

Research Article

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Financial Literacy as a Boundary Condition in the Relationship between Human Resource Competence, Internal Control and Financial Management Quality: Evidence from MSMEs in Makassar

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Abstract: *This study examines the relationships of human resource competence and internal control with financial management quality and investigates financial literacy as both a direct predictor and a boundary condition among micro, small, and medium-sized enterprises (MSMEs) in Makassar, Indonesia. A quantitative cross-sectional design was employed using data from 261 MSME owners, managers, and personnel involved in financial administration. The data were analyzed using partial least squares structural equation modeling (PLS-SEM) with SmartPLS 4. The results show that human resource competence, internal control, and financial literacy are positively associated with financial management quality. Internal control exhibited the strongest direct contribution, highlighting the importance of formalized financial procedures and monitoring mechanisms. Financial literacy significantly strengthened the relationship between human resource competence and financial management quality, indicating that this relationship becomes stronger at higher levels of financial literacy. In contrast, financial literacy did not significantly moderate the relationship between internal control and financial management quality. These findings suggest that financial literacy operates as a selective rather than universal boundary condition. The study contributes to the MSME financial management literature by integrating individual competence, organizational control, and financial knowledge within a contingent framework and by emphasizing financial management quality as a process-level outcome.*

Keywords: *Human Resource Competence; Internal Control; Financial Literacy; Financial Management Quality; MSMEs; PLS-SEM; Makassar.*

Introduction

Sound financial management is fundamental to the continuity of micro, small, and medium-sized enterprises (MSMEs), particularly because these firms frequently operate with limited financial slack, relatively simple administrative structures, and decision-making concentrated among owners and a small number of employees. Financial decisions in such firms therefore depend not only on access to capital but also on how financial resources are planned, recorded, allocated, monitored, and controlled. Recent literature increasingly recognizes financial capability as an important organizational resource for smaller firms (Molina-García et al., 2023). Graña-Alvarez et al. (2024) similarly show that financial knowledge and capabilities shape financial attitudes, behaviors, organizational capabilities, and ultimately SME outcomes. At the operational level, however, effective financial management requires more than favorable financial outcomes; it requires reliable routines for budgeting, cash-flow management, transaction recording, expenditure control, and financial monitoring. This distinction is important because much of the SME literature has concentrated on financial or business performance rather than the quality of the underlying financial-management process (Rekha et al., 2024). Financial management quality is therefore treated in this study as a process-level organizational outcome rather than as a synonym for profitability or firm performance. This perspective is consistent with the broader view of financial management as the

coordinated acquisition, allocation, monitoring, and control of financial resources (Brigham & Ehrhardt, 2024).

The quality of these processes is likely to depend partly on the competence of the people responsible for executing them. Human resource competence reflects the knowledge, skills, abilities, and behavioral capacities required to perform organizational responsibilities effectively (Armstrong & Taylor, 2023). In SMEs, managerial human capital has been associated with differences in productivity and the ability to exploit organizational resources (Timothy, 2022). More recent evidence also indicates that human capital contributes to SME outcomes through organizational capabilities such as innovation (Dinku et al., 2024). In a related stream, Padi et al. (2025) find that entrepreneurial competencies constitute an important internal resource associated with SME financial performance. Seraj et al. (2022) likewise demonstrate that entrepreneurial competency contributes to the sustainable performance of small enterprises. These findings suggest that competent personnel should be better positioned to execute financial tasks consistently, interpret business information, and support managerial decision-making. Nevertheless, competence does not automatically guarantee higher-quality financial processes. Evidence from financial reporting research shows that managerial financial and accounting expertise can produce different outcomes depending on how that expertise is applied (Ngo & Nguyen, 2024). Studies of accounting expertise similarly emphasize that possessing technical knowledge and translating that knowledge into reliable organizational information are distinct issues (Rahman et al., 2023; Siregar & Harahap, 2024).

Human competence must consequently operate within organizational procedures that provide structure and accountability. Internal control represents one such organizational mechanism by establishing procedures for authorization, documentation, verification, risk assessment, information flows, and monitoring. The COSO framework conceptualizes internal control as an integrated system consisting of the control environment, risk assessment, control activities, information and communication, and monitoring activities (COSO, 2013). In SMEs, effective internal controls are particularly relevant because limited separation of ownership, management, and financial administration can increase dependence on informal procedures. Musah et al. (2022) provide evidence that the effectiveness of internal control systems is associated with the financial performance of SMEs, although the strength of this relationship may depend on governance arrangements. Management-accounting systems can similarly enhance the information available for managerial decisions, particularly when appropriate organizational and technological capabilities are present (Gyamera et al., 2023). More recent research indicates that internal accounting controls can improve accounting-information quality in resource-constrained microenterprises, with implications for operational profitability (de la Puente et al., 2026). Internal control may therefore complement individual competence by institutionalizing how financial activities are performed rather than leaving their execution entirely dependent on individual discretion. The broader importance of control and governance mechanisms for SME financial outcomes is also reflected in recent evidence on organizational ethics, control effectiveness, and compliance (Musah et al., 2025).

However, competent personnel and formalized control procedures may still generate different outcomes across firms because financial information must ultimately be understood and used by those making business decisions. This brings financial literacy into the explanation. Financial literacy in an entrepreneurial setting encompasses financial knowledge, awareness, and the ability to apply financial concepts to business decisions, rather than merely familiarity with financial terminology (Anshika & Singla, 2022). Recent systematic evidence identifies knowledge, awareness, and financial skills as recurring components of financial literacy among SME owners and managers (Rekha et al., 2024). At the firm level,

managerial financial literacy has been associated with small-enterprise performance (Tuffour et al., 2022), while executive financial literacy has been linked with corporate outcomes among SMEs (Tian et al., 2022). Financial literacy is also associated with SMEs' ability to engage with financial services and financing decisions. For example, Changwasha & Mutezo (2023) connect financial literacy with financial access, whereas Basha et al. (2023) demonstrate its relevance to small-firm leverage decisions. Digital finance research provides a related perspective, showing that financial literacy can accompany the effective use of digital financial services and SME performance (Frimpong et al., 2022; Lontchi et al., 2023). Thus, financial literacy is relevant not simply because individuals possess financial knowledge, but because such knowledge influences how financial alternatives and information are evaluated.

Evidence from Indonesia reinforces the relevance of financial literacy while also demonstrating that its consequences extend beyond a single financial outcome. Hasan et al. (2024), using MSME evidence from South Sulawesi, identify financial literacy as an intangible knowledge resource associated with entrepreneurial creativity and business success. Other evidence from Indonesian MSMEs connects financial capabilities and behavior with business sustainability and performance dynamics (Supramono et al., 2025). International evidence similarly associates financial literacy with financing choices, sustainability, and entrepreneurial outcomes rather than with one uniform consequence (Aristei et al., 2024). Guo et al. (2024), for example, identify a relationship between financial literacy and entrepreneurship, while Babajide et al. (2023) connect financial capabilities with sustainable business-model practices. This growing literature demonstrates the substantive importance of financial literacy but simultaneously indicates that its effects are context dependent. Indeed, systematic reviews show that research on financial literacy in SMEs has concentrated particularly on performance, access to finance, innovation, entrepreneurial orientation, and owner-manager characteristics (Molina-García et al., 2023). Graña-Alvarez et al. (2024) consequently call for greater attention to the mechanisms and contextual conditions through which financial literacy operates.

