

Strategic Management Accounting and Cooperative Performance: The Moderating Role of Supervisory Board Capability

Made Susilawati* Rivontio Tasib

Universitas Persatuan Guru 1945 NTT, Indonesia

ABSTRACT

Purpose – This study examines the associations of Strategic Management Accounting (SMA) and Supervisory Board Capability (SBC) with perceived cooperative performance and assesses whether SBC moderates the relationship between SMA and performance.

Design/methodology/approach – A cross-sectional, matched-dyadic, multi-informant design was applied to 99 active cooperatives. Executive-management informants reported SMA use and perceived cooperative performance, while supervisory-board informants independently reported SBC. The two role-specific records were linked using cooperative identification codes, and no cross-informant averaging was conducted. The resulting 99 matched cooperative dyads were analyzed using partial least squares structural equation modeling with 5,000 bootstrap resamples.

Finding/Results – SMA was positively associated with perceived cooperative performance ($\beta = 0.361$, $p < 0.001$), and SBC was also positively associated with performance ($\beta = 0.342$, $p < 0.001$). The SMA $\times$ SBC interaction was positive and statistically significant ($\beta = 0.320$, $p = 0.046$), but its small effect size ($f^2 = 0.062$) and p value close to the conventional threshold indicate that the moderating pattern should be interpreted cautiously.

Originality/Value – This study defines supervisory board capability as the board's collective ability to apply financial, regulatory, risk-monitoring, and governance expertise through strategic questioning, accountability, and corrective follow-up. The multi-informant design reduces source overlap between board capability and management-rated constructs, but it does not establish causality or eliminate all common-method concerns.

ARTICLE INFO

Keywords:

Cooperative Performance, Contingency Theory, PLS-SEM, Quasi-Moderation, Strategic Management Accounting

Article Information:

Received: 11/07/2026

Revise: 25/07/2026

Accepted: 10/08/2026

ISSN:

2985-3168 (Online)

2985-3222 (Print)

*Corresponding Author at:

Department of Accounting, Faculty of Economics, Universitas Persatuan Guru 1945 NTT, Jl. P. A. Manafe No. 7, Kayu Putih, Oebobo, Kupang 85116, East Nusa Tenggara, Indonesia.

E-mail address: madesusilawati10@yahoo.co.id

The work is licensed under a [Creative Commons Attribution-ShareAlike 4.0 International \(CC BY-SA 4.0\)](https://creativecommons.org/licenses/by-sa/4.0/)



1. Introduction

Cooperatives serve as fundamental mechanisms for grassroots economic empowerment, financial inclusion, and the advancement of local small and medium-sized enterprises, particularly in developing economies. Structured legally as mutual economic associations owned and democratically governed by their members, these entities face a challenging dual imperative: maintaining commercial competitiveness while simultaneously maximizing member-centric social value. However, a pervasive operational paradox characterizes the cooperative sector. Regulatory audits and regional development reports consistently highlight a significant vulnerability: a substantial number of registered cooperatives remain structurally inert, evidenced by capital depreciation, escalating non-performing loan ratios, and a recurring inability to conduct mandatory Annual Member Meetings (Rapat Anggota Tahunan/RAT) (Wati & Mildawati, 2022). This institutional inertia signifies systemic deficiencies in strategic planning, transparent administrative oversight, and internal accountability frameworks (Soleh & Rahayu, 2023).

To effectively navigate highly volatile environments and compete with aggressive commercial micro-finance institutions, cooperatives must transition from traditional, backward-looking cash-based bookkeeping to advanced administrative control systems (Gschwantner & Hiebl, 2022). Contemporary literature in management accounting identifies Strategic Management Accounting (SMA) as an optimal toolkit for achieving organizational robustness (Hasan & Rohman, 2023). SMA integrates elements such as environmental scanning, competitor benchmarking, customer/member lifetime value assessment, and non-financial performance metrics into strategic decision-making processes (Susilawati & Pratama, 2023). By incorporating these techniques, organizations can shift from a reactive stance to proactive risk mitigation (Mahapsari & Supriyadi, 2022). Numerous corporate studies have affirmed a positive correlation between the adoption of SMA and superior organizational performance (Ahmad & Zabri, 2021). Nevertheless, an implementation gap persists within the cooperative sector; a majority of entities treat transactional records as mere compliance documents rather than leveraging them for strategic advancement (Adhariani & Wijayaningsih, 2023; Hasan & Rohman, 2023).

