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Implementation of Green Accounting and ESG in Management Accounting Systems to Drive Corporate Sustainable Performance

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Abstract

This study examines the implementation of green accounting and Environmental, Social, and Governance (ESG) principles in management accounting systems to drive corporate sustainable performance. The background of this study is based on the growing demand for companies to integrate sustainability into internal decision-making processes, not only through external reporting but also through planning, control, and performance evaluation mechanisms. Using a qualitative descriptive approach with a literature review design, this study analyzes recent scholarly works published from 2020 onward concerning green accounting, ESG, management accounting systems, and corporate sustainability. The findings indicate that green accounting contributes to sustainable performance by enabling companies to identify environmental costs, improve resource efficiency, reduce waste, and support environmentally responsible strategic decisions. Meanwhile, ESG integration strengthens management accounting systems by incorporating environmental, social, and governance indicators into budgeting, internal control, and managerial performance measurement, thereby enhancing accountability, risk management, and long-term value creation. The study concludes that the integration of green accounting and ESG transforms management accounting systems into strategic tools for sustainability, allowing firms to balance financial objectives with environmental responsibility, social accountability, and governance quality. Therefore, the successful implementation of green accounting and ESG is essential for improving corporate sustainable performance in an increasingly competitive and sustainability-oriented business environment.

Keywords Green Accounting; Environmental, Social, and Governance (ESG); Management Accounting Systems; Corporate Sustainable Performance; Sustainability Reporting

INTRODUCTION

In recent years, corporate sustainability has shifted from being a peripheral concern to becoming a central strategic priority for business organizations.

Companies are no longer assessed solely on their financial achievements, but also on how they manage environmental impacts, social responsibilities, and governance quality. This transformation is driven by growing stakeholder pressure, stricter regulatory expectations, climate-related risks, and the need for long-term business resilience. Within this context, the integration of sustainability principles into accounting practices has become increasingly important, especially through the adoption of green accounting and Environmental, Social, and Governance (ESG) frameworks. These approaches enable firms to identify, measure, and report sustainability-related costs, risks, and opportunities in a more systematic manner, thereby supporting better strategic decision-making and long-term value creation (Vásquez & Naranjo-Gil, 2020; Endiana et al., 2020).

Green accounting has emerged as a significant development in accounting practice because it extends the traditional scope of accounting beyond financial transactions to include environmental costs, ecological impacts, and resource efficiency. Through green accounting, organizations can recognize environmental expenditures such as waste management, energy consumption, pollution control, carbon reduction initiatives, and environmental restoration as part of managerial analysis rather than treating them as externalities. This approach is particularly relevant in an era where environmental degradation, resource scarcity, and climate change have direct implications for operational continuity and corporate legitimacy. By capturing environmental costs more accurately, green accounting improves cost allocation, supports eco-efficiency, and helps managers evaluate whether business activities are aligned with sustainable development goals. Prior studies indicate that green accounting can contribute to both sustainability and financial performance by encouraging more responsible resource use and strengthening environmental accountability within the firm (Faizah, 2020; Endiana et al., 2020).

At the same time, the ESG framework has gained global prominence as a multidimensional benchmark for evaluating corporate sustainability performance. ESG moves beyond conventional environmental disclosure by incorporating social responsibility issues such as labor practices, community engagement, and human rights, as well as governance dimensions such as transparency, board effectiveness, risk management, and ethical leadership. The increasing importance of ESG reflects the recognition that sustainable corporate performance is shaped not only by environmental efficiency but also by social legitimacy and sound governance structures. Investors, regulators, and consumers increasingly rely on ESG information to evaluate corporate risk, reputation, and long-term viability.

Consequently, firms are under pressure to integrate ESG indicators into internal planning, performance measurement, and reporting systems rather than treating ESG merely as an external reporting obligation. This integration is essential because sustainability performance depends on how effectively ESG values are embedded in day-to-day managerial control and decision-making processes (Sahin et al., 2021; Xia et al., 2023).

Management accounting systems play a critical role in this transformation because they provide the information infrastructure that managers use for planning, budgeting, performance evaluation, and strategic control. Traditionally, management accounting systems have focused on financial efficiency, cost control, and short-term profitability. However, this orientation is increasingly inadequate in a business environment where long-term competitiveness depends on sustainability capabilities, stakeholder trust, and non-financial value creation. The integration of green accounting and ESG into management accounting systems can expand the relevance of accounting information by linking sustainability objectives with internal control mechanisms, key performance indicators, and strategic decision support. Environmental management accounting, sustainability performance metrics, balanced scorecards, and integrated reporting tools are examples of mechanisms that can bridge this gap. Research shows that management accounting systems oriented toward sustainable knowledge acquisition and environmental management accounting can positively influence triple bottom line outcomes by improving strategic alignment, organizational learning, and sustainability performance measurement (Vásquez & Naranjo-Gil, 2020; Latan et al., 2020).