A potentially important but less developed explanation is that financial literacy may function not only as an independent resource but also as a boundary condition that changes the effectiveness of other organizational resources. Existing research provides some support for this contingency interpretation. Diéguez-Soto et al. (2022), for instance, show that the consequences of CEO financial literacy differ according to the generational stage of family SMEs. Duréndez et al. (2023) further demonstrate that financial literacy operates within a broader configuration involving management-control systems and managerial risk taking when explaining technological innovation. Other studies have explicitly incorporated interaction effects involving financial literacy. Li et al. (2024) find that financial literacy strengthens the relationship between digital transformation and entrepreneurial performance, suggesting that the value created by an organizational resource may depend on the decision maker's financial capability. Conversely, Alshebami & Murad (2022) show that the relationship between financial literacy and sustainable SME performance itself varies according to entrepreneurial resilience. Most recently, Basha et al. (2025) demonstrate another contingency relationship involving financial literacy in explaining SME financing decisions. Taken together, these studies indicate that financial literacy can form part of a contingent configuration of resources rather than operating exclusively as a direct predictor.

This perspective reveals a more specific gap in the existing literature. The issue is not that financial literacy, competence, internal control, or SME performance have received little research attention individually. Rather, comparatively less is known about whether financial literacy determines the extent to which human resource competence and internal control are translated into high-quality financial-management processes. Existing studies have predominantly linked financial literacy with distal outcomes

such as performance, financing, innovation, entrepreneurship, or sustainability (Molina-García et al., 2023; Rekha et al., 2024). Research combining competency and financial literacy has likewise generally focused on firm-level performance rather than on the effectiveness of financial-management routines (Padi et al., 2025). Similarly, internal-control studies largely examine financial performance, reporting quality, compliance, or profitability rather than whether the benefits of control systems depend on the financial literacy of those using them (de la Puente et al., 2026; Musah et al., 2022). Accordingly, there is room for a more process-oriented and contingent explanation of MSME financial management.

The present study addresses this issue by examining financial literacy as a boundary condition in the relationships between human resource competence, internal control, and financial management quality among MSMEs in Makassar, Indonesia. The Makassar context is particularly relevant given the growing evidence on financial literacy and MSME capabilities in South Sulawesi (Hasan et al., 2024), but the existence of financial-management deficiencies in the study population should be demonstrated empirically rather than presumed. Therefore, preliminary survey evidence will be incorporated to establish the local manifestation of the problem.

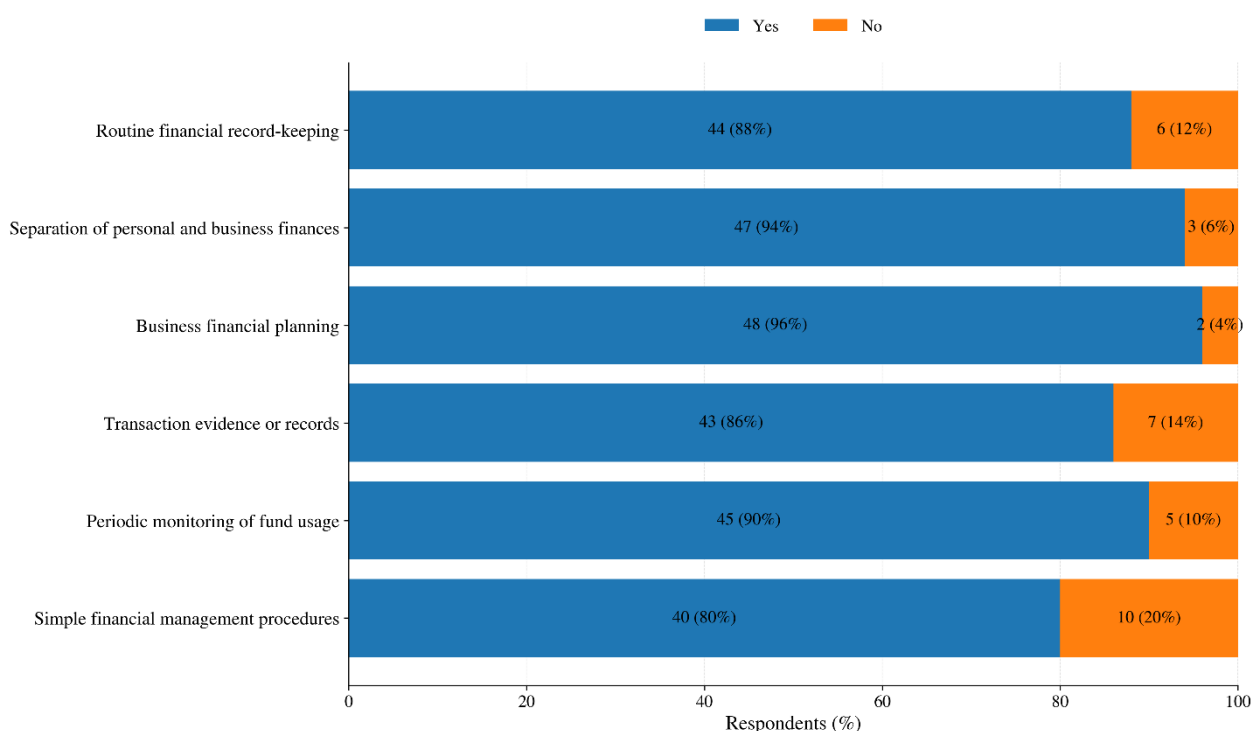


Figure 1. Preliminary Study on Financial Management Practices among MSMEs in Makassar (n = 50).

Preliminary evidence from 50 MSMEs in Makassar provides an initial indication that financial-management practices are not uniformly established across firms. Although most respondents reported adopting basic financial practices, 20% indicated that their businesses did not yet have even simple procedures for managing finances, while 14% reported that financial transactions were not consistently supported by transaction evidence or records. In addition, 12% did not routinely maintain financial records, and 10% did not periodically monitor the use of business funds. More broadly, 38% of the surveyed MSMEs reported at least one deficiency across the six financial-management practices examined. These findings should not be interpreted as evidence of generally poor financial management among MSMEs in Makassar; rather, they reveal meaningful variation in the extent to which basic financial-management routines have

been institutionalized. Such variation raises an important question as to why some MSMEs are better able than others to translate available human capabilities and organizational control mechanisms into consistent financial-management practices.

