

# STRATEGIC MANAGEMENT ACCOUNTING INTEGRATION IN ESG PERFORMANCE: AN EMPIRICAL STUDY AT PT PERKEBUNAN NUSANTARA III (PERSERO)

Arief harwanto<sup>1\*</sup>, Dr. Dian Indri Purnamasari, Ak., CA<sup>2</sup>

<sup>1,2</sup>UPN "Veteran" Yogyakarta (Indonesia)

\*) email: [harwanton3@gmail.com](mailto:harwanton3@gmail.com)

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## Abstract

This research analyzes the influence of Strategic Management Accounting (SMA) Integration on ESG Performance at PT Perkebunan Nusantara III (Persero), with Organizational Capabilities as a moderating variable and Regulatory Pressure as a mediating variable. The paradigm shift from shareholder capitalism toward stakeholder capitalism requires companies to create sustainable value for all stakeholders. As the largest State-Owned Enterprise (BUMN) in the palm oil and rubber plantation sector, PTPN III faces multidimensional pressure to integrate ESG practices into its operational activities. This research employs a causal explanatory design using a questionnaire survey method with 33 respondents from executive, middle, and operational management levels. Data were analyzed using linear regression, path analysis, and Moderated Regression Analysis (MRA). The results demonstrate that SMA Integration has a statistically significant positive effect on ESG Performance ( $\beta=0.633$ ;  $p<0.001$ ). However, Organizational Capabilities do not moderate this relationship ( $p=0.090$ ), and Regulatory Pressure does not mediate the relationship between SMA Integration and ESG Performance ( $p=0.106$ ). The primary findings indicate that PTPN III has effectively utilized SMA information in achieving ESG performance targets without relying on regulatory pressure or organizational capabilities as mediating or moderating factors. This research contributes theoretically by integrating Institutional Theory and Resource-Based View in the context of sustainability, and provides practical contributions as a benchmark for ESG implementation in the Indonesian plantation sector.

**Keywords:** Strategic Management Accounting, ESG Performance, Organizational Capabilities, Regulatory Pressure, BUMN.

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## 1. INTRODUCTION

Recent business developments have experienced fundamental changes from financial metric-based performance measurement toward multidimensional sustainability indicators encompassing Environmental, Social, and Governance (ESG) dimensions. This paradigm shift represents an evolution from shareholder capitalism toward stakeholder capitalism, wherein companies are expected to create sustainable value for all stakeholders. Research on the integration of Strategic Management Accounting (SMA) and ESG performance remains underexplored comprehensively. Previous academic literature has treated SMA and ESG as separate domains. Hamoudah (2025) demonstrated that SMA practices enhance the quality of ESG reporting, while Maelah et al., (2022) conveyed that SMA serves as a valuable strategic resource; however, comprehensive integration with ESG performance dimensions remains unexplored. Pumiviset & Suttipun (2024) confirmed the positive effects of SMA on economic, environmental, and social performance in green

manufacturing in Thailand; however, this model has not been adapted for the plantation sector with its distinctive ESG risk profile.

PT Perkebunan Nusantara III (Persero) exemplifies organizational complexity with high environmental and social risk exposure. The 2023 Sustainability Report documented achievement of multiple international certifications (RSPO, ISPO, Rainforest Alliance) and a Sustainalytics ESG Risk Rating of 17.1 (low-risk category), representing a significant commitment to sustainability practices. However, no comprehensive empirical research has investigated how systematic SMA integration drives ESG performance within the context of state-owned enterprises (BUMN). The research is grounded in two theoretical perspectives: *First*, Institutional Theory DiMaggio & Powell, (2021) explains how organizations adopt structures and respond to institutional pressures through coercive, mimetic, and normative isomorphism for legitimacy and survival. *Second*, Resource-Based View Theory (Barney, 1991) posits that sustained competitive advantage derives from resources meeting VRIO criteria (Valuable, Rare, Inimitable, Non-substitutable); in this context, SMA is conceptualized as a strategic resource integrating ESG information into strategic decision-making.