Viewing through the lens of Contingency Theory, the administrative utility of any management accounting system is contingent upon its context. Its performance-enhancing efficacy is significantly influenced by internal organizational factors, particularly governance capabilities (Otley, 2022; Oyewo, 2022). Within the cooperative structure, the Supervisory Board (Dewan Pengawas) is the primary internal body responsible for overseeing management decisions and safeguarding member assets (Widanaputra & Sari, 2022). Unfortunately, these supervisory bodies often face a considerable capability gap (Setyawan & Sukirman, 2023). Supervisors are frequently selected based on social standing or political affiliations rather than technical expertise (Lestari & Supriyanto, 2023). Furthermore, deeply ingrained social dynamics, such as a reluctance to challenge peers, can undermine their critical oversight role (Susilawati & Pratama, 2023). Consequently, these oversight bodies may become nominal entities, comprising individuals lacking financial acumen, unable to interpret financial statements, and incapable of identifying institutional risks (Agustina & Sukirman, 2022; Yulianto & Solikhah, 2024).

Prior studies generally report a positive relationship between Strategic Management Accounting and organizational performance (Ahmad & Zabri, 2021; Nuhu et al., 2024), but they often treat this relationship as direct and relatively stable. This assumption may be incomplete in cooperatives, where strategic accounting information is prepared by management but evaluated and followed up through member-based governance. At the same time, cooperative-governance studies generally position Supervisory Board Capability as a direct predictor of performance (Agustina & Sukirman, 2022; Widanaputra & Sari, 2022), leaving unclear whether board capability also changes the extent to which SMA information is translated into organizational action. The unresolved issue, therefore, is not only whether SMA is associated with cooperative performance, but also under what governance capability this relationship becomes stronger.

This study addresses this issue by positioning Supervisory Board Capability in two theoretically distinct roles: as a direct governance resource that supports monitoring and accountability, and as a boundary condition that strengthens the use of SMA information in strategic decisions. This dual-role model links the production of strategic accounting information with the governance capability required to interpret and act on that information. The contribution therefore lies not merely in testing SMA in a cooperative setting, but in explaining when and why its performance benefits may vary.

Accordingly, this study examines whether SMA use is positively associated with perceived cooperative performance, whether Supervisory Board Capability is positively associated with perceived cooperative performance, and whether board capability strengthens the relationship between SMA use and perceived cooperative performance.

Theoretically, this study integrates Agency Theory and Contingency Theory by explaining how board capability contributes to performance through both direct governance mechanisms and the effective use of strategic accounting information. Practically, the findings may help cooperatives and regulatory bodies develop clearer competency standards, information-access procedures, and supervisory training programs. These implications are presented as evidence-based directions rather than definitive policy prescriptions because the study uses cross-sectional and perceptual data.

In this study, competence and capability are conceptually distinguished. Competence refers to the knowledge, skills, financial literacy, regulatory understanding, and expertise possessed by individual board members. Capability refers to the supervisory board's collective ability to mobilize and apply those competencies within recurring governance processes. Supervisory Board Capability therefore includes not only the possession of relevant expertise but also its application through independent review, strategic questioning, risk monitoring, accountability demands, resource-priority discussions, and follow-up of corrective actions. The term Supervisory Board Capability is used consistently because the proposed moderating role concerns deployed governance capacity rather than individual knowledge alone.

2. Literature Review & Hypothesis Development

This study is grounded in the theoretical synthesis of Agency Theory (Obboh & Ajibolade, 2021). Agency Theory explains why effective supervision is needed when management possesses more operational and financial information than cooperative members and their representatives. A capable supervisory board can reduce this information asymmetry by

reviewing management decisions, monitoring risk, and enforcing accountability (Cornforth, 2004; Spear, 2004). This mechanism explains the direct relationship between Supervisory Board Capability and cooperative performance, independently of the level of SMA use.

Contingency Theory extends this explanation by proposing that the value of SMA depends on the organizational capability available to interpret and act on strategic information (Chen et al., 2022; Otley, 2022). SMA may generate forward-looking financial and non-financial information, but this information does not automatically improve performance. Its usefulness depends partly on whether the supervisory board can evaluate strategic reports, question management decisions, and ensure appropriate follow-up. Together, the two theories explain why board capability may contribute directly to performance and simultaneously strengthen the relationship between SMA and performance.