H1: Human resource competence is positively associated with financial management quality. H2: Internal control is positively associated with financial management quality. H3: Financial literacy is positively associated with financial management quality. H4: Financial literacy positively moderates the relationship between human resource competence and financial management quality, such that the relationship becomes stronger at higher levels of financial literacy. H5: Financial literacy positively moderates the relationship between internal control and financial management quality, such that the relationship becomes stronger at higher levels of financial literacy.

Against this background, the study investigates whether human resource competence and internal control are associated with financial management quality and, more importantly, whether these relationships vary according to the level of financial literacy. The study therefore contributes to the literature by shifting the analytical focus from whether financial literacy directly improves SME outcomes toward when existing human and organizational resources are more effectively converted into sound financial-management practices. Rather than claiming an entirely unexplored relationship, the proposed contribution lies in integrating an individual capability, an organizational control mechanism, and a financial knowledge resource within a conditional explanation of financial management quality in MSMEs.

Method

This study employed a quantitative explanatory design using a cross-sectional survey to examine the effects of human resource competence and internal control on financial management quality and the moderating role of financial literacy. The study focused on MSMEs operating in Makassar, Indonesia. Because the exact population size and a complete sampling frame of eligible MSMEs were unavailable, non-probability purposive sampling was employed (Saunders et al., 2023). Respondents were eligible if they owned, managed, or worked in an MSME operating in Makassar and were directly involved in financial decision-making, financial recording, budgeting, cash-flow management, or other financial administration activities.

Because the population size was unknown, sample adequacy was assessed based on the statistical requirements of the PLS-SEM model rather than a population-based formula. Following the inverse square root method proposed by Kock & Hadaya (2018), assuming a minimum relevant path coefficient of 0.20, a 5% significance level, and 80% statistical power, the minimum required sample is approximately 155 observations. Therefore, the 261 valid responses exceeded the minimum requirement. This approach is more defensible than relying solely on the traditional ten-times rule because sample-size requirements in PLS-SEM should consider the magnitude of the effects to be detected and statistical power (Hair et al., 2024; Kock & Hadaya, 2018).

Data were collected using a structured questionnaire containing measurement items adapted from previously validated studies. Human resource competence, internal control, financial literacy, and financial management quality were measured using a five-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The items were adapted to the MSME context while retaining the conceptual meaning of the original measures. Prior to the main data collection, the questionnaire was reviewed to ensure clarity and contextual relevance.

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4 (Ringle et al., 2024). PLS-SEM was employed because the study emphasizes explaining and predicting financial management quality while simultaneously estimating latent-variable relationships and interaction effects. Recent methodological literature recommends that the choice of PLS-SEM be aligned with the study's explanatory-predictive objectives rather than justified solely by sample size or model complexity (Becker et al., 2023; Guenther et al., 2023; Hair et al., 2024).

The measurement model was assessed using indicator loadings, internal consistency reliability, convergent validity, and discriminant validity. Outer loadings of approximately 0.708 or higher were considered satisfactory; indicators with loadings marginally below this value were retained when construct reliability and convergent validity remained satisfactory (Guenther et al., 2023). Discriminant validity was assessed using the heterotrait-monotrait ratio (HTMT), with values below 0.85 or 0.90 depending on the conceptual similarity of the constructs (Guenther et al., 2023; Henseler et al., 2015).

As an additional diagnostic, indicator-level collinearity was examined using outer VIF values. The structural model was subsequently evaluated using path coefficients, the coefficient of determination (R^2), and effect sizes (f^2). Statistical significance was assessed through bootstrapping with 10,000 subsamples and 95% confidence intervals, consistent with current PLS-SEM recommendations (Becker et al., 2023; Guenther et al., 2023).

The moderating role of financial literacy was tested using the two-stage approach in SmartPLS 4. Two interaction terms *Human Resource Competence* $\times$ *Financial Literacy* and *Internal Control* $\times$ *Financial Literacy* were estimated together with their respective main effects. In the first stage, latent variable scores for the predictor and moderator constructs were obtained; these scores were then used to construct the interaction terms in the second stage (Becker et al., 2018). A statistically significant interaction coefficient indicates that the relationship between the focal predictor and financial management quality varies according to the level of financial literacy. Significant moderation effects were further interpreted using simple-slope plots at different levels of the moderator (Xu & Shiau, 2026).

Results and Discussion

A total of 261 valid responses were included in the analysis. As presented in Table 1, the sample was predominantly female and largely consisted of respondents with a bachelor's degree. Most respondents were relatively new business actors, with business experience concentrated in the less-than-one-year and one-to-three-year categories. In terms of business sector, trade represented the largest proportion of MSMEs in the sample, followed by services and manufacturing. Overall, the respondent profile indicates that the sample was dominated by relatively early-stage MSME actors operating in the trade sector.

Table 1. Characteristics of Respondents and MSMEs

Characteristic	Category	Frequency	Percentage (%)
Gender	Female	184	70.5
	Male	77	29.5
Education	Junior high school	5	1.9
	Senior high school	62	23.8
	Diploma	13	5.0
	Bachelor's degree	178	68.2
	Master's degree	3	1.1

Characteristic	Category	Frequency	Percentage (%)
Business experience	< 1 year	126	48.3
	1–3 years	80	30.7
	4–6 years	30	11.5
	> 6 years	25	9.6
Business sector	Trade	170	65.1
	Services	57	21.8
	Manufacturing	34	13.0

Source: Primary survey data processed by the authors (2026).

The descriptive statistics of the study constructs are presented in Table 2. Overall, respondents reported relatively favorable assessments across the four constructs, with financial literacy showing the highest average score. At the indicator level, stronger aspects were observed in responsibility for financial decision-making, understanding the importance of financial record-keeping, monitoring the use of business funds, and separating personal and business finances. In contrast, comparatively weaker aspects concerned financial planning capability, cash-flow management, the existence of clear financial procedures, and the preparation of simple profit-and-loss statements. The descriptive pattern therefore suggests that several areas requiring greater attention relate particularly to the formalization and operational execution of financial management practices.

Table 2. Descriptive Statistics of the Study Constructs

Construct	Mean	SD	Highest Indicator	Mean	Lowest Indicator	Mean
Human Resource Competence	3.972	0.537	Responsibility in financial decision-making	4.138	Ability to prepare financial planning	3.866
Financial Literacy	4.070	0.502	Understanding the importance of financial record-keeping	4.203	Cash-flow management	3.920
Internal Control	3.918	0.561	Monitoring the use of business funds	3.989	Clear financial procedures	3.839
Financial Management Quality	3.918	0.554	Separation of personal and business finances	4.077	Preparation of a simple profit-and-loss statement	3.782

Source: Primary survey data processed by the authors (2026).

Before examining the hypothesized relationships, the measurement model was assessed to establish the reliability and validity of the four substantive constructs. Indicator reliability, internal consistency reliability, and convergent validity were evaluated using outer loadings, Cronbach's alpha, rho_A, composite reliability, and average variance extracted (AVE). The results are summarized in Table 3.