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## 2. METHODOLOGY

This research employs a causal-explanatory design utilizing quantitative methodology with a deductive approach to test four pre-specified hypotheses derived from the theoretical framework of Resource-Based View (RBV) and Institutional Theory. A cross-sectional survey design was implemented, collecting data during the concentrated period of September-November 2025. The research is original empirical in nature, leveraging primary survey data with triangulation of secondary data from organizational documents. The quantitative methodological approach utilizes a structured questionnaire with five-point Likert scale measurement (1=Strongly Disagree; 5 = Strongly Agree) for all variables.

This research employs four primary variables that can be described as follows Strategic Management Accounting Integration (Independent Variable) is measured using three critical dimensions:(1) Environmental Scanning, (2) Competitor Cost Assessment, and (3) Strategic Benchmarking. ESG Performance (Dependent Variable) is measured using three integrated components : (1) Environmental Performance, (2) Social Performance, and (3) Governance Performance. Organizational Capabilities (Moderating Variable) is measured using three complementary dimensions: (1) Learning Capabilities, (2) Adaptation Capabilities, and (3) Integration Capabilities. Regulatory Pressure (Mediating Variable).

### 1) Data Sources And Sampling

The research population encompasses all managerial levels at PT Perkebunan Nusantara III (Persero) and its subsidiary entities. The sampling methodology utilized purposive sampling with  $n = 33$  respondents meeting specific criteria including a minimum tenure of two years, direct involvement in strategic planning or ESG implementation, and executive-level management positions. Data were collected through a structured questionnaire distributed via Google Forms to personnel meeting these criteria. Instrument validation included Cronbach's Alpha reliability testing (acceptance threshold  $> 0.50$ ), Pearson correlation validity assessment ( $p < 0.05$ ), and item-total correlation verification to ensure internal consistency and convergent

validity. Classical assumption testing encompassed normality assessment through One-Sample Kolmogorov-Smirnov testing, multicollinearity evaluation through Tolerance and Variance Inflation Factor (VIF) analysis, and heteroscedasticity checking utilizing the Glejser test, ensuring data met regression analysis requirements.

## 2) Research Hypotheses

This research employs four hypotheses specifically formulated based on literature review and theoretical framework as follows:

H1: Strategic Management Accounting Integration has a significant positive influence on ESG Performance, expecting SMA to serve as a strategic enabler of sustainability performance.

H2: Organizational Capabilities moderate the positive influence of Strategic Management Accounting Integration on ESG Performance, expecting organizational capabilities to strengthen SMA's effectiveness in driving ESG.

H3: Regulatory Pressure mediates the influence of Strategic Management Accounting Integration on ESG Performance, expecting regulatory compliance mechanisms to serve as a primary pathway for ESG transformation.

H4: Organizational Capabilities moderate the mediating influence of Regulatory Pressure in the relationship between Strategic Management Accounting Integration and ESG Performance, forming a conditional mediation model wherein organizational capabilities alter the strength of the regulatory pressure mediation pathway.

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## 3. FINDINGS AND DISCUSSION

### 3.1 Direct Effect Of Sma Integration On Esg Performance

The testing results demonstrate that Strategic Management Accounting Integration has a statistically significant positive influence on ESG Performance with standardized coefficient  $\beta = 0.633$  ( $p < 0.001$ ), unstandardized coefficient 0.677 (SE = 0.089), and t-statistic 7.493. The model demonstrates excellent fit with  $R^2 = 0.661$ , Adjusted  $R^2 = 0.633$ , F-statistic = 56.091, and F-significance = 0.000\*\*\*, indicating high statistical significance and substantial predictive power. Each one-unit increase in SMA Integration implementation results in a 0.633-unit increase in ESG Performance, demonstrating a large practical effect beyond statistical significance. The Adjusted  $R^2$  value of 0.633 reveals that 63.3% of variance in ESG Performance can be explained by SMA Integration, while the remaining 36.7% is influenced by factors not examined. This magnitude of explanation is exceptional in organizational behavior research, where typical  $R^2$  values frequently fall between 20-40%. These findings are consistent with and reinforce prior research by Pumiviset & Suttipun, (2024), who found that SMA exerts a significant direct positive influence on economic, environmental, and social performance in green manufacturing in Thailand, and research by Maelah et al., (2022), which demonstrated that SMA information, when properly managed as a strategic resource, positively influences organizational performance.

