 should be interpreted as a descriptive overview

The Effect of Environmental Management Accounting on Firm Performance with Management Commitment as a Moderating Variable: A Literature Review. Irna Maya Sari et.al

of the direction of the findings rather than as evidence of a uniform effect of EMA across all organizational settings. The characteristics of the selected studies are presented in Table 4 to provide a more detailed comparison of their research contexts, methods, performance indicators, and main empirical findings.

Table 4. Characteristics of Key Studies Included in the Literature Synthesis

Study	Country/context and sector	Sample/data	Method	Performance indicator or outcome	Main empirical finding
Pratiwi et al. (2020)	Indonesia; mining, agriculture, construction, energy, textile and apparel	87 observations from 20 companies, 2014–2018	Annual and sustainability reports; content analysis	Corporate sustainability: environmental and social dimensions	EMA measured through energy eco-efficiency was positively associated with corporate sustainability. (BINUS Journal)
Agustia (2020)	Indonesia; IDX-listed manufacturing firms	122 companies	Quantitative; path analysis	Future performance	EMA had no direct effect on future performance; innovation transmitted the effect. (Lietuvos Karo Akademija)
Appiah et al. (2020)	China; manufacturing firms	317 usable responses	Quantitative; SEM/path analysis with AMOS	Environmental performance	EMA, environmental strategy, environmental uncertainty, TMC and EMCS were examined jointly; TMC was an organizational antecedent rather than an EMA × TMC moderator. (ResearchGate)
Deb et al. (2023)	Bangladesh; manufacturing firms	323 responses	PLS-SEM; SmartPLS with AMOS robustness analysis	Environmental and financial performance	EMA was positively associated with environmental and financial performance. (IDEAS/RePEc)
Appannan et al. (2023)	Malaysia; ISO 14001-certified companies	145 managers	Questionnaire; PLS-SEM	Environmental performance	EMA mediated pollution-prevention and clean-technology strategies in improving environmental performance. (Wiley Online Library)
Andrian et al. (2023)	Indonesia; listed and non-listed companies	340 middle-upper management respondents	Quantitative; SmartPLS/SPSS	Carbon management accounting adoption	Green strategy and green social capital affected carbon management accounting adoption; the study primarily explains EMA/CMA

Study	Country/context and sector	Sample/data	Method	Performance indicator or outcome	Main empirical finding
					adoption rather than corporate performance. (Akuntansi Binus)
Degenhart et al. (2024)	Brazil; industrial companies	121 controllers	Quantitative survey; SEM	Operational, environmental and financial performance	EMA practices were positively related to performance; environmental management systems and senior management support were examined as mediating mechanisms. (DOI)
Swalih et al. (2024)	International literature	89 studies	Systematic Literature Review	Strategic decision-making, efficiency, legitimacy and sustainable development	EMA use has expanded from cost measurement toward strategic decision-making; legitimacy, organizational efficiency and strategic sustainable development were major motives. (Wiley Online Library)
Barani et al. (2025)	Multiple countries and organizational contexts	36 studies; 13,010 observations	Meta-analysis	Environmental, financial and organizational performance	EMA showed an overall positive association with organizational performance, while heterogeneity was examined across national EMA maturity, performance type and firm size. (IDEAS/RePEc)

Source: Authors' coding of the reviewed literature (2026).

Table 4 shows that the reviewed studies were conducted across diverse national, industrial, and organizational contexts. The studies also employed different methodological approaches, including content analysis, path analysis, structural equation modeling, partial least squares, and literature-based synthesis. In addition, corporate performance was measured using various indicators, such as financial performance, environmental performance, corporate sustainability, future performance, and operational performance. These differences demonstrate the methodological and contextual diversity of the literature included in the review.

The empirical findings also vary across studies. Several studies reported a positive relationship between Environmental Management Accounting and corporate performance, while others identified indirect,

The Effect of Environmental Management Accounting on Firm Performance with Management Commitment as a Moderating Variable: A Literature Review. Irna Maya Sari et.al

mediated, or context-dependent effects. The diversity in research settings, measurement approaches, and performance indicators provides an important basis for explaining why the effect of EMA on corporate performance is not uniform across the reviewed literature. The next section therefore synthesizes the main empirical patterns identified from these studies.

