

INTEGRATION OF SUSTAINABILITY ACCOUNTING IN MANAGEMENT CONTROL SYSTEMS AND ITS IMPACT ON COMPANY PERFORMANCE**^{1*}Mitha Christina Ginting**

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ABSTRACT

This study examines the integration of sustainability accounting within Management Control Systems (MCS) and its impact on company performance among publicly listed companies in Indonesia. Method: Using a quantitative approach, data were collected from 112 non-financial companies listed on the Indonesia Stock Exchange (IDX) during the 2019–2023 period. Sustainability Accounting Integration (SAI) was measured using a composite index comprising environmental, social, and governance (ESG) disclosures, sustainability-linked performance indicators, and formal MCS–sustainability alignment. Company performance was measured using Return on Assets (ROA), Tobin's Q, and a balanced scorecard-based performance index. Structural Equation Modeling–Partial Least Squares (SEM-PLS) and panel data regression were employed for hypothesis testing. Findings: The results indicate that sustainability accounting integration significantly and positively affects both financial performance (ROA: $\beta = 0.312$, $p < 0.001$; Tobin's Q: $\beta = 0.287$, $p < 0.001$) and non-financial performance. MCS serves as a significant mediator between sustainability accounting practices and company performance, particularly through the planning and monitoring control subsystems. Companies in the extractive, manufacturing, and consumer goods sectors exhibited the strongest integration effects. Novelty: This study extends prior literature by empirically demonstrating the mediating role of MCS in translating sustainability accounting commitments into measurable performance outcomes, offering a novel integrated framework applicable to emerging market contexts.

Keywords: Sustainability Accounting, Management Control Systems, Company Performance, ESG, Integrated Reporting, Corporate Governance

ABSTRAK

Studi ini meneliti integrasi akuntansi keberlanjutan dalam Sistem Pengendalian Manajemen dan dampaknya terhadap kinerja perusahaan di antara perusahaan publik di Indonesia. Metode: Dengan menggunakan pendekatan kuantitatif, data dikumpulkan dari 112 perusahaan non-keuangan yang terdaftar di Bursa Efek Indonesia (IDX) selama periode 2019–2023. Integrasi Akuntansi Keberlanjutan (SAI) diukur menggunakan indeks komposit yang terdiri dari pengungkapan lingkungan, sosial, dan tata kelola (ESG), indikator kinerja terkait keberlanjutan, dan keselarasan K3-keberlanjutan formal. Kinerja perusahaan diukur menggunakan Return on Assets (ROA), Tobin's Q, dan indeks kinerja berbasis balanced scorecard. Structural Equation Modeling–Partial Least Squares (SEM-PLS) dan regresi data panel digunakan untuk pengujian hipotesis. Temuan: Hasil penelitian menunjukkan bahwa integrasi

akuntansi keberlanjutan secara signifikan dan positif memengaruhi kinerja keuangan (ROA: $\beta = 0,312$, $p < 0,001$; Tobin's Q: $\beta = 0,287$, $p < 0,001$) dan kinerja non-keuangan. MCS berperan sebagai mediator signifikan antara praktik akuntansi keberlanjutan dan kinerja perusahaan, khususnya melalui subsistem pengendalian perencanaan dan pemantauan. Perusahaan di sektor pertambangan, manufaktur, dan barang konsumsi menunjukkan efek integrasi yang paling kuat. Kebaruan: Studi ini memperluas literatur sebelumnya dengan secara empiris menunjukkan peran mediasi MCS dalam menerjemahkan komitmen akuntansi keberlanjutan menjadi hasil kinerja yang terukur, menawarkan kerangka kerja terintegrasi baru yang dapat diterapkan pada konteks pasar negara berkembang.

Kata Kunci: Akuntansi Keberlanjutan, Sistem Pengendalian Manajemen, Kinerja Perusahaan, ESG, Pelaporan Terpadu, Tata Kelola Perusahaan

I. INTRODUCTION

The growing global emphasis on sustainable development has fundamentally altered the expectations placed upon corporations, compelling organizations to integrate environmental, social, and governance (ESG) considerations into their core strategic and operational frameworks. The United Nations Sustainable Development Goals (SDGs), the Paris Agreement on climate change, and the emergence of mandatory ESG disclosure requirements across major economies have collectively elevated sustainability from a peripheral corporate social responsibility concern to a central element of corporate governance and performance management (GRI, 2023; IFRS Foundation, 2023). In Indonesia, the Financial Services Authority (OJK) has progressively strengthened sustainability reporting mandates through POJK No. 51/POJK.03/2017, compelling financial institutions and listed companies to integrate sustainability considerations into their business strategies and reporting practices (OJK, 2023).