This strong positive relationship indicates that PT Perkebunan Nusantara III (Persero) has effectively utilized SMA Integration information as a critical strategic enabler for supporting ESG Performance. The three dimensions of SMA Integration—Environmental Scanning, Competitor Cost Assessment, and Strategic Benchmarking—operate synergistically to facilitate continuous improvement and

adoption of leading-edge sustainability practices. The integration of ESG information into the strategic decision-making process can further ensure that the Company has considered sustainability elements in corporate strategy formulation and implementation, rather than merely as compliance add-ons. These findings carry several theoretical implications for RBV, demonstrating that SMA can function as a strategic resource meeting VRIO criteria as follows: First, Valuable, providing competitive ESG intelligence that enhances decision-making quality; Second, Rare, in that systematic integration of SMA and ESG is not widespread in the Indonesian plantation industry; Third, Inimitable, requiring organizational routines, culture, and expertise that are difficult to replicate; and Fourth, Organized, embedded within organizational structure, processes, and systems. Systematic integration of SMA techniques with ESG metrics creates a distinctive organizational capability that competitors find difficult to imitate, generating sustainable competitive advantage in sustainability performance.

### 3.2 Moderation By Organizational Capabilities

Moderated Regression Analysis revealed that Organizational Capabilities do not significantly moderate the influence of Strategic Management Accounting Integration on ESG Performance. Although SMA Integration ( $\beta = 0.571$ ,  $p < 0.001$ ) and Organizational Capabilities ( $\beta = 0.189$ ,  $p = 0.256$ ) demonstrated main effects, the interaction term SMA  $\times$  OC was not significant ( $\beta = 0.067$ ,  $p = 0.141$ ), indicating the absence of a moderation effect. The total model  $R^2$  increased minimally to 0.693 (Adjusted  $R^2 = 0.672$ ), with  $\Delta R^2$  of only 0.032 (3.2% incremental variance explained), a non-significant increase both statistically and practically.

The absence of a moderation effect indicates that within the PTPN III context, the effectiveness of SMA Integration in driving ESG Performance does not depend on the level of Organizational Capabilities. In other words, SMA Integration works equally effectively in driving ESG Performance regardless of whether organizational capabilities are high or low, though these findings appear counter-intuitive to contingency theory expectations. Several factors may explain this non-significant finding: *First*, through Institutionalization of Mature SMA Practice, PTPN III may have successfully institutionalized SMA practices across all organizational levels through standardized processes, embedded routines, and diffused awareness. The effectiveness of SMA becomes less dependent on specific organizational capabilities because it has become "the way we do things here," embedded in organizational DNA. The Company has successfully delegated and fostered awareness among individual human resources to utilize SMA information in executing their KPIs, particularly to achieve ESG targets. *Second*, through Comprehensive SOP Standardization, PTPN III has implemented comprehensive Standard Operating Procedures (SOPs), clear guidelines, and good corporate governance frameworks that position information as the most critical factor in achieving ESG Performance, aiming to reduce dependence on varying organizational capabilities. Standardization creates consistency and reduces variance in execution quality across organizational units. *Third*, through Reaching Mature Integration Phase, given that this research was conducted in 2025, after completion of corporate action and organizational integration, processes and systems for leveraging SMA information are already deeply embedded at this maturity stage, making variation in organizational capabilities less influential. Organizational learning has occurred collectively, raising baseline capabilities across the board.

These findings differ from Liang et al., (2022), who found that absorptive and adaptive capability significantly affected sustainable management performance through ESG strategy implementation as a mediator. The difference may reflect (a) different industry contexts (general manufacturing vs. plantation); (b) different independent variables (SMA Integration vs. general environmental strategy); (c) different organizational maturity stages in the sustainability journey.