Synthesis of the EMA–Corporate Performance Relationship

The synthesis identified three empirical patterns. First, the dominant pattern consisted of studies reporting positive performance consequences of EMA. Pratiwi et al[3] reported positive corporate sustainability outcomes, while Deb et al[4] identified positive associations with environmental and financial performance. Evidence from other organizational contexts also indicates that EMA can be associated with environmental performance. For example, Asiaei et al[17], based on 106 CFOs of publicly listed Iranian companies, found that EMA played an important role in translating green intellectual capital into environmental performance. Second, several studies indicated that EMA operates through intermediate organizational mechanisms rather than producing performance improvements automatically. Agustia[7] found that innovation mediated the effect of EMA on future performance. Appannan et al[5] positioned EMA as a mediating mechanism between specific environmental strategies and environmental performance. Hoai et al[18], using data from 394 large Vietnamese manufacturing firms, similarly found that EMA usage transmitted the influence of green dynamic capabilities to environmental performance.

Third, some studies focused on antecedents or facilitating conditions of EMA rather than testing EMA as a direct predictor of corporate performance. Andrian et al[11], for instance, investigated the determinants of carbon management accounting adoption in Indonesia. This category is analytically different from studies that directly estimate EMA–performance effects and should therefore not be coded as direct evidence of a positive or negative performance relationship unless the study actually tests such a path.

Table 5. Empirical Patterns Identified in the Synthesis

Evidence pattern	Representative studies	Empirical role of EMA	Performance implication
Direct positive relationship	Pratiwi et al. (2020); Deb et al. (2023)	EMA as predictor	Positive sustainability, environmental and/or financial outcomes
Indirect or mediated relationship	Agustia (2020); Appannan et al. (2023); Hoai et al. (2023)	EMA as antecedent or mediator within a causal chain	Performance benefits depend on innovation, environmental strategy or organizational capabilities
Context-dependent relationship	Appiah et al. (2020); Barani et al. (2025)	EMA embedded in organizational/institutional conditions	Strength and manifestation of performance effects vary across contexts
EMA adoption/facilitation studies	Andrian et al. (2023)	EMA/CMA adoption as dependent outcome	Provides evidence about antecedents of implementation, not a direct EMA–performance effect
Strategic/review evidence	Swalih et al. (2024); Barani et al. (2025)	Literature-level synthesis	EMA increasingly supports efficiency, strategy, sustainability and legitimacy

Evidence Concerning Management Commitment

The role of management commitment was examined separately because the reviewed studies did not operationalize it consistently. Some studies statistically tested management commitment as a moderating variable, whereas others treated top management commitment or senior management support as an antecedent, mediator, or facilitating organizational condition.

Table 6. Direct Moderation Evidence versus Supporting Management Evidence

Study	Role of Management Commitment or Support	Was Moderation Tested Directly?	Main Finding and Interpretation
Mayndarto and Murwaningsari (2021)	Managerial commitment as a moderating variable	Yes	Managerial commitment was found to moderate the relationship between Environmental Management Accounting and environmental performance. However, it did not moderate the relationship between Environmental Management Accounting and economic performance. The evidence therefore indicates that the moderating role of managerial commitment differs across performance dimensions.
Appiah et al. (2020)	Top management commitment as an organizational factor	No	Top management commitment was examined together with environmental strategy, environmental uncertainty, Environmental Management Accounting, and environmental management control systems. The study shows that management commitment is important in supporting environmental management practices, but it does not provide direct evidence of a moderating effect.
Degenhart et al. (2024)	Senior management support as a mediating factor	No	Senior management support was examined as a mediating mechanism in the relationship between Environmental Management Accounting practices and organizational performance. Therefore, the study provides evidence of an indirect managerial role rather than a direct moderating effect.
Hasan et al. (2024)	Top management support as a mediator, with institutional pressure as a moderator	No	Environmental Management Accounting was found to influence environmental performance both directly and indirectly through top management support. In this study, institutional pressure served as the moderating

Study	Role of Management Commitment or Support	Was Moderation Tested Directly?	Main Finding and Interpretation
			variable, while top management support functioned as a mediator.
Somjai et al. (2020)	Environmental commitment as an independent explanatory factor	No	Environmental commitment and Environmental Management Accounting were both found to have positive relationships with firm performance. However, environmental commitment was not tested as a moderator of the relationship between Environmental Management Accounting and firm performance.