Table 3. Measurement Model Assessment

Construct	Loading Range	Cronbach's α	rho_A	Composite Reliability	AVE
Human Resource Competence	0.704–0.753	0.873	0.877	0.900	0.529
Financial Literacy	0.701–0.765	0.874	0.880	0.900	0.530

Construct	Loading Range	Cronbach's α	rho_A	Composite Reliability	AVE
Internal Control	0.716–0.784	0.887	0.888	0.910	0.558
Financial Management Quality	0.718–0.745	0.875	0.876	0.902	0.534

Source: Authors' calculations using SmartPLS 4 (2026).

All indicator loadings were above 0.70, with several values marginally below the commonly recommended value of 0.708. Given that the reliability coefficients and AVE values remained satisfactory, all indicators were retained. Similarly, the AVE values were above 0.50 for all constructs. These results indicate satisfactory indicator reliability, internal consistency reliability, and convergent validity. The estimated measurement and structural relationships generated through the PLS algorithm are illustrated in Figure 2. The figure provides an overall representation of the measurement indicators, standardized structural relationships, interaction terms, and the variance explained in financial management quality.

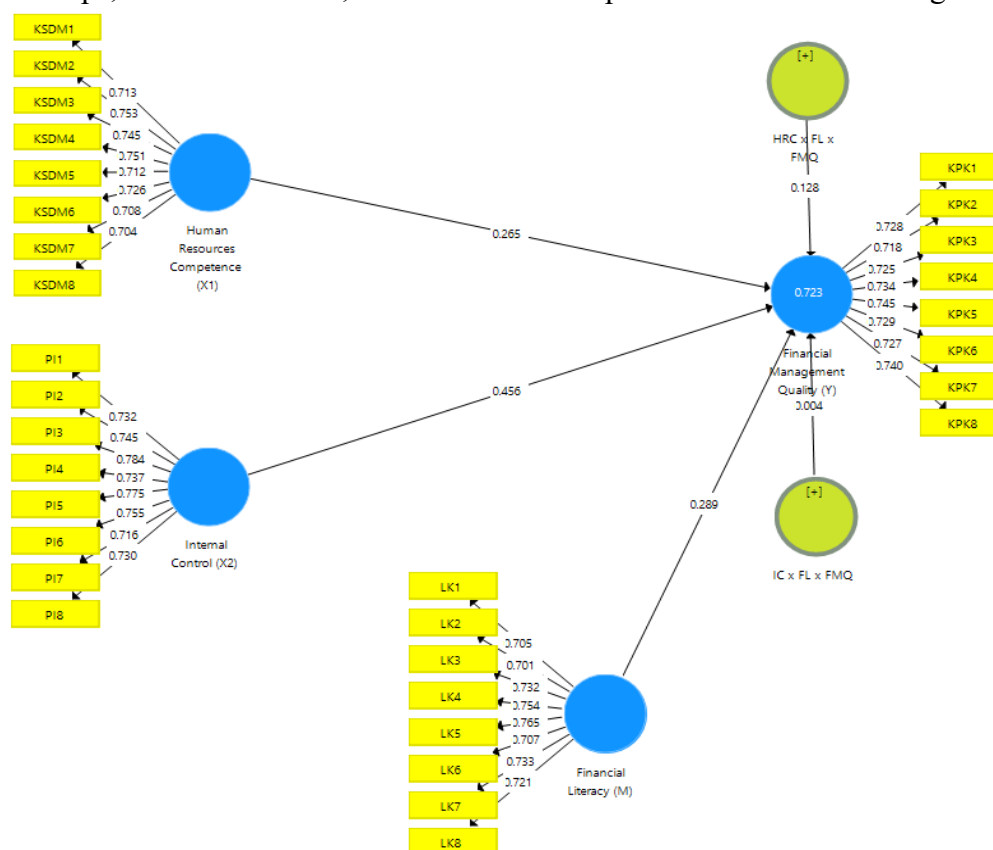


Figure 1. PLS-SEM Algorithm Results for the Proposed Research Model

Following the assessment of reliability and convergent validity, discriminant validity was examined using the heterotrait-monotrait ratio (HTMT). Table 4 presents the HTMT values among the four substantive constructs.

Table 4. Discriminant Validity Using the HTMT Criterion

Construct	HRC	FL	IC	FMQ
Human Resource Competence (HRC)	—			
Financial Literacy (FL)	0.736	—		

Construct	HRC	FL	IC	FMQ
Internal Control (IC)	0.717	0.757	—	
Financial Management Quality (FMQ)	0.776	0.780	0.869	—

Source: Authors' calculations using SmartPLS 4 (2026).

Most HTMT values were below the conservative threshold of 0.85. The HTMT value between internal control and financial management quality was slightly higher but remained below 0.90. Given the conceptual relatedness of these constructs, discriminant validity was considered acceptable under the less conservative 0.90 criterion. The comparatively highest association was observed between internal control and financial management quality, but the value remained within the acceptable threshold. Accordingly, discriminant validity was considered established. Indicator-level collinearity was additionally examined using outer variance inflation factor (VIF) values. To provide a concise presentation, Table 5 reports the minimum and maximum VIF values across the indicators of each construct. To present the results concisely, Table 5 reports the minimum and maximum VIF values within each construct rather than listing all indicators individually.

Table 5. Indicator-Level Variance Inflation Factor (VIF) Assessment

Construct	VIF Range	VIF > 5.00	Assessment
Human Resource Competence	1.687–1.795	None	Acceptable
Financial Literacy	1.651–1.940	None	Acceptable
Internal Control	1.687–2.017	None	Acceptable
Financial Management Quality	1.638–2.036	None	Acceptable

Source: Authors' calculations using SmartPLS 4 (2026).

The VIF values were substantially below the threshold of 5.00 across all constructs, indicating that problematic collinearity among the measurement indicators was not evident. Following the collinearity assessment, the explanatory power of the structural model and the relative contribution of each predictor were evaluated using the coefficient of determination (R^2) and effect size (f^2), respectively. The results are summarized in Table 6.

Table 6. Explanatory Power and Effect Size Assessment

Explanatory Power	R^2	Adjusted R^2	Assesment
Financial Management Quality	0.723	0.718	Moderate
Structural Relationship		f^2	Assessment
Human Resource Competence → Financial Management Quality		0.129	Small
Internal Control → Financial Management Quality		0.341	Medium
Financial Literacy → Financial Management Quality		0.128	Small
HRC × Financial Literacy → Financial Management Quality		0.042	Small
Internal Control × Financial Literacy → Financial Management Quality		< 0.001	Negligible

Source: Authors' calculations using SmartPLS 4 (2026).

The model explained approximately 72% of the variance in financial management quality, indicating moderate explanatory power. In terms of effect size, internal control made the largest contribution to financial management quality and approached the conventional threshold for a large effect. Human resource competence and financial literacy produced smaller effects of comparable magnitude. The interaction between human resource competence and financial literacy generated a small incremental contribution, whereas the interaction involving internal control contributed virtually no additional explanatory effect.

Having established the adequacy of the measurement and structural models, the statistical significance of the hypothesized direct and moderating relationships was assessed through bootstrapping with 10,000 subsamples. The results are presented in Table 7.