2.1. Strategic Management Accounting and Cooperative Performance

Strategic Management Accounting (SMA) delivers forward-looking, competitor-oriented, and member-focused financial and non-financial information, enabling cooperatives to evolve from reactive entities into proactive market participants (Bromwich, 1990; Guilding et al., 2000). By employing strategic tools such as benchmarking, life-cycle costing, and customer/member profitability analysis, executive management can optimize pricing strategies and allocate capital efficiently in dynamic regional economic conditions (Al-Mawali, 2021). By providing forward-looking and externally oriented information, SMA may improve the quality of pricing, resource allocation, risk assessment, and member-service decisions. Cooperatives that use these practices more extensively are therefore expected to report stronger financial, social, and compliance-related performance. Based on this mechanism, the following hypothesis is proposed (Elhamma, 2024; Nuhu et al., 2024). Consequently, we propose the following hypothesis: *“The use of Strategic Management Accounting is positively associated with perceived cooperative performance.”* (H1)

2.2. Supervisory Board Capability and Cooperative Performance

Beyond its role in contextual alignment, the human capital and technical expertise vested in the supervisory board directly contribute to organizational health. Drawing from governance literature, a capable board possessing strong financial literacy and risk oversight capabilities acts as an active internal safeguard against managerial inefficiency, resource misappropriation, and structural irregularities (Agustina & Sukirman, 2022; Widanaputra & Sari, 2022). Within the cooperative framework, supervisors with in-depth knowledge of regulations and diligent auditing practices ensure that credit risks (such as Non-Performing Loans) are managed effectively and that mandatory financial accountability standards are rigorously adhered to (Kaleshu & Ndiege, 2023; Yulianto & Solikhah, 2024). Conversely, a supervisory board that functions merely ceremonially or has limited capability can lead to governance voids, resulting in asset decline and operational failures (Sari & Utama, 2022). This direct relationship differs from the moderating role proposed in H3 because it reflects the independent contribution of board capability through monitoring, risk control, and accountability. Therefore, we hypothesize: *“Supervisory Board Capability is positively associated with perceived cooperative performance.”* (H2)

2.3. The Moderating Role of Supervisory Board Capability

Contingency Theory suggests that the organizational value of SMA depends partly on the governance processes through which strategic information is evaluated and acted upon. SMA

produces forward-looking financial and non-financial information, competitor comparisons, risk indicators, and evidence of performance deviations. However, the availability of such information does not automatically result in organizational action.

A capable supervisory board may strengthen the use of SMA through several connected processes. First, the board can critically examine the assumptions, relevance, and reliability of strategic reports. Second, it can use the information to improve monitoring quality and identify financial, operational, or regulatory risks. Third, the board can request explanations from management and establish accountability for identified deviations. Fourth, the board can participate in resource-priority discussions and request corrective actions. Finally, it can monitor whether the agreed actions are implemented consistently. These processes may increase the extent to which SMA information is translated into disciplined organizational decisions.

When board capability is limited, strategic reports may remain underused even when technically available. At higher levels of capability, the board may be better positioned to connect accounting information with strategic questioning, accountability, resource allocation, and implementation follow-up. These intermediate processes are proposed as theoretical mechanisms and were not estimated as mediating variables in the present model. Based on this reasoning, the following hypothesis is proposed: *"Supervisory Board Capability positively moderates the relationship between SMA use and perceived cooperative performance."* (H3)

3. Methodology

3.1. Research Design, Population, and Sample

This study employs a quantitative, cross-sectional explanatory research design with an institutional unit of analysis. The target population consists of active cooperatives operating within urban and regional microfinance sectors. Given the extensive geographical spread, active operational status was a prerequisite for inclusion, as only active entities maintain functional management accounting systems and engage in regular internal governance activities. Employing standard sample size calculations for structural equation models, the minimum requisite sample size was determined to be 99 cooperatives.

To reduce source overlap, the study used a matched-dyadic, multi-informant data-collection design. One executive-management informant from each cooperative evaluated SMA use and perceived cooperative performance, while one supervisory-board informant independently evaluated Supervisory Board Capability. The two responses were linked using a unique cooperative identification code.

No scores were averaged across the two respondents because they evaluated different role-relevant constructs. Consequently, inter-rater agreement indices such as rwg, ICC(1), and ICC(2) were not applicable. These indices require multiple respondents within the same organizational unit to evaluate the same construct. The matching procedure therefore produced 99 cooperative dyads from 198 individual respondents rather than 99 observations created through perceptual aggregation.

This design separates the source of the moderator from the sources of SMA and performance. However, SMA and perceived cooperative performance were still reported by the same management informant. The design therefore reduces, but does not eliminate, possible

common-method bias. In addition, each construct was represented by one role-specific key informant and should not be interpreted as a statistically demonstrated shared perception among all cooperative members.

3.2. Operational Definition and Measurement of Variables

All constructs were operationalized using reflective indicators measured on a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). Strategic Management Accounting (SMA): Assessed through 8 items adapted from Cadez and Guilding (2008), encompassing competitor-focused accounting, benchmarking, customer analysis, strategic pricing models, lifecycle costing, and non-financial strategic metrics. Supervisory Board Capability (SBC): Measured using 8 items drawn from Cornforth (2004) and Spear (2004), assessing financial statement auditing proficiencies, risk oversight acumen (NPL tracking), regulatory knowledge (AD-ART), operational independence, and active monitoring diligence. Cooperative Performance (CP): Evaluated via 7 items derived from cooperative balanced scorecard frameworks, capturing financial performance resilience (equity capital growth, optimal liquidity, net surplus maximization), member-centric social value, and regulatory compliance effectiveness.