Table 6 distinguishes studies that directly tested management commitment as a moderating variable from studies that examined management commitment or management support in other analytical roles. Among the reviewed studies, Mayndarto and Murwaningsari[12] provide direct evidence of moderation, although the effect differs across performance dimensions. In contrast, Appiah et al[8], Degenhart et al[6], Hasan et al[19], and Somjai et al[20] provide supporting evidence regarding the importance of management commitment or management support, but they do not directly establish a moderating effect on the relationship between Environmental Management Accounting and corporate performance. This distinction indicates that the empirical evidence concerning management commitment as a moderator remains limited and should be interpreted cautiously.

Discussion

Environmental Management Accounting and Corporate Performance

The predominance of positive findings suggests that EMA can contribute to corporate performance when environmental information becomes part of managerial routines rather than remaining solely a reporting mechanism. Its performance relevance originates from its capacity to make resource consumption, waste, emissions, energy use, and environmental costs visible to decision makers. In this sense, the value of EMA does not lie merely in producing additional accounting information; it lies in enabling managers to translate environmental information into cost-control actions, resource-allocation decisions, process improvements, and environmental strategies.

This interpretation is consistent with the distinction observed among the reviewed studies. Pratiwi et al[3] found a positive relationship when EMA was represented by energy eco-efficiency and sustainability was measured through environmental and social outcomes. Deb et al[4], using a survey-based PLS-SEM approach in Bangladeshi manufacturing firms, found positive environmental and financial effects. In contrast, Agustia[7] found no direct influence on future performance but demonstrated an indirect pathway through innovation.

The apparent inconsistency is therefore not simply a contradiction between “significant” and “insignificant” studies. Instead, it indicates differences in the mechanisms through which EMA generates organizational value. Where EMA information immediately informs resource efficiency and environmental cost management, performance benefits may appear directly. Where value creation requires product, process, or managerial innovation, the effects may emerge indirectly or over a longer time horizon.

Analytical Interpretation through Contingency Theory

Contingency Theory provides the strongest explanation for the heterogeneity identified in the literature. The key implication is not merely that the findings are “consistent with Contingency Theory,” but that the same EMA system can produce different outcomes because its effectiveness depends on organizational fit. Differences in industry environmental exposure, company size, institutional environment, environmental strategy, internal capabilities, implementation maturity, and management systems alter how EMA information is generated and used.

Cross-country evidence illustrates this mechanism. Studies have examined EMA in Indonesian multi-industry companies, Chinese manufacturing firms, Malaysian ISO 14001-certified companies, Bangladeshi manufacturing firms, Iranian listed companies, Vietnamese manufacturing companies, Yemeni SMEs, Brazilian industries, and Omani manufacturing firms. These settings differ in institutional pressure, environmental regulation, firm resources, organizational scale, and environmental-management maturity. Barani et al[9] provides particularly relevant corroboration because its meta-analysis incorporated 36 studies and 13,010 observations and explicitly examined national EMA maturity, performance type, and firm size as sources of variation in the EMA–performance relationship. Therefore, Contingency Theory explains the inconsistent evidence through a fit mechanism: EMA generates stronger benefits when the accounting system, organizational capabilities, managerial priorities, and environmental context are mutually aligned. The absence of such alignment may explain why environmental information exists without producing an immediate performance improvement.

Analytical Interpretation through Stakeholder Theory

Stakeholder Theory provides a different but complementary explanation. EMA can be viewed as an internal information infrastructure through which companies respond to demands from regulators, investors, customers, employees, communities, and other stakeholders. However, the theoretical mechanism is stronger than simply stating that “EMA meets stakeholder expectations.” External stakeholder pressure can influence management priorities, which in turn determines whether environmental data are incorporated into budgeting, operational control, capital investment, product development, and performance evaluation. This relationship helps explain why EMA may become particularly valuable in environmentally sensitive or highly scrutinized industries. Where environmental consequences are visible and stakeholder scrutiny is substantial, environmental information has greater decision relevance. In contrast, where stakeholder pressure is weak or environmental information is produced only to meet formal disclosure requirements, EMA may become decoupled from operational decision-making.