Despite the growing attention to green accounting and ESG, many companies still struggle to embed these approaches effectively within their management accounting systems. In practice, sustainability data are often fragmented, separated from financial planning, or treated as symbolic disclosures rather than actionable management information. This creates a gap between sustainability reporting and operational decision-making, weakening the ability of firms to translate ESG commitments into measurable sustainable performance. Therefore, examining the implementation of green accounting and ESG in management accounting systems is highly relevant both theoretically and practically. It offers insight into how accounting can move from a compliance-oriented function to a strategic enabler of sustainability transformation. Based on this background, this study seeks to analyze how the implementation of green accounting and ESG within management accounting systems can drive corporate sustainable performance by improving

environmental accountability, strengthening governance-oriented control, and integrating social and ecological considerations into managerial decision-making. Such an inquiry is important for developing a more holistic accounting model that supports corporate sustainability in an increasingly complex and stakeholder-driven business environment.

METHODS

This study employs a qualitative descriptive approach using a literature review design to examine the implementation of green accounting and Environmental, Social, and Governance (ESG) principles in management accounting systems to drive corporate sustainable performance. The study relies on secondary data obtained from scientific journal articles, books, sustainability reports, and policy documents indexed in Google Scholar, Scopus, and other reputable academic databases published primarily between 2020 and 2025. Data collection was conducted through a systematic search using keywords such as *green accounting*, *ESG*, *management accounting systems*, and *corporate sustainable performance*. The selected literature was analyzed using a thematic content analysis approach by identifying, classifying, and synthesizing the main findings related to the role of green accounting in environmental cost recognition, the integration of ESG indicators into management accounting practices, and their contribution to corporate sustainability performance. To ensure the validity of the findings, the study applied source triangulation by comparing concepts and empirical evidence from multiple recent scholarly sources, thereby producing a comprehensive understanding of how management accounting systems can be transformed to support environmental responsibility, social accountability, governance quality, and long-term corporate sustainability.

FINDINGS AND DISCUSSION

Integration of Green Accounting into Management Accounting Systems for Sustainable Corporate Performance

The integration of green accounting into management accounting systems represents a strategic transformation in how firms identify, measure, and manage environmental impacts as part of routine managerial decision-making. Traditionally, management accounting has focused on financial cost control, budgeting, variance analysis, and profitability measurement. However, contemporary sustainability challenges require firms to go beyond conventional financial metrics by incorporating environmental costs such as waste treatment, emissions reduction,

energy inefficiency, water use, and ecological restoration into internal accounting systems. Green accounting provides the conceptual and technical foundation for this transformation because it allows companies to recognize environmental costs not as peripheral externalities, but as operational costs that directly affect efficiency, competitiveness, and long-term firm value. When integrated into management accounting systems, green accounting supports better planning, pricing, investment appraisal, and resource allocation decisions by making environmental impacts visible in managerial reports and performance evaluations. In this sense, green accounting shifts management accounting from a purely economic control mechanism toward a sustainability-oriented information system that links environmental stewardship with corporate strategy and performance improvement (Setiawan et al., 2025; Trisnawati & Ariani, 2025; Gaho et al., 2025).

One of the most important contributions of green accounting to management accounting systems lies in environmental cost identification and allocation. In many companies, environmental costs are hidden within overhead accounts, which makes them difficult to trace and evaluate. As a result, managers may underestimate the financial implications of pollution, waste, inefficient material usage, and carbon-intensive production processes. Green accounting addresses this problem by separating and classifying environmental expenditures into prevention costs, detection costs, internal failure costs, and external failure costs. Through this classification, management accounting can provide more accurate cost information for product costing, process improvement, and investment decisions. For example, environmental management accounting and Material Flow Cost Accounting (MFCA) allow firms to quantify the physical flow of materials and energy, identify non-product output losses, and calculate the economic value of wasted resources. This approach is especially relevant for manufacturing, mining, and energy firms where material losses, emissions, and waste disposal costs significantly influence both financial and sustainability outcomes. Empirical studies in Indonesia's mining and energy sectors show that the implementation of green accounting and MFCA contributes positively to sustainable development and financial performance because firms become more aware of environmental inefficiencies and can take corrective actions more systematically (Azmi et al., 2025; Haryati, 2024; Gaho et al., 2025).