Cooperative Performance was specified as a first-order reflective construct representing management respondents' overall perception of institutional performance. Financial resilience, member value, and regulatory compliance were treated as correlated manifestations of holistic cooperative success rather than as independent formative ingredients. This specification was retained because the study examines overall cooperative performance rather than the separate effects of SMA on financial, social, and governance outcomes. The retained indicators also exhibited acceptable loadings and convergent reliability within the estimated measurement model. Nevertheless, this specification does not imply that the three performance domains are identical or equally responsive to SMA. A multidimensional or higher-order specification should be examined in future studies using a larger set of indicators for each performance domain.

3.3. Data Analysis

The data were analyzed using partial least squares structural equation modeling in SmartPLS 4. The reflective measurement model was evaluated using indicator loadings, Cronbach's alpha, composite reliability (ρ_c), average variance extracted, and the heterotrait-monotrait ratio. The structural model was assessed using inner variance inflation factors, R^2 , f^2 , SRMR, path coefficients, and their statistical uncertainty.

The statistical significance of the path coefficients was evaluated using a two-tailed percentile bootstrap procedure with 5,000 resamples, a 5% significance level, and 95% confidence intervals. The same bootstrap settings were applied to the SMA $\times$ SBC interaction.

Out-of-sample predictive performance was assessed using PLSpredict with 10 folds, 10 repetitions, and a fixed random seed. Q^2 predict, root mean square error, and mean absolute error were reported for the Cooperative Performance indicators. The prediction errors of the PLS-SEM model were compared with those of the linear-model benchmark. Traditional blindfolding-based Stone–Geisser Q^2 was not estimated separately because SmartPLS 4 has discontinued the blindfolding procedure and recommends PLSpredict and cross-validated predictive assessment for evaluating out-of-sample predictive performance.

4. Results and Discussion

4.1. Measurement Model Assessment (Outer Model)

The outer model was evaluated based on convergent validity, discriminant validity, and internal consistency reliability metrics. All indicator factor loadings range from 0.712 to 0.859, surpassing the conservative threshold of 0.70 (Chin & Dibbern, 2010). The Average Variance Extracted (AVE) values for SMA (0.564), SBC (0.548), and CP (0.537) exceed the baseline of 0.50, demonstrating that the latent constructs account for more than half of the variance in their respective indicators.

Internal consistency reliability was confirmed using Cronbach's Alpha and Composite Reliability. The constructs yielded alpha values between 0.791 and 0.865, and ρ_c scores ranging from 0.849 to 0.894. Notably, these scores are consistently above the minimum threshold (> 0.70) but remain strictly below 0.95, indicating that the data are free from item redundancy or inflation.

The Heterotrait-Monotrait Ratio (HTMT) was employed to ascertain discriminant validity. As detailed in Table 1, the highest HTMT ratio computed was 0.768, observed between the constructs of SBC and SMA. This value falls below the established benchmark of 0.90, thereby affirming the empirical separation of these constructs

Table 1. Heterotrait-Monotrait Ratio Matrix

Construct	SMA	SBC	CP
SMA	-		
SBC	0.768	-	
CP	0.715	0.692	-

4.2. Evaluation of the Internal Model Structure

All inner-model VIF values were below 2.20, indicating that collinearity was not a serious concern. The model explained 32.7% of the variance in perceived cooperative performance ($R^2=0.327$). This represents moderate explanatory power, while also showing that 67.3% of the variance remains outside the model. The SRMR value was 0.076, below the reference value of 0.10.

The effect size for SMA was moderate ($f^2=0.165$), while the effect of Supervisory Board Capability was small to moderate ($f^2=0.148$). The interaction effect was small ($f^2=0.062$). Its p value of 0.046 is also close to the 0.05 threshold. Therefore, the moderation result should be interpreted as statistically supported but modest rather than strong.

Table 2. Hypothesis Testing Results

Hyp.	Path	β	SE	t	p
H1	SMA-CP	0.361	0.074	4.856	< 0.001
H2	SBC-CP	0.342	0.080	4.301	< 0.001
H3	SMA $\times$ SBC - CP	0.320	0.158	2.020	0.046

The results provided support for all three hypotheses. SMA use was positively associated with perceived cooperative performance ($\beta=0.361$, $t=4.856$).