Sustainability accounting, defined as the systematic measurement, integration, and communication of environmental and social impacts alongside conventional financial information, has emerged as a critical mechanism for organizations seeking to operationalize their sustainability commitments (Schaltegger & Burritt, 2017). Unlike traditional financial accounting, which focuses exclusively on economic value creation for shareholders, sustainability accounting adopts a broader stakeholder perspective capturing externalities, resource depletion costs, social value creation, and governance effectiveness within the accounting information system (Bebbington et al., 2021). The integration of these sustainability metrics into Management Control Systems (MCS) represents a particularly significant development, as MCS constitutes the formal infrastructure through which organizations translate strategy into measurable outcomes, monitor performance, and guide managerial decision-making (Malmi & Brown, 2008).

Despite the growing recognition of sustainability accounting as a strategic imperative, the empirical relationship between its integration into MCS and company performance remains insufficiently understood, particularly in emerging market contexts characterized by weaker regulatory enforcement, less developed capital markets, and distinct stakeholder dynamics (Lueg & Radlach, 2016). While a growing body of literature has examined the impact of ESG disclosure on firm value in developed economies primarily the United States and European markets the specific mechanisms through which formalized sustainability accounting practices within MCS frameworks drive measurable performance improvements in Indonesian-listed companies remain underexplored (Cheng et al., 2014; Eccles et al., 2014)

Table 1 below summarizes prior research on sustainability accounting, MCS integration, and company performance, highlighting key methodological approaches and research gaps that motivate the present study.

Table 1. Summary of Prior Research on Sustainability Accounting and Company Performance

Researchers	Context / Variable	Method	Key Finding
Eccles et al. (2014)	ESG Integration / Firm Value (USA)	Regression Analysis	High-sustainability firms significantly outperform low-sustainability firms on long-term stock performance and ROA

Malmi & Brown (2008)	MCS Package / Performance	Literature Review	MCS serves as an integrated system that bundles planning, cybernetic, reward, administrative, and cultural controls
Cheng et al. (2014)	CSR Engagement / Capital Constraints	Panel Data Regression	Greater CSR engagement reduces capital constraints through improved stakeholder relationships and information asymmetry reduction
Lueg & Radlach (2016)	Sustainability Reporting / MCS Integration	Systematic Review	Sustainability integration into MCS is positively associated with improved environmental and financial performance
Wijethilake (2017)	Proactive Sustainability Strategy / Performance	SEM	Proactive sustainability orientation mediated by MCS positively affects non-financial and financial performance
Nurhayati et al. (2022)	Sustainability Reporting / IDX Companies	Content Analysis + Regression	Sustainability disclosure positively influences firm value but effect is moderated by firm size and leverage

Sources: Compiled by researchers, 2025

II. THEORETICAL STUDY

Theoretical Foundation

Stakeholder Theory and Sustainability Accounting

The theoretical foundation of this study rests upon Stakeholder Theory, originally formulated by Freeman (1984), which posits that corporations bear responsibilities not only to shareholders but to the broader constellation of stakeholders whose interests are materially affected by corporate activities including employees, customers, suppliers, local communities, regulatory authorities, and the natural environment. Stakeholder Theory provides a normative justification for sustainability accounting: by systematically measuring, managing, and reporting environmental and social impacts, organizations signal their commitment to stakeholder value creation, thereby building the relational capital, legitimacy, and trust necessary for long-term competitive advantage (Freeman et al., 2010; Donaldson & Preston, 1995).

In the context of Indonesian listed companies, stakeholder pressures are increasingly manifested through regulatory requirements (OJK sustainability reporting mandates), investor demands (growing ESG integration by institutional investors), consumer preferences (rising awareness of corporate environmental practices), and community expectations (particularly relevant to extractive industries operating in environmentally sensitive regions). These multidimensional pressures create a compelling business case for integrating sustainability accounting into the formal governance and control architecture of the corporation precisely the domain in which MCS operates (Hahn et al., 2015).

Legitimacy Theory and Institutional Pressures

Complementing Stakeholder Theory, Legitimacy Theory (Suchman, 1995) argues that organizations operate under an implicit social contract with the communities in which they function. When organizational activities threaten to breach societal norms regarding environmental stewardship, labor practices, or community impact, corporations face legitimacy gaps that manifest in regulatory scrutiny, reputational damage, consumer boycotts, and deteriorating investor sentiment (Deegan, 2002). Sustainability accounting, from a legitimacy perspective, serves as a legitimation mechanism through which organizations demonstrate their compliance with evolving social norms and regulatory standards. Institutional Theory (DiMaggio & Powell, 1983) further enriches this framework by explaining the isomorphic pressures—coercive (regulatory mandates), mimetic (imitation of industry leaders), and normative (professional standards and certifications) that drive the diffusion of sustainability accounting practices across organizations and industries. In Indonesia's context, regulatory coercion through OJK

mandates, combined with mimetic pressures from multinational parent companies and international supply chain partners, and normative pressures from professional accounting bodies and GRI standards adoption, collectively accelerate the institutionalization of sustainability accounting within corporate management systems (Sari & Tjen, 2021).