The evidence from institutional and organizational studies supports this mechanism. For example, Kadir et al. examined institutional pressures, EMA, and sustainable business performance in Omani manufacturing firms, while Appiah et al. incorporated organizational and environmental conditions into the explanation of environmental performance in Chinese manufacturing companies. Thus, Stakeholder Theory helps explain why organizations have incentives to institutionalize EMA, while Contingency Theory explains why the resulting performance consequences differ among organizations.

Analytical Interpretation through Legitimacy Theory

Legitimacy Theory is particularly relevant for explaining the organizational motivation to use EMA beyond internal cost reduction. Companies facing societal and regulatory scrutiny need to demonstrate that their environmental impacts are not only disclosed but also identified, measured, monitored, and managed. EMA provides an internal information structure that can connect external sustainability claims with actual managerial processes.

Swalih et al[15] provides strong support for this interpretation. Its systematic review of 89 studies identified legitimacy, organizational efficiency, and strategic sustainable development as three important motives for using EMA in strategic decision-making. This finding suggests that legitimacy should not be understood merely as environmental communication. When EMA is incorporated into strategic decisions, legitimacy pressures can stimulate substantive organizational responses by encouraging firms to measure environmental costs, monitor resource use, and evaluate sustainability performance.

The theoretical distinction is important. Symbolic legitimacy can be pursued through environmental reporting without materially altering organizational processes. In contrast, substantive legitimacy is more likely when EMA information influences planning, investment, operational controls, and performance evaluation. Therefore, EMA potentially reduces the gap between sustainability claims and actual organizational practices, particularly when senior management ensures that environmental information is used rather than merely produced.

Management Commitment as a Boundary Condition

The synthesis requires a more cautious conclusion concerning management commitment than the original manuscript. Management commitment should not automatically be described as a “proven moderator” merely because management support is frequently associated with EMA implementation.

Direct moderation evidence is more limited. Mayndarto and Murwaningsari[12] explicitly tested managerial commitment as a moderator and found different results across performance dimensions: commitment moderated the influence of EMA on environmental performance but did not moderate its influence on economic performance. Consequently, even the principal direct moderation evidence does not demonstrate a universal strengthening effect.

Other studies provide supporting rather than direct moderation evidence. Appiah et al[8] positioned top management commitment within a broader structural model of environmental strategy, uncertainty, EMA, EMCS, and environmental performance. Degenhart et al[6] explicitly modeled senior management support as a mediator, not a moderator. More recent evidence from Hasan et al[19] similarly positioned top management support as a mediating mechanism between EMA and environmental performance, while institutional pressure served as the moderator.

From a Contingency Theory perspective, management commitment is therefore better interpreted as an important organizational boundary condition or enabling mechanism whose statistical role varies across research models. Strong commitment can provide resources, leadership attention, cross-functional coordination, training, and strategic integration. These mechanisms increase the probability that EMA information will be converted into organizational action. However, the available literature does not justify treating every finding on top management support as evidence of statistical moderation.

Table 7. Theoretical Interpretation of the Main Synthesis Findings

Main synthesis finding	Analytical mechanism	Theoretical interpretation
EMA generally contributes positively to performance	Environmental cost and resource information improves managerial control and decision-making	EMA provides an internal management capability for converting environmental information into performance improvements
EMA effects differ across firms and contexts	Industry, firm size, national context, EMA maturity and organizational capabilities alter the usefulness of EMA	Contingency Theory: EMA effectiveness depends on organizational and environmental fit
Stakeholder pressure increases demand for	External expectations influence internal environmental priorities and information needs	Stakeholder Theory: EMA assists organizations in responding substantively to

Main synthesis finding	Analytical mechanism	Theoretical interpretation
environmental accountability		regulators, investors, customers and communities
EMA is increasingly used for strategic sustainability decisions	Environmental information connects sustainability claims with actual management practices	Legitimacy Theory: EMA can move environmental accountability from symbolic reporting toward substantive management
Management commitment improves the organizational use of EMA	Leadership allocates resources, establishes priorities and integrates EMA into decisions	Primarily an enabling/boundary condition; direct moderation evidence remains limited
Moderation results vary by performance dimension	Commitment may strengthen environmental outcomes without necessarily strengthening economic outcomes	Supports a contingent rather than universal moderation interpretation

Table 7 shows that the relationship between Environmental Management Accounting and corporate performance can be understood through several complementary theoretical mechanisms. Contingency Theory explains why the effectiveness of EMA varies across organizational and environmental settings, particularly due to differences in industry characteristics, firm size, implementation maturity, and organizational capabilities. This indicates that EMA does not generate uniform performance outcomes across firms, but rather depends on the extent to which its implementation is aligned with organizational conditions.