In management accounting practice, the value of green accounting becomes more significant when it is embedded in planning and control processes rather than being treated as a stand-alone sustainability initiative. This means that environmental cost information must be incorporated into budgeting, capital

expenditure analysis, standard costing, performance measurement, and strategic planning. For instance, firms can include environmental targets in annual budgets, evaluate investments based not only on financial return but also on energy efficiency and carbon reduction, and develop internal key performance indicators related to waste minimization, eco-efficiency, or resource productivity. Such integration enables management accountants to act as strategic partners in sustainability transitions by translating environmental goals into measurable operational targets. It also helps top management monitor whether sustainability initiatives actually improve operational performance and reduce long-term business risks. A critical review of sustainability in accounting and controlling emphasizes that the future of management accounting lies in its capacity to integrate sustainability considerations into value creation processes, internal control systems, and organizational competencies rather than limiting sustainability to external reporting obligations. Therefore, green accounting should be viewed not merely as a reporting innovation but as a management control instrument that strengthens the quality of corporate decisions and improves the alignment between ecological responsibility and economic performance (Pargmann & Berding, 2024; de Bortoli et al., 2025).

The strategic impact of green accounting on corporate sustainable performance can also be explained through the triple bottom line perspective, which emphasizes the simultaneous achievement of economic, environmental, and social outcomes. Under this perspective, management accounting systems are expected to produce information that supports not only profitability but also environmental preservation and stakeholder accountability. Green accounting contributes to the environmental dimension by helping firms reduce pollution, emissions, and material waste; to the economic dimension by improving cost efficiency and reducing long-term liabilities; and indirectly to the social dimension by strengthening corporate legitimacy and demonstrating accountability to regulators, communities, and investors. In practice, companies that systematically account for environmental costs are more likely to invest in cleaner technologies, redesign inefficient processes, and disclose environmental performance more transparently. These actions can improve corporate reputation, reduce regulatory penalties, and create operational savings that support long-term sustainable performance. Meta-analytic evidence also suggests that green accounting has a generally positive effect on firm performance because environmental cost awareness encourages more efficient managerial decisions and fosters sustainability-oriented innovation. Thus, integrating green accounting into management accounting systems is not only an ethical or regulatory response but

also a strategic mechanism for building resilience and competitive advantage in increasingly sustainability-sensitive markets (The interplay of sustainability, corporate green accounting and firm financial performance, 2023; Setiawan et al., 2025).

Nevertheless, the implementation of green accounting in management accounting systems is not without challenges. One major problem is the lack of standardized methods for measuring environmental costs and linking them to operational and financial performance indicators. Many companies still treat environmental accounting as a compliance function managed by sustainability or environmental departments rather than integrating it with finance and managerial control. This separation often leads to fragmented information, weak accountability, and limited managerial use of sustainability data. In addition, some firms may disclose green accounting practices symbolically without changing their internal cost structures, incentive systems, or decision-making routines. The challenge becomes even greater in developing countries where sustainability reporting standards, digital monitoring infrastructure, and environmental accounting expertise are still evolving. Therefore, successful green accounting implementation requires organizational commitment, managerial capability, interdepartmental collaboration, and digital systems capable of capturing real-time environmental data. It also requires management accountants to develop new competencies in environmental performance analysis, sustainability metrics, and integrated reporting so that green accounting becomes embedded in everyday managerial practice rather than remaining a peripheral disclosure tool (Pargmann & Berding, 2024; de Bortoli et al., 2025; Erstiawan, 2024).

ESG Integration in Management Accounting Systems as a Driver of Corporate Sustainable Performance

Beyond environmental accounting, the integration of Environmental, Social, and Governance (ESG) principles into management accounting systems has become an increasingly important mechanism for driving sustainable corporate performance. ESG expands the scope of sustainability management by recognizing that long-term business success depends not only on environmental efficiency, but also on social responsibility and sound governance. In this context, management accounting systems must evolve from being financially centered tools into integrated information systems capable of supporting multi-dimensional performance management. ESG integration means that management accounting should capture,

analyze, and communicate information related to carbon emissions, labor conditions, employee well-being, community impact, board accountability, risk oversight, ethical compliance, and other non-financial dimensions that influence corporate value creation. When ESG indicators are embedded into budgeting, performance evaluation, strategic planning, and management control, companies can align internal decisions with broader sustainability objectives and stakeholder expectations. This alignment is essential because ESG is no longer viewed solely as an external reporting requirement for investors; it has become a strategic framework that shapes risk management, corporate reputation, access to capital, and long-term competitiveness (Sahin et al., 2021; Xiao, 2025).

From a management accounting perspective, ESG integration improves the quality of strategic control by broadening the performance dimensions that managers monitor and evaluate. Traditional accounting systems often privilege short-term profitability, which can encourage decisions that are financially attractive in the short run but socially or environmentally damaging in the long run. ESG-based management accounting addresses this limitation by incorporating non-financial indicators into balanced scorecards, internal dashboards, investment appraisals, and executive performance metrics. For example, environmental indicators may include emissions intensity, energy consumption, or waste reduction; social indicators may include employee turnover, workplace safety, diversity, or supply chain labor compliance; and governance indicators may include board independence, anti-corruption compliance, and internal control quality. Once these indicators are linked to managerial incentives and periodic reporting, they become part of the firm's decision architecture rather than optional sustainability narratives. As a result, management accounting can help managers assess trade-offs among profitability, environmental risk, social legitimacy, and governance quality in a more integrated way. This is particularly important in sectors exposed to high regulatory scrutiny, investor pressure, or reputational risk, where ESG failures can directly undermine financial performance and stakeholder trust (Ayu & Abdullah, 2025; Wu, 2024).