$p < 0.001$, supporting H1. Supervisory Board Capability was also positively associated with perceived cooperative performance ($\beta = 0.342$, $t = 4.301$, $p < 0.001$), supporting H2. The interaction between SMA and Supervisory Board Capability was positive and statistically significant ($\beta = 0.320$, $t = 2.020$, $p = 0.046$), supporting H3. However, the relatively small interaction effect indicates that the moderation finding should be interpreted cautiously.

4.3. The Direct Association of Strategic Management Accounting on Cooperative Performance

The structural validation of Hypothesis 1 indicates that the practical implementation of SMA methodologies is positively associated with enhanced cooperative performance ($\beta = 0.361$, $p < 0.001$). This empirical evidence strongly suggests that contemporary, market-oriented strategic accounting frameworks are readily adaptable beyond traditional organizational structures (Elhamma, 2024). When management transitions from rudimentary record-keeping to sophisticated forward-looking cost management, competitor analysis, and life-cycle assessment, cooperatives gain the operational flexibility necessary to adapt to evolving environmental conditions (Al-Mawali, 2021).

This strategic orientation facilitates a shift from reactive operational modes to proactive growth strategies, incorporating non-financial metrics alongside financial indicators (Baird & Wang, 2022). The application of accounting tools within specialized domains fosters enhanced structural adaptability. This strategic adjustment may be associated with improved internal resource allocation and sustained financial stability (Mahapsari & Supriyadi, 2022). Consequently, the cooperative is better positioned to harmonize its commercial objectives with its socio-economic mandate without compromising operational effectiveness.

This finding aligns with Contingency Theory, reinforcing the notion that superior organizational outcomes are achieved when management information systems are dynamically configured to address contextual variability and environmental dynamism (Otley, 2022). Such structural alignment is consistent with established observations across diverse organizational settings (Bedford et al., 2022).

An alternative explanation should also be considered. Better-performing cooperatives may have more resources and stronger administrative capacity to adopt SMA practices. In addition, because SMA and performance were reported by the same management respondent, part of the relationship may reflect favorable management perceptions. Longitudinal evidence is needed to establish the direction of this relationship.

4.4. The Direct Association of Supervisory Board Capability on Cooperative Performance

The empirical confirmation of Hypothesis 2 supports that the human capital, financial acumen, and technical proficiencies of the supervisory board actively contribute to organizational health ($\beta = 0.342$, $p < 0.001$). From the theoretical lens of Agency Theory, cooperatives are particularly susceptible to internal control deficiencies owing to their dispersed ownership structure, which can inadvertently create monitoring gaps (Cornforth, 2004; Spear, 2004).

The statistical findings indicate that when a supervisory board transcends mere social obligations or perfunctory roles and actively engages in diligent auditing practices, it establishes an effective internal control mechanism (Susilawati & Pratama, 2023). Highly

capable supervisors ensure rigorous adherence to credit risk management protocols, diligently monitor non-performing assets, and uphold operational transparency (Kaleshu & Ndiege, 2023). This oversight minimizes systemic inefficiencies and opportunities for misconduct (Arando et al., 2022; Bvuma & Mwangangi, 2022; Mkalama, 2024).

This direct governance intervention mitigates opportunistic managerial behavior and reduces agency-related expenses, thereby safeguarding member assets and enhancing organizational value (Widanaputra & Sari, 2022). A highly specialized internal board proactively guides performance adjustments, aligning with long-term governance objectives (Bijman et al., 2021; Mori, 2021).

This direct relationship is conceptually different from the moderation result. The direct association represents the independent contribution of board capability through monitoring, risk control, and accountability. The moderating relationship represents the board's ability to strengthen the use of SMA information. Separating these mechanisms clarifies why SBC appears as both a predictor and a moderator in the model.

4.5. The Moderating Influence of Supervisory Board Capability

The SMA $\times$ SBC interaction was positive and statistically significant at the conventional 5% level ($\beta = 0.320$, $p = 0.046$), providing support for Hypothesis 3. Nevertheless, the small effect size ($f^2 = 0.062$) and the p value close to the 0.05 threshold indicate that the finding represents a modest moderating pattern rather than a strong strengthening effect. The result therefore suggests that the positive association between SMA use and perceived cooperative performance may become somewhat stronger as Supervisory Board Capability increases. It does not demonstrate that board capability maximizes the organizational benefits of SMA. This cautious interpretation is consistent with the view that the usefulness of operational strategies depends partly on the internal governance capabilities surrounding their implementation (Appiah & Haji, 2023).

The proposed mechanism concerns the board's ability to translate strategic accounting information into governance action. SMA can provide management with detailed competitive benchmarks, cost information, performance deviations, and forward-looking indicators. However, the availability of such information may also widen the information gap between executive management and the supervisory board. A capable board may narrow this gap by interpreting strategic reports, examining underlying assumptions, questioning management explanations, identifying financial and operational risks, and connecting accounting information with accountability requirements. Its capability may also support resource-priority discussions, requests for corrective action, and subsequent monitoring of implementation (Susilawati, 2022).