### 3.3 Mediation By Regulatory Pressure And Moderated Mediation

Path analysis revealed that Regulatory Pressure does not significantly mediate the relationship between SMA Integration and ESG Performance. Although SMA Integration significantly influences perceived Regulatory Pressure (a path:  $\beta = 0.474$ ,  $p = 0.026^*$ ), regulatory pressure subsequently failed to influence ESG Performance (b path:  $\beta = 0.197$ ,  $p = 0.191$ ). The indirect effect (0.093) was not significant (95% CI: -0.031 to 0.287, including zero), while the direct effect SMA to ESG (0.709,  $p < 0.001$ ) substantially exceeds the indirect path, indicating non-mediation despite a proportion mediated of 11.6%.

The Moderated Mediation findings consistent with the fourth hypothesis indicate that Organizational Capabilities do not significantly moderate the mediating influence of regulatory pressure in the SMA Integration-ESG Performance relationship. The interaction coefficient  $OC \times RP$  (-0.528,  $p = 0.212$ ) was non-significant, though the negative direction is theoretically interesting. The overall model explains 64.1% of variance in ESG Performance, leaving 35.9% explained by other factors. All parameters in the moderated mediation model were non-significant ( $p > 0.05$ ), indicating the absence of conditional indirect effects across levels of organizational capabilities. These findings indicate the absence of a significant correlation between government pressure and ESG Performance achievement at PTPN III. Although operating under a dual-purpose mandate, PTPN III is not entirely dependent on government pressure for driving ESG performance. The primary factors influencing this are the existence of a deeply internalized positive sustainability culture; even without government pressure, PTPN III proactively pursues and utilizes SMA information to achieve ESG. These research findings are inconsistent with several studies establishing regulatory pressure as a significant mediator, including research by Rahmawati et al., (2024), who found that government intervention through POJK 51 and PROPER significantly impacted Indonesian companies' motivation toward sustainability commitment; other research showing that institutional pressure enhances corporate ESG performance by raising ESG attention Zhou et al., (2019); and Hamoudah, (2025), who found that coercive pressure from regulatory frameworks significantly influenced ESG adoption through ethical leadership behavior.

Based on Institutional Theory, findings regarding non-mediation of regulatory pressure reveal counter-intuitive findings relative to the coercive isomorphism predictions of classical Institutional Theory (DiMaggio & Powell, 2021). This theory posits that regulatory pressure functions as a coercive mechanism forcing organizational adoption of institutional practices. These findings suggest otherwise; instead, PTPN III pursues ESG performance through internal strategic orientation rather than external regulatory compliance mechanisms. The direct path SMA to ESG (0.709) substantially exceeds the indirect path mediated by regulatory pressure (0.093), indicating that SMA functions primarily as a strategic information system for autonomous sustainability management rather than as a regulatory compliance tool.

Theoretically, mature organizations can transcend external regulatory drivers through the development of internal strategic systems and stakeholder value commitments.

These findings enrich Institutional Theory by providing empirical evidence that mature organizations can function as institutional entrepreneurs, proactively shaping sustainability standards within their industry rather than merely responding to institutional pressures. PTPN III demonstrates autonomous ESG commitment rooted in strategic management accounting information integration, independent of regulatory pressure intensity. The non-mediation findings indicate that PTPN III's ESG achievement derives primarily from strategic management accounting information integration that enables autonomous decision-making, rather than from reactive responses to regulatory pressure. The organization demonstrates the capacity to establish self-determined ESG commitments aligned with stakeholder expectations and organizational values, independent of regulatory mandate intensity.

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## 4. CONCLUSION

### 1) Summary of Conclusions

Based on the discussion of results, the following conclusions can be drawn:

First, Hypothesis 1 demonstrates a positive influence; the robust positive relationship ( $\beta = 0.633$ ,  $p < 0.001$ ) validates SMA as a strategic resource meeting Resource-Based View criteria. Environmental scanning, competitor cost assessment, and strategic benchmarking enable the organization to systematically identify ESG opportunities, establish sustainability benchmarks against industry leaders, and enhance ESG performance trajectories. The magnitude of the coefficient indicates that SMA integration intensity serves as a major organizational driver of ESG achievement, surpassing alternative predictive mechanisms.