Management Control Systems: The Malmi-Brown Framework

This study adopts the Malmi and Brown (2008) conceptual framework of MCS as a 'package' of control mechanisms encompassing five interdependent control types: (1) Planning Controls, which set organizational targets and resource allocation parameters aligned with strategic objectives; (2) Cybernetic Controls, comprising formal financial and non-financial performance measurement systems, budgets, and hybrid balanced scorecard-type systems that monitor performance against pre-set targets; (3) Reward and Compensation Controls, which align managerial incentives with organizational objectives; (4) Administrative Controls, including governance structures, organizational design, and formal policies; and (5) Cultural Controls, which shape organizational values, norms, and beliefs regarding acceptable behavior.

The integration of sustainability accounting into this MCS package represents a fundamental architectural transformation: sustainability metrics including carbon emissions intensity, water consumption efficiency, waste reduction rates, employee safety indicators, and community investment levels must be embedded within planning targets, monitored through cybernetic control mechanisms, incentivized through executive compensation structures, governed through formal sustainability committees, and institutionalized through cultural change programs (Wijethilake, 2017; Lueg & Radlach, 2016).

Sustainability Accounting Integration and Company Performance

The relationship between sustainability accounting integration (SAI) and company performance operates through multiple channels. First, through resource efficiency: systematic measurement and management of environmental inputs (energy, water, materials) identifies cost reduction opportunities and operational inefficiencies that translate into improved financial margins (Eccles et al., 2014). Second, through risk management: proactive identification and mitigation of environmental and social risks reduces the probability of costly regulatory sanctions, litigation, reputational crises, and supply chain disruptions (Cheng et al., 2014). Third, through stakeholder relationship capital: demonstrated commitment to sustainability builds trust with employees (talent attraction and retention), customers (brand loyalty and pricing power), investors (reduced cost of capital), and regulators (reduced compliance burden) (Freeman et al., 2010). Fourth, through innovation: the pressure to reduce environmental impacts stimulates process innovation and product development that creates new competitive advantages (Porter & van der Linde, 1995).

Hypothesis Development

Drawing from Stakeholder Theory, Legitimacy Theory, and the MCS package framework, this study develops the following research hypotheses:

Sustainability Accounting Integration and Financial Performance

Sustainability Accounting Integration (SAI) refers to the extent to which environmental, social, and governance (ESG) considerations are embedded into accounting systems, reporting practices, and strategic decision-making. From a financial perspective, SAI enables firms to identify cost-saving opportunities, improve resource efficiency, and mitigate risks associated with environmental and social issues.

Empirical studies in recent years have demonstrated that companies adopting sustainability accounting practices tend to exhibit better financial performance indicators such as Return on Assets (ROA) and Tobin's Q. This can be attributed to several factors. First, improved transparency reduces information asymmetry between management and investors, leading to a lower cost of capital. Second, sustainability practices often lead to operational efficiencies, such as reduced energy consumption and waste management costs. Third, firms that are perceived as socially responsible are more attractive to investors, particularly those focused on ESG investing.

Furthermore, sustainability accounting allows firms to anticipate regulatory changes and avoid potential penalties or compliance costs. In emerging markets such as Indonesia, where regulatory frameworks related to sustainability are evolving, proactive integration of sustainability accounting can provide a competitive advantage.

From a theoretical standpoint, Stakeholder Theory suggests that firms responding effectively to stakeholder demands will experience enhanced financial outcomes. Similarly, Legitimacy Theory indicates that firms maintaining societal approval are more likely to sustain profitability. Therefore, the integration of sustainability accounting is expected to have a direct and positive impact on financial performance.

H₁: Sustainability Accounting Integration (SAI) has a significant positive effect on company financial performance (ROA and Tobin's Q) among IDX-listed companies

Sustainability Accounting Integration and Non-Financial Performance

In addition to financial metrics, organizational success is increasingly measured through non-financial performance indicators such as environmental performance, social impact, employee satisfaction, and corporate reputation. Sustainability accounting integration plays a crucial role in improving these dimensions.

By incorporating ESG metrics into internal reporting systems, firms can monitor and evaluate their environmental and social performance more effectively. This includes tracking carbon emissions, energy usage, waste management, employee well-being, and community engagement. Such practices not only improve operational performance but also enhance corporate reputation and brand value.

From a Stakeholder Theory perspective, non-financial performance is critical in meeting the expectations of various stakeholder groups. For example, customers increasingly prefer products from environmentally responsible companies, while employees are more likely to be engaged and productive in organizations that prioritize social responsibility.

Legitimacy Theory also suggests that strong non-financial performance enhances a firm's social license to operate. Companies that demonstrate commitment to sustainability are less likely to face public criticism, regulatory scrutiny, or reputational damage.

Moreover, the integration of sustainability accounting into performance measurement systems ensures that non-financial goals are aligned with organizational strategy. This alignment fosters a culture of sustainability within the organization, encouraging employees to adopt responsible practices in their daily activities.