Table 7. Structural Model and Hypothesis Testing

Hyp.	Relationship	β	t-value	p-value	BCa 95% CI	Decision
H1	HRC $\rightarrow$ FMQ	0.265	3.702	< .001	[0.125, 0.405]	Supported
H2	IC $\rightarrow$ FMQ	0.456	6.822	< .001	[0.318, 0.582]	Supported
H3	FL $\rightarrow$ FMQ	0.289	4.711	< .001	[0.173, 0.410]	Supported
H4	HRC $\times$ FL $\rightarrow$ FMQ	0.128	2.329	.020	[0.033, 0.250]	Supported
H5	IC $\times$ FL $\rightarrow$ FMQ	0.004	0.077	.938	[-0.086, 0.134]	Not supported

Source: Authors' calculations using SmartPLS 4 (2026).

The results support all three direct relationships. Human resource competence, internal control, and financial literacy were positively associated with financial management quality, supporting H1–H3. Among the direct predictors, internal control exhibited the strongest relationship with financial management quality. The interaction between human resource competence and financial literacy was also positive and statistically significant, supporting H4. This indicates that the contribution of human resource competence to financial management quality becomes stronger as financial literacy increases.

In contrast, the interaction between internal control and financial literacy was not statistically significant, resulting in the rejection of H5. The interaction coefficient was close to zero and its confidence interval included zero, indicating that financial literacy did not meaningfully change the relationship between internal control and financial management quality. Thus, the moderating role of financial literacy was evident only in the relationship involving human resource competence rather than uniformly across both antecedents.

To provide a clearer interpretation of the significant interaction effect, Figure 3 illustrates the relationship between human resource competence and financial management quality at different levels of financial literacy.

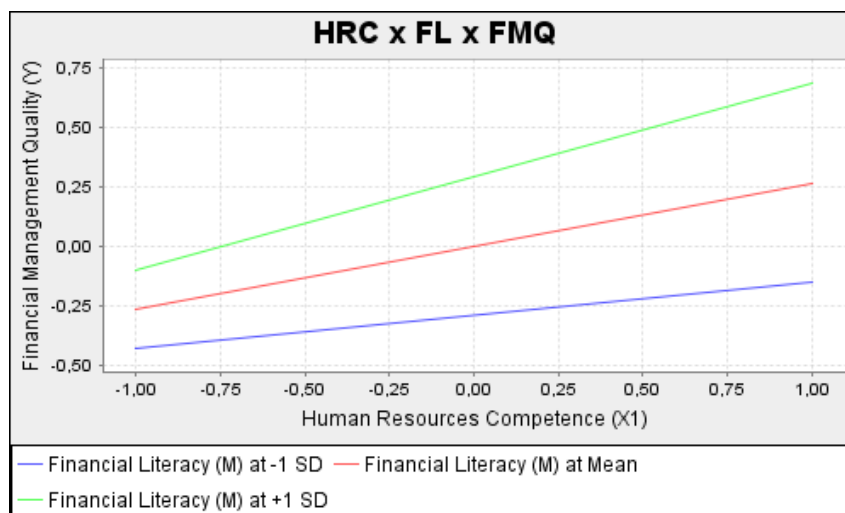


Figure 2. Moderating Effect Moderating Effect of Financial Literacy

The simple-slope pattern shows that the positive relationship between human resource competence and financial management quality becomes progressively stronger as financial literacy increases. The slope at a high level of financial literacy (+1 SD) is steeper than those at the mean and low levels (−1 SD), indicating that MSME actors with greater financial literacy are better able to translate human resource competence into higher-quality financial management practices.

The findings suggest that financial management quality among MSMEs is shaped by a configuration of individual capabilities, financial knowledge, and organizational routines rather than by a single resource in isolation. Human resource competence, internal control, and financial literacy were positively associated with financial management quality among MSMEs in Makassar, while the moderating role of financial literacy differed depending on the organizational resource with which it interacted. This pattern suggests that sound financial management in small firms is shaped by a combination of individual capabilities, financial understanding, and organizational routines rather than by a single resource operating independently. Contemporary SME research increasingly emphasizes that financial literacy and managerial capabilities are embedded within broader organizational systems and should therefore be interpreted in relation to complementary resources and practices (Graña-Alvarez et al., 2024; Molina-García et al., 2023; Rekha et al., 2024). Financial-management practices themselves have also been shown to be relevant to broader organizational outcomes among SMEs, supporting the importance of examining financial management as a distinct managerial process rather than only through final performance indicators (Otoo, 2024). Nevertheless, the present findings should be interpreted as evidence of association rather than causation because the study is based on cross-sectional survey data.

Human resource competence was positively associated with financial management quality, indicating that the knowledge, skills, discipline, and responsibility of individuals involved in financial administration are relevant to the consistency of financial-management practices. Managerial human capital has been identified as an important resource for SME outcomes because it facilitates the effective utilization of organizational capabilities (Timothy, 2022). Human capital has also been linked to stronger managerial and innovation capabilities, while entrepreneurial competence has been associated with financial outcomes among SMEs (Dinku et al., 2024; Padi et al., 2025). However, the positive relationship should not be interpreted as evidence that competence alone is sufficient to ensure high-quality financial management. Individual capability may remain underutilized when financial procedures, information systems, or

organizational routines are weak, suggesting that competence functions more effectively when supported by an appropriate managerial environment.

The descriptive findings provide further qualification to this result. Responsibility in financial decision-making appeared relatively strong, whereas financial planning capability was comparatively weaker. This indicates that managerial willingness to take responsibility does not necessarily imply an equally developed ability to undertake technical financial planning and analysis. SMEs often rely on experiential knowledge and owner-manager judgment, especially when specialized managerial structures and accounting systems remain limited (Roffia & Dabić, 2024). Organizational resources also generate greater value when they are deliberately mobilized and embedded in operational routines rather than merely possessed by the firm (Peretz-Andersson et al., 2024). The finding therefore does not suggest generally weak human resources among Makassar MSMEs, but rather reveals uneven development across dimensions of competence and highlights the need to distinguish managerial responsibility from technical financial capability.

Internal control showed the most prominent direct relationship with financial management quality, highlighting the importance of organizational mechanisms that structure financial activities beyond individual discretion. Clear procedures, documentation, verification, monitoring, and periodic evaluation can improve consistency in financial administration and reduce dependence on informal decision-making. Effective internal-control systems have been associated with stronger financial and organizational outcomes among SMEs, while management-control systems have also been linked to stronger organizational resilience and process consistency (Musah et al., 2022, 2025; Roffia & Dabić, 2024). Internal accounting controls have likewise been shown to contribute to accounting-information quality in resource-constrained firms (de la Puente et al., 2026). Although the present finding positions internal control as particularly important, it should not be interpreted to mean that more formalization is always better, because excessive control structures may be difficult to implement in small firms with limited administrative resources.