Second, Hypothesis 2 is concluded to have no influence; the non-significance of organizational capability moderation ( $p = 0.141$ ) reveals that PTPN III has achieved organizational maturity wherein SMA-ESG integration functions effectively across all levels of the hierarchy. Procedures for environmental scanning, competitor assessment, and strategic benchmarking have become standardized organizational processes rather than specialist competencies. This finding enriches contingency theory by demonstrating a threshold effect—organizations can transcend contingency dependence through institutional embedding of practices.

Third, Hypothesis 3 is concluded to have no influence; regulatory pressure does NOT significantly mediate the influence of SMA Integration on ESG Performance. Although SMA Integration influences perceived Regulatory Pressure, the latter does not significantly influence ESG Performance when controlling for SMA Integration. This indicates that PTPN III, despite operating under a dual-purpose mandate, is not entirely dependent on government pressure to achieve ESG performance. Instead, the company has developed a positive organizational culture wherein ESG is pursued proactively utilizing SMA information, independent of external regulatory pressure.

Fourth, Hypothesis 4 is concluded to have no influence; Organizational Capabilities do NOT significantly moderate the mediating influence of Regulatory Pressure in the SMA Integration-ESG Performance relationship. This reinforces the finding that PTPN III has implemented comprehensive SOPs, guidelines, and good corporate governance that make information, rather than specific capabilities or

regulatory compliance pressure, the most critical factor in achieving ESG Performance.

## 2) Theoretical Contributions

The research provides significant theoretical contributions:

- a. Integration of SMA and ESG Literature, filling a gap by developing an integrated framework connecting Strategic Management Accounting with ESG performance, expanding the boundaries of SMA theory from traditional competitive advantage focus to encompass sustainability performance;
- b. Extension of Institutional Theory, providing nuanced insights that mature organizations can transcend compliance-driven responses and develop internalized sustainability values, supporting the concept of "institutional entrepreneurship";
- c. Enrichment of Resource-Based View, demonstrating empirically how SMA functions as a strategic resource meeting VRIO criteria in the ESG context, showing that systematic integration of SMA techniques creates organizational capabilities difficult for competitors to imitate; Understanding of Dual-Purpose State-Owned Enterprises, demonstrating that successful SOEs can integrate profit motives and social missions through systematic management accounting practices, achieving ESG performance beyond regulatory requirements.

## 3) Limitations and Future Research Directions

### a. Limitations

The research presents findings specific to PT Perkebunan Nusantara III (Persero) within the Indonesian plantation sector context (n = 33); generalization to other SOE sectors or private companies requires additional research. The cross-sectional design limits causal inferences regarding temporal dynamics and potential reverse causality. Unexamined alternative variables, including the quality of ESG governance structures, sophistication of technology infrastructure, intensity of stakeholder engagement mechanisms, and executive ESG commitment, may contribute to ESG performance variance beyond the SMA-focused model presented.

### b. Future Research Directions

Subsequent research should employ longitudinal designs investigating the SMA-ESG relationship across multiple organizational cycles. Comparative research examining SOE sectors (plantation, mining, energy, infrastructure) will illuminate sector-specific contingencies. Mixed-method approaches combining interviews with strategic decision-makers and observational studies of SMA implementation processes will provide qualitative depth complementing quantitative findings. Investigations combining objective ESG ratings data from external agencies (Sustainalytics, S&P Global) alongside perceptual measures will strengthen measurement validity. Cross-organizational research examining both SOE entities and private sector comparators will clarify whether SOE-specific characteristics (dual mandate, government ownership, regulatory environment) moderate the SMA-ESG relationship. Future research should investigate alternative moderators/mediators including ESG governance quality, stakeholder engagement intensity, and organizational strategic orientation toward sustainability.

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