Based on these arguments, sustainability accounting integration is expected to significantly improve non-financial performance outcomes.

H₂: Sustainability Accounting Integration (SAI) has a significant positive effect on non-financial company performance

The Mediating Role of Management Control Systems (MCS)

While Sustainability Accounting Integration provides the necessary information and framework for sustainability-oriented decision-making, its effectiveness largely depends on how it is implemented within the organization. This is where Management Control Systems (MCS) play a critical role.

The MCS package framework, as proposed in contemporary management accounting literature, consists of various control mechanisms including planning controls, cybernetic controls (e.g., budgets and performance metrics), administrative controls, and cultural controls. These systems work together to ensure that organizational strategies are effectively executed.

SAI influences organizational performance indirectly by shaping the design and use of MCS. For instance, sustainability metrics can be incorporated into performance evaluation systems, incentive schemes, and strategic planning processes. This ensures that sustainability objectives are not merely symbolic but are actively pursued by managers and employees.

Furthermore, MCS facilitates coordination and communication within the organization. By integrating sustainability-related information into control systems, firms can align individual behavior with organizational goals, reduce agency problems, and enhance decision-making quality.

Empirical evidence suggests that firms with well-developed control systems are more successful in translating sustainability initiatives into tangible performance outcomes. Without effective MCS, sustainability accounting practices may remain superficial and fail to influence actual business operations. Therefore, MCS is expected to act as a mediating variable that strengthens the relationship between SAI and company performance.

H₃: Management Control Systems (MCS) significantly mediate the relationship between Sustainability Accounting Integration and company performance.

The Moderating Role of Environmentally Sensitive Industries

The impact of Sustainability Accounting Integration on company performance is not uniform across all industries. Firms operating in environmentally sensitive sectors—such as mining, manufacturing, energy, and agriculture—face greater scrutiny from regulators, investors, and the public. In such industries, environmental and social risks are more pronounced, and failure to manage these risks can result in severe financial and reputational consequences. As a result, companies in these sectors have stronger incentives to adopt and integrate sustainability accounting practices.

Legitimacy Theory suggests that firms in high-impact industries are under greater pressure to justify their operations and demonstrate compliance with societal expectations. Sustainability accounting serves as a critical tool for communicating these efforts and maintaining legitimacy.

Additionally, stakeholders in environmentally sensitive industries are more likely to demand detailed and transparent sustainability disclosures. Firms that effectively integrate sustainability accounting are better positioned to meet these demands and gain stakeholder trust.

From a strategic perspective, SAI enables firms in these sectors to identify risks and opportunities related to environmental and social issues more accurately. This leads to better decision-making and improved performance outcomes. Consequently, the positive relationship between SAI and company performance is expected to be stronger in environmentally sensitive industries compared to less sensitive sectors.

H₄: The positive impact of Sustainability Accounting Integration on company performance is stronger in companies operating in environmentally sensitive sectors

III. RESEARCH METHOD

This study employs a quantitative research design utilizing panel data regression and Structural Equation Modeling–Partial Least Squares (SEM-PLS) to examine the relationships among Sustainability Accounting Integration, Management Control Systems, and company performance. A quantitative approach is appropriate given the structured, index-based measurement of SAI and the availability of standardized financial and sustainability disclosure data from IDX-listed companies.

The population comprises all non-financial companies listed on the IDX during the 2019–2023 observation period. A purposive sampling technique was applied with the following selection criteria: (1) companies continuously listed on the IDX throughout 2019–2023 without suspension or delisting; (2) companies publishing complete audited annual financial statements and sustainability reports for all five observation years; (3) companies with fiscal years ending December 31; and (4) companies that have adopted GRI Standards or equivalent sustainability reporting frameworks. Application of these criteria yielded a final sample of 112 companies, generating 560 firm-year observations.

The Sustainability Accounting Integration (SAI) index was constructed as a composite of three sub-dimensions: (i) the breadth and quality of ESG disclosures measured against GRI Standards criteria (scored on a 0–100 scale); (ii) the extent to which sustainability-linked performance indicators are formally embedded in MCS planning and monitoring mechanisms (assessed via survey and annual report content analysis); and (iii) the alignment between stated sustainability strategy and MCS control levers (incentive systems, governance structures, cultural programs). Financial performance was

operationalized using Return on Assets (ROA) and Tobin's Q, while non-financial performance was measured through a balanced scorecard index comprising customer satisfaction, operational efficiency, learning and innovation, and sustainability process indicators.

Control variables include firm size (natural logarithm of total assets), leverage (debt-to-equity ratio), company age, industry sector classification, and board independence ratio. Data were sourced from audited annual financial statements published on the IDX official website (idx.co.id), sustainability reports, and the OJK Electronic Reporting System. Statistical analyses were conducted using SmartPLS 4.0 for SEM-PLS estimation and Stata 17 for panel data regression with fixed effects specifications.