Conversely, when board capability is limited, sophisticated SMA reports may remain underused as "dormant data." The board may be unable to identify important deviations, challenge management decisions, or ensure that strategic information is followed by corrective action (Asmara & Rahayu, 2022). At higher levels of capability, the board may be better positioned to use the same information in its monitoring and follow-up processes. However, because the interaction effect was small, this mechanism should be treated as a plausible explanation for a limited conditional pattern rather than evidence of a substantial governance transformation.

The finding also connects Agency Theory and Contingency Theory within one explanatory framework. Agency Theory explains how a capable supervisory board may reduce information asymmetry and monitoring weaknesses through strategic questioning, accountability, and corrective follow-up. Contingency Theory explains why the usefulness of SMA may vary according to the board's ability to interpret and act upon strategic information. This alignment may help connect administrative information systems with supervisory processes (Meliá-Martí & Julia-Igual, 2024). The theoretical contribution therefore lies in positioning Supervisory Board Capability as a possible but modest boundary condition that connects information production with governance action, rather than treating SMA and board supervision as separate organizational mechanisms.

The study did not directly measure strategic questioning, monitoring quality, resource-allocation involvement, accountability demands, or implementation discipline as mediating mechanisms. These processes should therefore be understood as theoretically proposed explanations and not as empirically established pathways in the present model.

4.6. Practical Implications

The findings suggest several practical directions for cooperatives. Minimum requirements for supervisory board members should include financial-statement analysis, non-performing-loan monitoring, risk oversight, and knowledge of cooperative regulations. Supervisory boards should receive regular access to SMA reports and participate in scheduled strategic-performance reviews. Cooperatives should also establish written procedures defining which findings require management follow-up and how the board monitors corrective action. Regulatory bodies may use these areas as the basis for training, competency assessment, or certification programs. However, these measures should be implemented and evaluated gradually because the present study does not test the effectiveness of specific training or certification interventions.

5. Conclusion and Suggestion

This study identified positive associations between SMA use, Supervisory Board Capability, and perceived cooperative performance. The interaction between SMA and board capability was also positive and statistically significant, but its small effect size and p value close to 0.05 require cautious interpretation. The findings therefore position board capability as a possible but modest boundary condition rather than a strong determinant of SMA effectiveness.

The matched-dyadic design separated the measurement of board capability from the management-rated SMA and performance constructs. This design reduced source overlap but did not eliminate common-method concerns or demonstrate shared organizational perceptions. Moreover, the cross-sectional evidence cannot establish whether SMA precedes stronger performance or whether better-performing cooperatives have greater capacity to adopt SMA. The findings should consequently be understood as conditional associations within the estimated model rather than causal effects.

6. Limitations and Future Research

The cross-sectional design does not establish temporal ordering between SMA use and cooperative performance. At least three explanations remain plausible. SMA may be

associated with stronger performance, better-performing cooperatives may possess greater resources and administrative capacity to adopt SMA, or omitted characteristics may influence both. Potential omitted factors include cooperative size, age, capitalization, management quality, digital maturity, competitive intensity, and regulatory conditions. PLS-SEM estimates conditional associations but does not by itself resolve reverse causality or omitted-variable endogeneity.

Although the study used two role-specific informants, SMA and performance were evaluated by the same management respondent. Common-method bias may therefore remain in the SMA–performance association. Each construct was also represented by one key informant, preventing the estimation of within-cooperative agreement.

Cooperative Performance was modeled as a holistic reflective construct. Financial resilience, member value, and regulatory compliance may nevertheless respond differently to SMA and governance capability. Future studies should test these domains separately or through a higher-order performance model.

Future research should employ longitudinal or panel data with temporally separated measurements, lagged predictors, appropriate control variables, and, where feasible, fixed-effects or instrumental-variable strategies. Larger multi-informant samples would also permit agreement testing and a more detailed examination of the mechanisms connecting board capability, SMA use, and cooperative outcomes.

Declaration of AI and AI-assisted technologies in the writing process

During the revision of this manuscript, the authors used ChatGPT (OpenAI) and Claude (Anthropic) to improve language clarity. The authors independently verified the analyses, interpretations, and references and take full responsibility for the final content.