The integration of ESG into management accounting systems also strengthens corporate sustainable performance by improving data-driven governance and organizational accountability. ESG performance depends heavily on whether firms can collect reliable non-financial data, translate it into measurable targets, and use it in internal decision-making. One of the major criticisms of ESG practice is that ESG scores and disclosures often suffer from inconsistency, incompleteness, and missing information, which reduces their usefulness for managers and investors. This

problem highlights the importance of management accounting systems as internal infrastructures for ESG data quality. By embedding ESG data into internal accounting and controlling routines, firms can establish clearer data ownership, more consistent measurement procedures, and stronger links between ESG performance and operational responsibility centers. In other words, management accounting acts as a bridge between abstract ESG commitments and practical managerial accountability. When managers receive periodic ESG-oriented performance reports, deviations can be monitored, sustainability risks can be escalated earlier, and corrective action can be taken more effectively. This strengthens both governance quality and the credibility of sustainability commitments, which are essential for building trust among investors, regulators, employees, and the wider public (Sahin et al., 2021; Pargmann & Berding, 2024).

Another important aspect is that ESG integration enables management accounting systems to support long-term value creation rather than merely short-term earnings optimization. Sustainable corporate performance requires firms to consider climate risk, supply chain resilience, stakeholder expectations, social legitimacy, and governance stability as core determinants of future performance. ESG-oriented accounting systems help firms identify these issues earlier and embed them into strategic analysis. For instance, climate-related environmental risks can be integrated into cost forecasts and capital planning; social issues such as workforce well-being and diversity can be linked to productivity, retention, and innovation outcomes; and governance quality can be connected to risk mitigation, fraud prevention, and investor confidence. This broader perspective is especially important because many sustainability-related costs and benefits materialize over longer time horizons than those typically captured by traditional accounting metrics. By integrating ESG into management accounting systems, firms can better evaluate long-term investments, manage uncertainty, and avoid decisions that improve current earnings at the expense of future sustainability. In this regard, ESG is not separate from corporate performance but is increasingly one of its core drivers, particularly in global markets where investors and lenders increasingly consider ESG information in capital allocation decisions (Asem et al., 2025; Xiao, 2025).

However, ESG integration in management accounting systems also presents important implementation challenges. One challenge is the heterogeneity of ESG frameworks and rating methodologies, which can create confusion regarding which indicators should be prioritized and how they should be measured internally.

Another challenge is organizational fragmentation, where ESG issues are managed by sustainability teams while finance and accounting departments continue to operate with conventional financial metrics. This separation weakens the transformative potential of ESG because the information generated does not meaningfully influence budgets, incentives, or strategic decisions. Furthermore, ESG initiatives may be undermined when firms focus excessively on external ratings or symbolic disclosure without developing robust internal control systems for sustainability data. Effective ESG integration therefore requires cross-functional coordination among accounting, finance, sustainability, operations, human resources, and corporate governance units. It also requires management accountants to adopt new roles as interpreters of non-financial data, facilitators of sustainability strategy, and designers of integrated performance measurement systems. In this sense, the implementation of ESG in management accounting is not simply a technical adjustment, but an organizational change process that redefines what counts as performance and how value is created, measured, and governed within the corporation. If this transformation is managed effectively, ESG integration can become a powerful driver of corporate sustainable performance by embedding environmental responsibility, social accountability, and governance quality into the core logic of managerial decision-making (Pargmann & Berding, 2024; Wu, 2024; de Bortoli et al., 2025).

CONCLUSION

In conclusion, the implementation of green accounting and ESG within management accounting systems plays a crucial role in driving corporate sustainable performance by transforming accounting from a purely financial control mechanism into a strategic sustainability management tool. Green accounting enables firms to identify, measure, and manage environmental costs more accurately, thereby improving eco-efficiency, resource allocation, and long-term operational resilience. At the same time, ESG integration broadens the scope of management accounting by embedding environmental, social, and governance indicators into planning, performance evaluation, and internal control processes, allowing companies to align managerial decisions with stakeholder expectations and long-term value creation. When these two approaches are integrated effectively, management accounting systems become more capable of supporting transparent accountability, risk management, innovation, and sustainable competitiveness. Therefore, green accounting and ESG should not be viewed merely as reporting or compliance instruments, but as essential components of a modern management accounting

system that enables companies to achieve balanced economic, environmental, and social performance in an increasingly sustainability-driven business environment..

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