IV. RESULTS AND DISCUSSION

Results

Descriptive Statistics

Table 2 presents the descriptive statistics for the primary study variables across the 560 firm-year observations. The mean SAI Index of 58.3 (SD = 14.7) indicates moderate-to-good sustainability integration among sample companies, with substantial variation reflecting differences in sector-specific regulatory requirements and voluntary commitment levels. The mean ROA of 8.24% (SD = 6.81%) and mean Tobin's Q of 1.847 (SD = 0.923) are consistent with comparable studies of Indonesian listed companies during the same period.

Table 2. Descriptive Statistics of Primary Study Variables (N = 560 Firm-Year Observations)

Variable	Min	Max	Mean	Std. Dev.	Expected Direction
SAI Index (0-100)	21.4	94.7	58.3	14.7	Higher = Better
ROA (%)	-12.3	28.7	8.24	6.81	Higher = Better
Tobin's Q	0.412	5.893	1.847	0.923	Higher = Better
Non-Financial Perf. Index	32.1	91.8	67.4	12.3	Higher = Better
MCS Integration Score	18.7	96.2	62.8	15.4	Higher = Better
Firm Size (Ln Assets)	25.12	33.87	28.94	2.31	Control
Leverage (DER)	0.08	4.21	1.23	0.78	Control

Sources: Processed by researchers, 2025

Hypothesis Testing Results

Table 3 presents the results of the SEM-PLS path coefficient estimation for the primary hypotheses, while Table 4 presents the panel data regression results with fixed effects.

Table 3. SEM-PLS Path Coefficient Results

Hypothesis / Path	β Coeff.	T-Statistic	p-value	R ²	Result
H1a: SAI → ROA	0.312	7.842	0.000	0.387	Supported
H1b: SAI → Tobin's Q	0.287	6.913	0.000	0.341	Supported
H2: SAI → Non-Financial Perf.	0.418	9.124	0.000	0.452	Supported
H3a: SAI → MCS → ROA	0.198	5.231	0.000	-	Supported
H3b: SAI → MCS → Non-Fin. Perf.	0.267	6.847	0.000	-	Supported
H4: SAI × Sector → Perf.	0.154	3.892	0.001	0.421	Supported

Sources: Processed by researchers, 2025

This study provides comprehensive empirical evidence on the role of Sustainability Accounting Integration (SAI) in enhancing both financial and non-financial performance of firms. Based on 560 firm-year observations, the findings reveal that the average SAI Index indicates a moderate to relatively high level of sustainability integration among firms. This suggests that while companies have begun embedding sustainability principles into their accounting and reporting systems, the extent of implementation still varies significantly across industries and firms. Such variation can be attributed to differences in regulatory pressures, stakeholder expectations, and organizational commitment toward sustainability practices.

From a financial perspective, the results demonstrate that SAI has a positive and significant impact on Return on Assets (ROA) and Tobin's Q. This finding implies that firms with higher levels of sustainability integration tend to achieve better profitability and market valuation. Theoretically, this result is consistent with stakeholder theory, which posits that firms that effectively address stakeholder concerns are more likely to achieve superior performance outcomes. Additionally, legitimacy theory suggests that firms engaging in sustainability practices can enhance their legitimacy, thereby strengthening investor confidence and market perception.

The positive relationship between SAI and financial performance can also be explained through improved operational efficiencies and risk management. Firms that integrate sustainability into their accounting systems are better equipped to identify inefficiencies, reduce waste, and optimize resource utilization. Moreover, such firms are more proactive in managing environmental and social risks, which can reduce potential costs associated with regulatory penalties, reputational damage, and operational disruptions.

In addition to financial performance, the study finds that SAI significantly improves non-financial performance. This includes aspects such as organizational reputation, employee engagement, innovation capacity, and customer satisfaction. Non-financial performance plays a crucial role in building long-term competitive advantage, as it reflects the firm's ability to sustain its operations and maintain strong relationships with stakeholders. These findings align with the resource-based view (RBV), which emphasizes the importance of intangible assets in achieving sustainable competitive advantage.

Furthermore, the mediating role of Management Control Systems (MCS) highlights the importance of internal mechanisms in translating sustainability strategies into performance outcomes. The results indicate that SAI indirectly influences performance through MCS, suggesting that the effectiveness of sustainability integration depends on how well it is embedded within organizational control systems. MCS facilitates the alignment of organizational goals with sustainability objectives by incorporating sustainability metrics into performance evaluation, budgeting, and decision-making processes.

The presence of a significant mediation effect also implies that sustainability initiatives alone are not sufficient to improve performance unless they are supported by robust control systems. This finding underscores the importance of integrating sustainability into the core management processes of the firm rather than treating it as a peripheral activity.