The contextual findings help clarify this point. Monitoring the use of business funds was relatively well established, whereas clear financial procedures were comparatively less developed, and the preliminary study also indicated that some MSMEs performed selected control activities without having fully institutionalized simple financial-management procedures. SMEs often adopt accounting and control practices selectively, especially when firm age, managerial capacity, and resource constraints limit the implementation of more formal systems (Roffia et al., 2024). Internal-control systems in SMEs therefore need to be proportionate to organizational size and complexity rather than modeled directly on large-firm control architectures (Santosuosso, 2025). The present results consequently suggest that the relevant managerial challenge is not necessarily to increase bureaucratic control, but to convert isolated monitoring activities into simple, coherent, and repeatable financial routines.

Financial literacy was also positively associated with financial management quality, indicating that the ability to understand, interpret, and use financial information contributes to the way financial activities are managed. Financial literacy has been associated with stronger business performance, financial capabilities, access to finance, and sustainable business practices among small firms (Babajide et al., 2023; Changweshia & Mutezo, 2023; Tuffour et al., 2022). More recent evidence also links financial literacy with SME sustainability, financial technology adoption, financial access, and broader firm-level outcomes (Arachchi et al., 2026; Kurniasari et al., 2025). However, this relationship should not be interpreted as implying that financial knowledge automatically translates into effective financial practices. The

contribution of financial literacy may depend on whether individuals have the opportunity, organizational support, and behavioral discipline required to apply that knowledge in routine financial decisions.

The descriptive evidence reinforces this distinction. Awareness of the importance of financial record-keeping was relatively strong, whereas cash-flow management was comparatively weaker. This suggests that knowledge of basic financial principles may develop more readily than the ability to apply those principles to more analytically demanding tasks. Entrepreneurial financial literacy has been conceptualized as a multidimensional capability that encompasses more than general financial awareness, and the literature consistently shows variation between knowledge, application, and financial behavior (Anshika & Singla, 2022; Molina-García et al., 2023). Reviews of SME financial-literacy research similarly emphasize that financial knowledge should not be assumed to translate automatically into managerial practice (Graña-Alvarez et al., 2024). Evidence from Indonesian MSMEs also shows that different forms of business-related literacy contribute to entrepreneurial outcomes only when they can be converted into practical capability (Hasan et al., 2024). Accordingly, the present findings support a more applied view of financial literacy that emphasizes cash-flow management, budgeting, profitability analysis, and interpretation of financial statements rather than awareness alone.

Financial literacy strengthened the relationship between human resource competence and financial management quality, suggesting that financial understanding complements the value of existing competence. Competence may provide the ability to perform financial-management tasks, whereas financial literacy can improve the interpretation and judgment required to apply those capabilities effectively. Financial literacy has previously been shown to operate as a contingent resource by strengthening the relationship between digital transformation and entrepreneurial outcomes, while its organizational consequences have also been found to vary across contextual conditions such as generational stage and firm-level financial environments (Basha et al., 2025; Diéguez-Soto et al., 2022; Li et al., 2024). The present finding therefore supports a boundary-condition perspective in which the usefulness of competence is partly shaped by the level of financial understanding available to the decision-maker.

This moderating relationship should nevertheless be interpreted cautiously. The finding does not imply that competence becomes ineffective when financial literacy is lower, nor does it suggest that financial literacy can substitute for technical or managerial capability. A more defensible interpretation is that financial literacy improves the effectiveness with which existing competence is converted into financial-management practices. The organizational consequences of financial literacy have been shown to depend on complementary managerial mechanisms, and resource-orchestration research likewise emphasizes that organizational value emerges from how resources are combined rather than from their independent possession (Duréndez et al., 2023; Peretz-Andersson et al., 2024). Evidence from SME capability-development interventions also indicates that combining complementary resources can generate different outcomes from providing isolated interventions (Ashraf & Lyons, 2026). The present result is therefore better understood as evidence of complementarity rather than substitution between human resource competence and financial literacy.

In contrast, financial literacy did not alter the relationship between internal control and financial management quality. This null finding is theoretically informative because it indicates that financial literacy should not be treated as a universal boundary condition across all organizational resources. Internal control is more strongly embedded in procedures, documentation systems, monitoring mechanisms, and defined responsibilities, which may allow it to guide behavior even when individual financial understanding varies. Management-control systems can standardize organizational processes and reduce dependence on

individual discretion, while internal-control structures in SMEs can operate through relatively simple but formalized organizational routines (Roffia et al., 2024; Santosuosso, 2025). The direct relevance of internal-control effectiveness to SME outcomes also supports the possibility that formal control mechanisms exert their influence relatively independently of individual financial literacy (Musah et al., 2022; Roffia & Dabić, 2024). Even so, the absence of moderation should not be interpreted as evidence that financial literacy is irrelevant to internal control itself; it only indicates that differences in financial literacy did not meaningfully change the relationship between internal control and financial management quality in this sample.

Taken together, the findings refine the boundary-condition perspective by showing that the role of financial literacy depends on the nature of the resource with which it interacts. Financial literacy contributes directly to financial management quality and complements human resource competence, but the same complementary role is not evident for internal control. This asymmetric pattern provides a more nuanced explanation than assuming that higher financial literacy strengthens every financial-management resource in the same manner. Contemporary reviews increasingly argue that SME financial-literacy research should move beyond simple direct-effect models and incorporate organizational and contextual mechanisms that explain when and how financial knowledge generates value (Rekha et al., 2024). Broader MSME research similarly suggests that financial behavior and organizational capabilities should be considered jointly when explaining business outcomes and sustainability (Supramono et al., 2025). The practical implication is therefore twofold: applied financial literacy should be developed alongside human resource competence, while internal control should be strengthened through proportionate and repeatable organizational procedures. These interpretations should nevertheless remain bounded by the purposive sample, concentration of relatively young and trade-oriented MSMEs, self-reported measures, and cross-sectional design, making replication across sectors, regions, and stages of business development important for future research.

Conclusion

This study demonstrates that human resource competence, internal control, and financial literacy are all positively associated with the quality of financial management among MSMEs in Makassar. Internal control emerged as the strongest direct predictor, underscoring the importance of clear procedures, documentation, monitoring, and financial-control routines in supporting consistent financial management practices. Human resource competence and financial literacy also contributed positively, indicating that both execution capability and financial understanding are important for effective day-to-day financial management. The moderation results provide a more nuanced explanation. Financial literacy strengthened the relationship between human resource competence and financial management quality, suggesting that competence becomes more effective when MSME actors possess stronger financial understanding. However, financial literacy did not moderate the relationship between internal control and financial management quality, indicating that its boundary role is selective rather than universal.

Practically, MSMEs should combine capability development, financial literacy enhancement, and the formalization of basic financial procedures, particularly in financial planning, cash-flow management, clear control procedures, and simple profit-and-loss reporting. Future studies should test these relationships using longitudinal designs, broader regional samples, and additional contextual factors such as digital financial capability and organizational formalization.