Stakeholder Theory further explains how external expectations from regulators, investors, customers, employees, and communities can increase the demand for reliable environmental information and encourage firms to integrate EMA into managerial decision-making. Meanwhile, Legitimacy Theory highlights the role of EMA in supporting organizations to demonstrate that environmental responsibilities are not limited to disclosure, but are also reflected in internal management practices. Taken together, these theoretical perspectives suggest that EMA contributes to performance not merely through the availability of environmental information, but through the interaction between organizational fit, stakeholder pressure, managerial response, and the strategic use of environmental information.

In addition, the synthesis indicates that management commitment should be interpreted as an enabling organizational condition rather than as a universally significant moderating variable. Strong management commitment can facilitate the allocation of resources, integration of environmental information into strategic decisions, and organizational support for EMA implementation. However, the varying empirical findings across studies indicate that its strengthening effect depends on the performance dimension and organizational context examined.

Theoretical and Practical Implications

The theoretical contribution of the synthesis lies in demonstrating that the EMA–corporate performance relationship should not be conceptualized as a simple universal direct effect. Instead, the evidence supports a layered mechanism in which EMA provides environmental information, organizational and contextual conditions determine how that information is used, and management commitment facilitates its translation into managerial action. Contingency Theory therefore provides the primary explanation for cross-study heterogeneity, while Stakeholder Theory explains external pressures for environmental accountability and Legitimacy Theory explains the organizational incentive to demonstrate substantive environmental responsibility.

From a practical perspective, companies should avoid treating EMA as an isolated environmental reporting procedure. Performance benefits are more likely when EMA information is integrated into budgeting, cost

management, investment appraisal, resource-efficiency programs, innovation, environmental strategy, and performance evaluation. Management commitment remains important because managers determine whether sufficient resources, technological infrastructure, employee competence, and strategic attention are provided to EMA. Nevertheless, the findings suggest that commitment should be regarded as a mechanism facilitating the effective use of EMA rather than assumed to be a universally significant moderator.

5. Conclusion

Based on the systematic review of 32 articles selected through the PRISMA 2020 process, Environmental Management Accounting (EMA) generally has a positive influence on corporate performance. The review results show that 24 articles (75%) reported a positive effect, whereas eight articles (25%) found an insignificant, indirect, or relatively weak effect. EMA can improve financial, environmental, operational, and sustainability performance by supporting environmental cost identification, resource efficiency, waste reduction, performance monitoring, and strategic decision-making.

However, the influence of EMA on corporate performance is contextual and does not occur automatically. Its effectiveness depends on industry characteristics, company size, EMA implementation maturity, environmental strategy, innovation, environmental management systems, and performance measurements. Management commitment plays an important moderating role because it determines environmental policies, resource allocation, employee involvement, organizational competence, and the integration of environmental information into corporate decision-making. Strong management commitment can therefore strengthen the contribution of EMA to sustainable corporate performance.

Companies should position EMA as an integral part of their management and sustainability strategies rather than merely as an environmental reporting instrument. This study is limited by the heterogeneity of the research objects, indicators, and methodological approaches employed in the reviewed articles. Future research should conduct a quantitative meta-analysis or empirically test the moderating role of management commitment across different industrial sectors.