Moreover, the moderating effect of industry sector suggests that the relationship between SAI and performance is context-dependent. Firms operating in environmentally sensitive industries are likely to experience stronger performance impacts from sustainability integration due to higher stakeholder scrutiny and regulatory requirements. This indicates that industry characteristics play a critical role in shaping the effectiveness of sustainability strategies.

Overall, this study contributes to the growing body of literature on sustainability accounting by providing empirical evidence on the mechanisms through which sustainability integration affects firm performance. The findings offer important managerial implications, emphasizing the need for firms to strengthen their sustainability accounting practices and align them with management control systems. By doing so, firms can not only improve their financial outcomes but also enhance their long-term sustainability and competitiveness.

Discussion

The results of this study provide robust empirical support for all four hypotheses, demonstrating that sustainability accounting integration within Management Control Systems represents a significant driver of both financial and non-financial company performance among IDX-listed companies. The positive and statistically significant path coefficients for H1 ($\beta = 0.312$ for ROA; $\beta = 0.287$ for Tobin's Q; both $p < 0.001$) are consistent with the findings of Eccles et al. (2014) in the United States context and Nurhayati et al. (2022) in the Indonesian context, confirming that the resource efficiency gains, risk mitigation benefits, and stakeholder relationship capital generated through systematic sustainability accounting translate into measurable financial value creation.

The particularly strong effect of SAI on non-financial performance ($\beta = 0.418$, $p < 0.001$) aligns with theoretical arguments derived from Stakeholder Theory: companies that systematically measure and manage their environmental and social impacts generate superior outcomes across multiple performance dimensions simultaneously including operational efficiency, employee engagement, customer satisfaction, and community relations precisely because they are managing a broader set of value-creating activities (Freeman et al., 2010; Hahn et al., 2015).

The significant mediating role of MCS in the SAI–performance relationship (H3) represents the most theoretically novel contribution of this study. The finding that formal MCS integration—particularly through planning controls that embed sustainability targets into strategic planning cycles and cybernetic controls that monitor sustainability metrics alongside financial KPIs—partially mediates the SAI–performance relationship suggests that sustainability accounting commitments must be institutionalized within the formal organizational control architecture to fully realize their performance benefits. Companies that disclose sustainability information without embedding sustainability metrics into formal management routines, incentive systems, and governance structures fail to capture the full operational and strategic benefits that integrated sustainability management can generate (Wijethilake, 2017; Malmi & Brown, 2008).

The significant sectoral moderating effect (H4) provides evidence that companies in extractive, manufacturing, and consumer goods sectors which face stronger regulatory environmental requirements, more visible stakeholder scrutiny, and greater operational sustainability risks derive stronger performance benefits from SAI compared to companies in lower-impact sectors. This finding is consistent with the Natural Resource-Based View of the firm (Hart, 1995), which predicts that pollution prevention and product stewardship capabilities generate superior competitive advantages in industries characterized by intense environmental pressures.

V. CONCLUSIONS AND SUGGESTIONS

Conclusion

This study provides robust empirical evidence that the integration of sustainability accounting within Management Control Systems positively and significantly affects both financial performance (ROA and Tobin's Q) and non-financial performance among IDX-listed companies during the 2019–2023 period. The MCS package serves as a critical mediating mechanism through which sustainability accounting commitments are translated into measurable performance outcomes, underscoring the importance of formal organizational architecture in converting sustainability aspirations into operational results.

The practical implications of this research are multifaceted. For company management, the findings suggest that investments in sustainability accounting system development—particularly the embedding of ESG metrics within formal planning targets, performance monitoring dashboards, and executive compensation structures generate measurable returns in both financial and non-financial performance dimensions. For the OJK and Indonesia Stock Exchange, the results provide empirical justification for strengthening mandatory sustainability reporting requirements and promoting integrated reporting frameworks that connect sustainability disclosures with financial reporting. For institutional investors increasingly incorporating ESG criteria into portfolio management decisions, the SAI index

developed in this study offers a practical screening tool for identifying companies with strong sustainability-performance integration.

This study has several limitations. First, the SAI index, while comprehensive, relies partially on subjective assessment of MCS–sustainability alignment through annual report content analysis, which may introduce measurement error. Second, the five-year observation period, while encompassing important structural changes (including the COVID-19 pandemic disruption), may be insufficient to fully capture the long-term performance effects of sustainability integration. Third, the sample is limited to companies with complete sustainability reporting, potentially introducing a selection bias toward larger, more sophisticated companies.

Future research directions include: developing a more granular SAI measurement instrument validated through primary survey data collected directly from CFOs and sustainability officers; examining the dynamic evolution of MCS–sustainability integration over longer observation periods; investigating the role of external assurance of sustainability reports in strengthening the SAI–performance relationship; and conducting comparative cross-country analysis examining how institutional context moderates the performance benefits of sustainability accounting integration across ASEAN emerging markets.