References

- Alshebami, A. S., & Murad, M. (2022). The moderation effect of entrepreneurial resilience on the relationship between financial literacy and sustainable performance. *Frontiers in Psychology, 13*, 954841. <https://doi.org/10.3389/fpsyg.2022.954841>
- Anshika, A., & Singla, A. (2022). Financial literacy of entrepreneurs: a systematic review. *Managerial Finance, 48*(9/10), 1352–1371. <https://doi.org/10.1108/MF-06-2021-0260>
- Arachchi, G. K., Perera, I., Gamage, C., Wijesinghe, S., Wisenthige, K., & Dayapathirana, N. (2026). Does financial literacy matter for firms? An empirical investigation on Sri Lankan SMEs. *PLOS One, 21*(7), e0354031. <https://doi.org/10.1371/journal.pone.0354031>
- Aristei, D., Gallo, M., & Vannoni, V. (2024). Preferences for ethical intermediaries and sustainable investment decisions in micro-firms: The role of financial literacy and digital financial capability. *Research in International Business and Finance, 71*, 102483. <https://doi.org/10.1016/j.ribaf.2024.102483>
- Armstrong, M., & Taylor, S. (2023). *Armstrong's Handbook of Human Resource Management Practice: A Guide to the Theory and Practice of People Management* (16th ed.). Kogan Page.
- Ashraf, A., & Lyons, E. (2026). Complementing business training with access to finance: Evidence from SMEs in Kenya. *Journal of Development Economics, 179*, 103645. <https://doi.org/10.1016/j.jdeveco.2025.103645>
- Babajide, A., Osabuohien, E., Tunji-Olayeni, P., Falola, H., Amodu, L., Olokoyo, F., Adegboye, F., & Ehikioya, B. (2023). Financial literacy, financial capabilities, and sustainable business model practice among small business owners in Nigeria. *Journal of Sustainable Finance & Investment, 13*(4), 1670–1692. <https://doi.org/10.1080/20430795.2021.1962663>
- Basha, S. A., Bennisr, H., & Goaied, M. (2023). Financial literacy, financial development, and leverage of small firms. *International Review of Financial Analysis, 86*, 102510. <https://doi.org/10.1016/j.irfa.2023.102510>
- Basha, S. A., Bennisr, H., & Goaied, M. (2025). Culture, financial literacy, and leverage of small firms. *Research in International Business and Finance, 75*, 102759. <https://doi.org/10.1016/j.ribaf.2025.102759>
- Becker, J.-M., Cheah, J.-H., Gholamzade, R., Ringle, C. M., & Sarstedt, M. (2023). PLS-SEM's most wanted guidance. *International Journal of Contemporary Hospitality Management, 35*(1), 321–346. <https://doi.org/10.1108/IJCHM-04-2022-0474>
- Becker, J.-M., Ringle, C. M., & Sarstedt, M. (2018). Estimating Moderating Effects In Pls-Sem And Plsc-Sem: Interaction Term Generation Data Treatment. *Journal of Applied Structural Equation Modeling, 2*(2), 1–21. [https://doi.org/10.47263/JASEM.2\(2\)01](https://doi.org/10.47263/JASEM.2(2)01)
- Brigham, E. F., & Ehrhardt, M. C. (2024). *Financial Management: Theory & Practice* (17th ed.). Cengage.
- Changwasha, M., & Mutezo, A. T. (2023). The relationship between financial literacy and financial access among SMES in the Ekurhuleni municipality. *Acta Commercii, 23*(1), a1142. <https://doi.org/10.4102/ac.v23i1.1142>
- COSO. (2013). *Internal control—Integrated framework*. Committee of Sponsoring Organizations of the Treadway Commission.
- de la Puente, M., Torres, J., Guzman, H., Rico, H., & Navarro, N. (2026). Internal accounting controls, financial reporting quality and profitability in resource-constrained firms: a mediation analysis. *Journal of Accounting in Emerging Economies, 1–26*. <https://doi.org/10.1108/JAEE-07-2025-0367>

- Diéguez-Soto, J., Martínez-Romero, M. J., Corten, M., & Michiels, A. (2022). The impact of the CEO's financial literacy on family SMEs' growth: the moderating role of generational stage. *Baltic Journal of Management*, 17(1), 89–106. <https://doi.org/10.1108/BJM-01-2021-0003>
- Dinku, A. E., Singh, M., & Singh, S. (2024). Effect of human capital on the performance of small and medium enterprises: a mediating role of innovation practice in Ethiopia. *Cogent Business & Management*, 11(1), 2434729. <https://doi.org/10.1080/23311975.2024.2434729>
- Duréndez, A., Dieguez-Soto, J., & Madrid-Guijarro, A. (2023). The influence of CEO's financial literacy on SMEs technological innovation: the mediating effects of MCS and risk-taking. *Financial Innovation*, 9(1), 15. <https://doi.org/10.1186/s40854-022-00414-w>
- Frimpong, S. E., Agyapong, G., & Agyapong, D. (2022). Financial literacy, access to digital finance and performance of SMEs: Evidence From Central region of Ghana. *Cogent Economics & Finance*, 10(1), 2121356. <https://doi.org/10.1080/23322039.2022.2121356>
- Graña-Alvarez, R., Lopez-Valeiras, E., Gonzalez-Loureiro, M., & Coronado, F. (2024). Financial Literacy in SMEs: A Systematic Literature Review and a Framework for Further Inquiry. *Journal of Small Business Management*, 62(1), 331–380. <https://doi.org/10.1080/00472778.2022.2051176>
- Guenther, P., Guenther, M., Ringle, C. M., Zaefarian, G., & Cartwright, S. (2023). Improving PLS-SEM use for business marketing research. *Industrial Marketing Management*, 111, 127–142. <https://doi.org/10.1016/j.indmarman.2023.03.010>
- Guo, Q., Qian, Y., Tan, W., & Xie, Z. (2024). Does financial literacy drive entrepreneurship in rural China? *Finance Research Letters*, 61, 105046. <https://doi.org/10.1016/j.frl.2024.105046>
- Gyamera, E., Abayaawien Atuilik, W., Eklemet, I., Henry Matey, A., Tetteh, L. A., & Kwasi Apreku-Djan, P. (2023). An analysis of the effects of management accounting services on the financial performance of SME: The moderating role of information technology. *Cogent Business & Management*, 10(1), 2183559. <https://doi.org/10.1080/23311975.2023.2183559>
- Hair, J. F., Sarstedt, M., Ringle, C. M., Sharma, P. N., & Liengaard, B. D. (2024). Going beyond the untold facts in PLS–SEM and moving forward. *European Journal of Marketing*, 58(13), 81–106. <https://doi.org/10.1108/EJM-08-2023-0645>
- Hasan, M., Jannah, M., Supatminingsih, T., Ahmad, M. I. S., Sangkala, M., Najib, M., & Elpisah. (2024). Understanding the role of financial literacy, entrepreneurial literacy, and digital economic literacy on entrepreneurial creativity and MSMEs success: a knowledge-based view perspective. *Cogent Business & Management*, 11(1), 2433708. <https://doi.org/10.1080/23311975.2024.2433708>
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- IS, R., KV, S., & Hungund, S. (2024). MSME/SME Financial Literacy: A Systematic Literature Review and Bibliometric Analysis. *Journal of the Knowledge Economy*, 16(4), 14378–14405. <https://doi.org/10.1007/s13132-024-02472-0>
- Kock, N., & Hadaya, P. (2018). Minimum sample size estimation in PLS-SEM: The inverse square root and gamma-exponential methods. *Information Systems Journal*, 28(1), 227–261. <https://doi.org/10.1111/isj.12131>
- Kurniasari, F., Abd Hamid, N., & Lestari, E. D. (2025). Unraveling the impact of financial literacy, financial technology adoption, and access to finance on small medium enterprises business performance and