Reference

- Adhariani, D., & Wijayaningsih, R. (2023). Strategi bisnis, akuntansi manajemen strategis, dan keunggulan bersaing berkelanjutan pada entitas ekonomi kerakyatan. *Jurnal Akuntansi Dan Keuangan Indonesia*, 20(2), 145–165. <https://doi.org/10.21002/jaki.v20i2.1670>
- Agustina, L., & Sukirman, S. (2022). The governance of credit cooperatives in Central Java: The role of supervisory board financial expertise. *Jurnal Dinamika Akuntansi*, 14(2), 110–123. <https://doi.org/10.15294/jda.v14i2.36541>
- Ahmad, K., & Zabri, S. M. (2021). The application of strategic management accounting practices among Malaysian SMEs. *International Journal of Business and Society*, 22(1), 200–218.
- Al-Mawali, H. (2021). Strategic management accounting practices and organizational performance: The mediating role of strategic agility. *Journal of Accounting & Organizational Change*, 17(3), 333–352. <https://doi.org/10.1108/JAOC-02-2020-00024>
- Appiah, K. O., & Haji, A. A. (2023). Governance structures and the performance of cooperative societies: The moderating role of board competence. *Annals of Public and Cooperative Economics*, 94(2), 415–439.
- Arando, S., Gago, M., & Jones, D. C. (2022). Governance, management practices, and performance in worker cooperatives. *Industrial Relations*, 61(3), 289–314.

- Asmara, J. A., & Rahayu, S. (2022). Pengaruh kompetensi, independensi, dan motivasi dewan pengawas terhadap efektivitas pengawasan koperasi. *Jurnal Akuntansi Multiparadigma*, 13(3), 412–428. <https://doi.org/10.21776/ub.jamal.2022.13.3.09>
- Baird, K., & Wang, H. (2022). Employee empowerment, strategic management accounting, and organizational performance. *Accounting & Finance*, 62(2), 2415–2443.
- Bedford, D. S., Bisbe, J., & Malmi, T. (2022). Performance measurement systems, strategic alignments, and organizational performance: A configuration approach. *Accounting, Organizations and Society*, 101, 101322. <https://doi.org/10.1016/j.aos.2022.101322>
- Bijman, J., Hanisch, M., & Sangen, G. (2021). Shifting roles of the supervisory board in agricultural cooperatives. *Annals of Public and Cooperative Economics*, 92(3), 445–467.
- Bromwich, M. (1990). The case for strategic management accounting: the role of accounting information for strategy in competitive markets. *Accounting, Organizations and Society*, 15(1–2), 27–46. [https://doi.org/10.1016/0361-3682\(90\)90011-I](https://doi.org/10.1016/0361-3682(90)90011-I)
- Bvuma, S., & Mwangangi, M. (2022). Board dynamics and financial performance in savings and credit co-operative societies (SACCOs). *Journal of Co-Operative Organization and Management*, 10(1), 100161. <https://doi.org/10.1016/j.jcom.2021.100161>
- Cadez, S., & Guilding, C. (2008). An exploratory investigation of an integrated contingency model of strategic management accounting. *Accounting, Organizations and Society*, 33(7–8), 836–863. <https://doi.org/10.1016/j.aos.2008.01.003>
- Chen, X., Pervaiz, S., & Malik, M. (2022). Contingency theory in management accounting research: A systematic review and future research agenda. *Journal of Accounting Literature*, 44(1), 12–38.
- Cornforth, C. (2004). The governance of cooperatives and mutual associations: a paradox perspective. *Annals of Public and Cooperative Economics*, 75(1), 11–32. <https://doi.org/10.1111/j.1467-8292.2004.00241.x>
- Dewi, R. S., & Utama, S. (2024). Does internal governance increase cooperative member wealth? The moderating role of supervisory board diligence. *Jurnal Akuntansi Dan Keuangan Indonesia*, 21(1), 44–65. <https://doi.org/10.21002/jaki.v21i1.1892>
- Elhamma, A. (2024). Strategic management accounting practices and performance: A structural equation modeling approach. *International Journal of Productivity and Performance Management*, 73(2), 412–431. <https://doi.org/10.1108/IJPPM-02-2022-0089>
- Gschwantner, S., & Hiebl, M. R. (2022). Management accounting and control in cooperatives: A systematic literature review. *Journal of Co-Operative Organization and Management*, 10(2), 100184.
- Guilding, C., Cravens, K. S., & Tayles, M. (2000). An international comparison of strategic management accounting practices. *Management Accounting Research*, 11(1), 113–135.
- Hasan, M., & Rohman, A. (2023). Determinants of strategic management accounting usage: An empirical study on Indonesian credit unions. *Indonesian Journal of Accounting Research*, 26(2), 215–240.
- Kaleshu, J., & Ndiege, B. O. (2023). Board competence and sustainability of financial cooperatives: The mediating role of credit risk management. *Annals of Public and Cooperative Economics*, 94(4), 1025–1048.
- Lestari, P., & Supriyanto, S. (2023). Pengaruh kompetensi pengurus dan dewan pengawas terhadap akuntabilitas laporan keuangan koperasi. *Jurnal Riset Akuntansi Dan Keuangan*, 11(2), 245–258. <https://doi.org/10.17509/jrak.v11i2.49500>