Implications for Practice

For Corporate Management and Investor Relations Officers:

Prioritize e-reporting infrastructure investments including integrated financial reporting systems, automated disclosure preparation technologies, and efficient audit coordination mechanisms that enable consistent early filing. Develop comprehensive digital communication strategies encompassing timely financial statements, supplementary disclosures, and investor presentation materials that collectively enhance transparency and stakeholder engagement. Implement robust internal control frameworks ensuring disclosure accuracy, completeness, and consistency to maintain credibility with capital market participants.

Establish systematic disclosure governance processes involving board oversight, management review committees, and cross-functional coordination teams ensuring timely information compilation and submission. Invest in auditor relationships and internal audit capabilities facilitating efficient audit completion and enabling early filing without compromising audit quality. Monitor market reaction patterns, liquidity metrics, and analyst feedback to continuously enhance disclosure effectiveness and communication quality.

Calculate and communicate market liquidity benefits from timely e-reporting adoption to internal stakeholders to build organizational support for disclosure infrastructure investments. Develop management incentive structures incorporating disclosure timeliness metrics and market reaction outcomes to embed transparency commitment throughout organizational leadership. Integrate disclosure considerations into strategic planning, performance management, and corporate communication systems to establish consistent early filing as organizational priority.

For Investors and Financial Analysts:

Incorporate e-reporting timeliness assessments into investment analysis and stock selection models to identify organizations with superior disclosure practices and reduced information risk. Evaluate filing timeliness consistency across multiple periods rather than isolated early filings to distinguish genuine transparency commitment from opportunistic timing manipulation. Monitor information asymmetry metrics including bid-ask spreads, trading volume patterns, and price impact measures to assess disclosure effectiveness beyond filing dates.

Develop sophisticated analytical frameworks incorporating disclosure timeliness signals into fundamental analysis, risk assessment, and valuation models. Utilize consistent early filing patterns as indicators of internal control quality, audit efficiency, and management competence that inform governance assessments and investment confidence. Engage with portfolio companies regarding e-reporting practices to encourage genuine transparency improvements generating value for both organizations and investors.

Advocate for enhanced e-reporting adoption and timeliness improvements across Indonesian capital markets through investor coalitions, engagement initiatives, and regulatory dialogue. Support regulatory initiatives strengthening disclosure requirements, enforcing filing deadlines, and penalizing late filing to enhance market fairness and information distribution equality. Contribute to investor education programs explaining e-reporting benefits and encouraging retail investor utilization of digital disclosure platforms.

For Regulators and Policymakers:

Design e-reporting regulations emphasizing substantive information asymmetry reduction and information distribution fairness rather than mechanical compliance with filing deadlines. Provide implementation guidance, technical assistance programs, and capacity building initiatives supporting companies in developing robust digital disclosure infrastructure, particularly for small and medium-sized enterprises with limited technology resources and accounting expertise.

Establish enforcement mechanisms ensuring e-reporting compliance through graduated penalties for late filing, public disclosure of compliance records, and potential trading suspensions for persistent violations. Create regulatory incentives encouraging early filing including recognition programs, fast-track approval processes for corporate actions, or preferential treatment in regulatory reviews. Facilitate capital market infrastructure development supporting e-reporting effectiveness including enhanced IDX platforms, mobile investor applications, and data analytics tools enabling efficient information processing.

Implement comprehensive investor education initiatives explaining e-reporting benefits, demonstrating platform utilization, and building digital literacy among retail investors to maximize disclosure democratization benefits. Monitor e-reporting adoption patterns, timeliness trends, and capital market effects through systematic research and disclosure database development to inform policy refinement and best practice identification. Collaborate with regional regulators through ASEAN capital market integration initiatives to harmonize e-reporting standards and facilitate cross-border investment flows.

Develop comprehensive market surveillance systems detecting suspicious trading patterns surrounding disclosure events to enforce insider trading prohibitions and protect information distribution fairness. Establish whistleblower protection mechanisms encouraging reporting of selective disclosure, information leakage, and other practices that undermine e-reporting fairness objectives. Create periodic market quality assessments measuring information asymmetry trends, liquidity improvements, and market efficiency enhancements to evaluate regulatory effectiveness and identify areas requiring additional intervention.

Suggestions for Future Research

Future research is encouraged to further extend and refine the findings of this study by addressing several important limitations and unexplored dimensions.

First, future studies should employ longitudinal research designs with extended observation periods to capture the long-term impact of Sustainability Accounting Integration (SAI) on firm performance. While this study covers a five-year period (2019–2023), sustainability practices often produce delayed effects, particularly in areas such as innovation, stakeholder trust, and reputational capital. Longer time horizons would allow researchers to better understand the dynamic and cumulative effects of sustainability integration within Management Control Systems (MCS).

Second, subsequent research may focus on developing more objective and granular measurement instruments for SAI, particularly by incorporating primary data collected through surveys or interviews with CFOs, sustainability managers, and internal auditors. This would enhance measurement validity and reduce potential subjectivity arising from content analysis of annual and sustainability reports.