- sustainability: a serial mediation model. *Cogent Business & Management*, 12(1), 2487837. <https://doi.org/10.1080/23311975.2025.2487837>
- Li, J., Wang, H., & Soh, W. (2024). Digital transformation, financial literacy and rural household entrepreneurship. *Finance Research Letters*, 62, 105171. <https://doi.org/10.1016/j.frl.2024.105171>
- Lontchi, C. B., Yang, B., & Shuaib, K. M. (2023). Effect of Financial Technology on SMEs Performance in Cameroon amid COVID-19 Recovery: The Mediating Effect of Financial Literacy. *Sustainability*, 15(3), 2171. <https://doi.org/10.3390/su15032171>
- Molina-García, A., Diéguez-Soto, J., Galache-Laza, M. T., & Campos-Valenzuela, M. (2023). Financial literacy in SMEs: a bibliometric analysis and a systematic literature review of an emerging research field. *Review of Managerial Science*, 17(3), 787–826. <https://doi.org/10.1007/s11846-022-00556-2>
- Musah, A., Padi, A., Blay, M. W., Okyere, D. O., & Ofori, B. S. (2025). Ethical organisational culture, effective internal control systems and tax compliance of small and medium scale enterprises (SMEs): The role of corporate governance. *Social Sciences & Humanities Open*, 11, 101331. <https://doi.org/10.1016/j.ssaho.2025.101331>
- Musah, A., Padi, A., Okyere, B., E. Adenutsi, D., & Ayariga, C. (2022). Does corporate governance moderate the relationship between internal control system effectiveness and SMEs financial performance in Ghana? *Cogent Business & Management*, 9(1), 2152159. <https://doi.org/10.1080/23311975.2022.2152159>
- Ngo, D. N. P., & Nguyen, C. Van. (2024). Does the CEO's financial and accounting expertise affect the financial reporting quality? Evidence from an emerging economy. *Journal of Financial Reporting and Accounting*, 22(3), 653–676. <https://doi.org/10.1108/JFRA-09-2021-0301>
- Otoo, F. N. K. (2024). Assessing the influence of financial management practices on organizational performance of small- and medium-scale enterprises. *Vilakshan - XIMB Journal of Management*, 21(2), 162–188. <https://doi.org/10.1108/XJM-09-2023-0192>
- Padi, A., Musah, A., Blay, M. W., & Okyere, D. O. (2025). Small and Medium Scale Enterprise (SME) Owner financial literacy, entrepreneurial competencies and financial performance: the role of corporate governance. *Future Business Journal*, 11(1), 160. <https://doi.org/10.1186/s43093-025-00585-9>
- Peretz-Andersson, E., Tabares, S., Mikalef, P., & Parida, V. (2024). Artificial intelligence implementation in manufacturing SMEs: A resource orchestration approach. *International Journal of Information Management*, 77, 102781. <https://doi.org/10.1016/j.ijinfomgt.2024.102781>
- Rahman, S.-U.-, Chen, S., Al-Faryan, M. A. S., Ahmad, I., Hussain, R. Y., & Saud, S. (2023). Audit services and financial reporting quality: The role of accounting expertise auditors. *Cogent Business & Management*, 10(1), 2164142. <https://doi.org/10.1080/23311975.2022.2164142>
- Ringle, C. M., Wende, S., & Becker, J.-M. (2024). *SmartPLS 4*.
- Roffia, P., Benavides, M. M., & Carrilero, A. (2024). Cost accounting practices in SMEs: liability of age and other factors that hinder or burst its implementation in turbulent years. *International Entrepreneurship and Management Journal*, 20(1), 115–139. <https://doi.org/10.1007/s11365-023-00938-2>
- Roffia, P., & Dabić, M. (2024). The role of management control and integrated information systems for the resilience of SMEs. *Review of Managerial Science*, 18(5), 1353–1375. <https://doi.org/10.1007/s11846-023-00657-6>

- Santosuosso, P. (2025). A Practical Approach to Designing Internal Control Systems in SMEs. *Journal of Open Innovation: Technology, Market, and Complexity*, 11(2), 100565. <https://doi.org/10.1016/j.joitmc.2025.100565>
- Saunders, M. N. K., Lewis, P., & Thornhill, A. (2023). *Research Methods for Business Students* (9th ed.). Pearson.
- Seraj, A. H. A., Fazal, S. A., & Alshebami, A. S. (2022). Entrepreneurial Competency, Financial Literacy, and Sustainable Performance—Examining the Mediating Role of Entrepreneurial Resilience among Saudi Entrepreneurs. *Sustainability*, 14(17), 10689. <https://doi.org/10.3390/su141710689>
- Siregar, S. V., & Harahap, S. N. (2024). Financial reporting complexities: Association with accounting expertise of board and audit committee. *Journal of Corporate Accounting & Finance*, 35(1), 203–217. <https://doi.org/10.1002/jcaf.22658>
- Supramono, S., Damayanti, T. W., & Adhitya, D. (2025). Dynamic capabilities and financial behavior to accelerate MSME performance recovery and its impacts on business sustainability. *Journal of Innovation and Entrepreneurship*, 14(1), 10. <https://doi.org/10.1186/s13731-024-00456-7>
- Tian, G., Zhou, S., & Qi, Y. (2022). Executive Financial Literacy and Corporate Performance: Evidence from Small and Medium-Sized Enterprises in China. *Asia-Pacific Journal of Financial Studies*, 51(6), 797–827. <https://doi.org/10.1111/ajfs.12403>
- Timothy, V. L. (2022). The effect of top managers' human capital on SME productivity: the mediating role of innovation. *Heliyon*, 8(4), e09330. <https://doi.org/10.1016/j.heliyon.2022.e09330>
- Tuffour, J. K., Amoako, A. A., & Amartey, E. O. (2022). Assessing the effect of financial literacy among managers on the performance of small-scale enterprises. *Global Journal of Business Research*, 16(1), 29–42.
- Xu, Y., & Shiau, W.-L. (2026). Moderation analysis in business and management research: Common issues, solutions, and guidelines for future research. *International Journal of Information Management*, 86, 102995. <https://doi.org/10.1016/j.ijinfomgt.2025.102995>