6. References

- [1] C. Jasch, "The use of Environmental Management Accounting (EMA) for identifying environmental costs," *J. Clean. Prod.*, vol. 11, no. 6, pp. 667–676, 2003.
- [2] K. L. Christ and R. L. Burritt, "Environmental management accounting: the significance of contingent variables for adoption," *J. Clean. Prod.*, vol. 41, pp. 163–173, 2013.
- [3] Y. N. Pratiwi, I. Meutia, and S. Syamsurijal, "The effect of environmental management accounting on corporate sustainability," *Binus Bus. Rev.*, vol. 11, no. 1, pp. 43–49, 2020.
- [4] B. C. Deb, M. M. Rahman, and M. S. Rahman, "The impact of environmental management accounting on environmental and financial performance: empirical evidence from Bangladesh," *J. Account. Organ. Chang.*, vol. 19, no. 3, pp. 420–446, 2023.
- [5] J. S. Appannan, R. Mohd Said, T. S. Ong, and R. Senik, "Promoting sustainable development through strategies, environmental management accounting and environmental performance," *Bus. Strateg. Environ.*, vol. 32, no. 4, pp. 1914–1930, 2023.
- [6] L. Degenhart, V. C. da Silva Zonatto, L. Rigon, and A. Silva Monteiro, "Effects of the environmental management system and top management support on the relationship between environmental management accounting practices and performance," *Rev. Ibero-Americana Estrategia*, vol. 23, no. 2, p. 1, 2024.
- [7] D. Agustia, "Innovation, environmental management accounting, future performance: evidence in

- Indonesia.," *J. Secur. Sustain. Issues*, vol. 9, no. 3, p. 1005, 2020.
- [8] B. K. Appiah, D. Zhang, S. C. Majumder, and M. P. Monaheng, "Effects of environmental strategy, uncertainty and top management commitment on the environmental performance: Role of environmental management accounting and environmental management control system," *Int. J. Energy Econ. Policy*, vol. 10, no. 1, pp. 360–370, 2020.
- [9] O. Barani, A. D. Ahmed, M. Joshi, and K. Asiaei, "How environmental management accounting drives performance: a meta-analysis considering national EMA maturity," *J. Account. Lit.*, vol. 47, no. 5, pp. 416–443, 2025.
- [10] D. T. Otley, "The contingency theory of management accounting: achievement and prognosis," *Accounting, Organ. Soc.*, vol. 5, no. 4, pp. 413–428, 1980.
- [11] T. Andrian, E. Murwaningsari, and Y. A. Sudibyo, "Factors Influencing Carbon Management Accounting Adoption in Indonesia," *Int. J. Sustain. Dev. Plan.*, vol. 18, no. 6, p. 1919, 2023.
- [12] E. C. Mayndarto and E. Murwaningsari, "The effect of environmental management accounting, environmental strategy on environmental performance and financial performance moderated by managerial commitment," *J. Ind. Eng. Manag. Res.*, vol. 2, no. 2, pp. 35–38, 2021.
- [13] T. Donaldson and L. E. Preston, "The stakeholder theory of the corporation: Concepts, evidence, and implications," *Acad. Manag. Rev.*, vol. 20, no. 1, pp. 65–91, 1995.
- [14] M. C. Suchman, "Managing legitimacy: Strategic and institutional approaches," *Acad. Manag. Rev.*, vol. 20, no. 3, pp. 571–610, 1995.
- [15] M. M. Swalih, R. Ram, and E. Tew, "Environmental management accounting for strategic decision-making: A systematic literature review," *Bus. Strateg. Environ.*, vol. 33, no. 7, pp. 6335–6367, 2024.
- [16] M. J. Page *et al.*, "The PRISMA 2020 statement: an updated guideline for reporting systematic reviews," *bmj*, vol. 372, 2021.
- [17] K. Asiaei, N. Bontis, R. Alizadeh, and M. Yaghoubi, "Green intellectual capital and environmental management accounting: Natural resource orchestration in favor of environmental performance," *Bus. Strateg. Environ.*, vol. 31, no. 1, pp. 76–93, 2022.
- [18] T. T. Hoai, N. N. Minh, H. V. Van, and N. P. Nguyen, "Accounting going green: The move toward environmental sustainability in Vietnamese manufacturing firms," *Corp. Soc. Responsib. Environ. Manag.*, vol. 30, no. 4, pp. 1928–1941, 2023.
- [19] S. A. S. Hasan, S. N. Waghule, and M. B. Hasan, "Linking environmental management accounting to environmental performance: the role of top management support and institutional pressures," *Cogent Bus. Manag.*, vol. 11, no. 1, p. 2296700, 2024.
- [20] S. Somjai, R. Fongtanakit, and K. Laosillapacharoen, "Impact of environmental commitment, environmental management accounting and green innovation on firm performance: An empirical investigation," *Int. J. Energy Econ. Policy*, vol. 10, no. 3, pp. 204–210, 2020.