Third, future studies should explore the role of external assurance and audit quality in sustainability reporting, examining whether third-party verification strengthens the relationship between SAI and company performance. The inclusion of assurance variables may provide deeper insights into

how credibility and reliability of sustainability disclosures influence stakeholder trust and investment decisions.

Fourth, it is recommended that future research investigates cross-country comparisons or multi-market analyses, particularly between emerging and developed economies. Such comparative studies would help identify whether institutional environments, regulatory frameworks, and market maturity moderate the effectiveness of sustainability accounting integration.

Fifth, future research could examine additional mediating and moderating variables, such as corporate governance quality, digital transformation, organizational culture, or innovation capability. These variables may provide a more comprehensive understanding of the mechanisms through which sustainability accounting influences firm performance.

Sixth, researchers are encouraged to adopt mixed-method approaches, combining quantitative analysis with qualitative case studies to gain deeper insights into how organizations practically implement sustainability accounting within MCS frameworks. This approach would enrich theoretical contributions by capturing contextual and behavioral dimensions that are not fully observable through secondary data.

Finally, future studies may explore the impact of sustainability accounting on specific stakeholder outcomes, such as investor behavior, cost of capital, employee engagement, and customer loyalty. Expanding the outcome variables beyond firm performance would contribute to a more holistic understanding of sustainability accounting as a strategic tool in modern organizations.

Limitations

This study provides important empirical insights into the integration of sustainability accounting within Management Control Systems (MCS) and its impact on company performance. However, several limitations should be acknowledged to provide a balanced interpretation of the findings and to guide future research development.

First, this study relies primarily on secondary data obtained from annual reports and sustainability reports of companies listed on the Indonesia Stock Exchange (IDX). Although these sources are widely recognized and commonly used in academic research, they are subject to potential bias, including selective disclosure and impression management. Companies may strategically present sustainability information to enhance their corporate image, which may not fully reflect actual practices. As a result, the Sustainability Accounting Integration (SAI) index used in this study may not entirely capture the real extent of sustainability implementation within organizations.

Second, the measurement of the SAI construct involves a certain degree of subjectivity. While the study adopts structured criteria based on ESG indicators and recognized frameworks such as GRI Standards, the assessment of qualitative disclosures sparticularly those related to the alignment between sustainability practices and MCS requires interpretation. This introduces the possibility of evaluator bias, especially when analyzing narrative disclosures and strategic statements. Although efforts were made to ensure consistency, complete objectivity in content analysis remains challenging.

Third, the sample of this study is limited to non-financial companies listed on the Indonesia Stock Exchange. This restriction may affect the generalizability of the findings, as companies in the financial sector operate under different regulatory environments and sustainability reporting requirements. Additionally, the institutional and regulatory context in Indonesia may differ significantly from other countries, limiting the applicability of the findings to other emerging or developed markets.

Fourth, the observation period of 2019–2023, although sufficient to capture recent developments including the COVID-19 pandemic, may still be relatively short to fully observe the long-term impact of sustainability accounting integration. Sustainability initiatives often produce effects that materialize over a longer time horizon, particularly in terms of reputational capital, innovation outcomes, and stakeholder trust. Therefore, the results of this study may primarily reflect short- to medium-term effects rather than long-term sustainability performance.

Fifth, the study employs a quantitative research approach using SEM-PLS and panel data regression techniques. While these methods are effective for identifying statistical relationships and testing hypotheses, they may not fully capture the underlying organizational and behavioral processes

associated with sustainability integration. The absence of qualitative insights, such as interviews or case studies, limits the ability to understand how sustainability accounting is implemented in practice and how internal stakeholders respond to these initiatives.

Sixth, potential endogeneity issues may arise in examining the relationship between sustainability accounting integration and company performance. Although this study incorporates several control variables, such as firm size, leverage, and company age, there remains a possibility of omitted variable bias or reverse causality. For instance, firms with stronger financial performance may have greater resources to invest in sustainability initiatives, leading to a reciprocal relationship that is not fully addressed in the current research design.

Seventh, this study does not explicitly account for external institutional factors, such as regulatory enforcement intensity, investor pressure, or industry-specific environmental risks. These factors may significantly influence both the adoption and effectiveness of sustainability accounting practices. The exclusion of such variables may limit the comprehensiveness of the model in explaining variations across firms and sectors.

Finally, the study does not incorporate the role of technological advancement, particularly digital transformation and integrated reporting systems, in supporting sustainability accounting integration. As companies increasingly adopt digital tools and data analytics to enhance reporting and decision-making processes, the interaction between technology and sustainability practices may become an important determinant of firm performance. The omission of this aspect suggests an area for further exploration.

Despite these limitations, this study contributes to the literature by providing empirical evidence on the role of sustainability accounting integration within MCS in improving company performance in an emerging market context. The identified limitations offer valuable directions for future research to enhance the robustness and scope of analysis in this field.

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