- Mahapsari, R., & Supriyadi, S. (2022). The impact of strategic management accounting tools on business performance during crises. *Jurnal Akuntansi Dan Keuangan Indonesia*, 19(1), 78–98. <https://doi.org/10.21002/jaki.v19i1.1452>
- Meliá-Martí, E., & Julia-Igual, J. F. (2024). Competence frameworks for cooperative directors: A contingency model for complex economic environments. *Annals of Public and Cooperative Economics*, 95(1), 89–112.
- Mkalama, B. (2024). Supervisory committee effectiveness and operational efficiency in financial cooperatives. *Enterprise Development and Microfinance*, 35(1), 22–38. <https://doi.org/10.3362/1755-1986.23-00019>
- Mori, N. (2021). Board competence, governance structures, and performance of microfinance institutions and cooperatives. *Enterprise Development and Microfinance*, 32(1), 54–69. <https://doi.org/10.3362/1755-1986.20-00014>
- Nuhu, N. A., Baird, K., & Appiah, K. O. (2024). The use of strategic management accounting practices and organizational performance. *Advances in Management Accounting*, 34, 115–140. <https://doi.org/10.1108/S1474-787120240000034005>
- Oboh, C. S., & Ajibolade, S. O. (2021). Strategic management accounting practices and business sustainability: A contingency approach. *Journal of Accounting & Organizational Change*, 17(4), 515–537. <https://doi.org/10.1108/JAOC-08-2020-0102>
- Otley, D. (2022). The contingency theory of management accounting: Achievement and prognosis. *Accounting, Organizations and Society*, 99, 101311. <https://doi.org/10.1016/j.aos.2022.101311>
- Oyewo, B. (2022). Contextual factors influencing the deployment of strategic management accounting practices. *Journal of Accounting & Organizational Change*, 18(3), 413–441. <https://doi.org/10.1108/JAOC-02-2021-0027>
- Sari, M., & Utama, S. (2022). Tata kelola koperasi dan dampaknya terhadap sisa hasil usaha: Peran kompetensi pengurus. *Jurnal Akuntansi Multiparadigma*, 13(1), 89–104. <https://doi.org/10.21776/ub.jamal.2022.13.1.07>
- Setyawan, B., & Sukirman, S. (2023). Rekonstruksi tata kelola koperasi simpan pinjam berbasis kompetensi pengawas dan transparansi finansial. *Jurnal Ilmiah Akuntansi Dan Humanika*, 13(3), 310–324. <https://doi.org/10.23887/jiah.v13i3.59100>
- Soleh, M., & Rahayu, S. (2023). Pengaruh kompetensi pengurus dan sistem pengendalian intern terhadap kinerja finansial koperasi. *Jurnal Akuntansi Dan Auditing Indonesia*, 27(1), 12–23. <https://doi.org/10.20885/jaai.vol27.iss1.art2>
- Spear, R. (2004). Governance in democratic economic organisations. *Annals of Public and Cooperative Economics*, 75(1), 33–60. <https://doi.org/10.1111/j.1467-8292.2004.00242.x>
- Susilawati, S. (2022). Integrating strategic management accounting into risk-based supervision: A framework for cooperative institutions. *Indonesian Journal of Accounting Research*, 25(3), 301–326.
- Susilawati, S., & Pratama, A. (2023). Cultural constraints and digital transformation: Assessing the impact of social dynamics on strategic management accounting adoption in cooperatives. *Jurnal Akuntansi Multiparadigma*, 14(2), 210–228. <https://doi.org/10.21776/ub.jamal.2023.14.2.16>
- Wati, R., & Mildawati, T. (2022). Pengaruh akuntabilitas, transparansi, dan fungsi pengawasan dewan pengawas terhadap kinerja keuangan koperasi. *Jurnal Ilmu Dan Riset Akuntansi*, 11(5), 1–18.

- Widanaputra, A. A. G. P., & Sari, M. M. R. (2022). Supervisory board characteristics and financial performance: Evidence from Indonesian credit cooperatives. *Jurnal Akuntansi Dan Auditing Indonesia*, 26(1), 45–55. <https://doi.org/10.20885/jaai.vol26.iss1.art5>
- Yulianto, A., & Solikhah, B. (2024). Determinants of cooperative financial performance: The role of supervisory board financial literacy. *Jurnal Dinamika Akuntansi*, 16(1), 22–35. <https://doi.org/10.15294/jda.v16i1.42150>