

Financial Capability, Financial Technology, and MSME Performance: The Moderating Role of Financial Knowledge

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ABSTRACT

Purpose: This research intends to investigate the effect of financial capability and financial technology on the financial performance of Micro, Small, and Medium Enterprises (MSMEs). In addition, the study evaluates the moderating role of financial knowledge in strengthening the relationship between financial capability, financial technology, and MSME performance. The research also explores how financial literacy supports MSMEs in managing financial resources and adopting digital financial services efficiently.

Method: This study applies a quantitative research design using a survey approach. Primary data were gathered through structured questionnaires distributed to 210 MSME owners and managers in Indonesia. The respondents were selected using stratified random sampling to ensure representation from various business sectors. The collected data were analyzed using Structural Equation Modeling (SEM) with the Partial Least Squares (PLS) method through SmartPLS software.

Finding: The results demonstrate that financial capability and financial technology positively and significantly influence MSME financial performance. Moreover, financial knowledge strengthens the positive relationship between financial capability and business performance, as well as between financial technology and MSME performance. MSMEs possessing stronger financial knowledge are better able to make strategic financial decisions and optimize the use of fintech services, which ultimately improves business outcomes.

Novelty: The uniqueness of this study lies in the integration of financial capability, financial technology, and financial knowledge within a single conceptual framework related to MSME financial performance. Furthermore, this study emphasizes the role of financial knowledge as a moderating variable, which has received limited attention in previous fintech and MSME performance studies, particularly in Indonesia.

INTRODUCTION

Micro, small, and medium enterprises are critical drivers of economic growth and stability, particularly in developing economies (Nugraheni et al., 2025; Rohaeni et al., 2026). These enterprises often face significant challenges in securing financing and managing their financial resources effectively, which can impede their growth and long-term sustainability (Kurniasari et al., 2025; Sari et al., 2023, p. 1746). This issue is further compounded by the rapidly evolving financial landscape, characterized by the proliferation of financial technology solutions, which MSMEs may struggle to adopt effectively without adequate financial knowledge (Mohapatra et al., 2025).

This often stems from limited financial literacy, inadequate access to formal financial services, and insufficient awareness of financial management best practices (Hapsari & Puspitasari, 2024, p. 49). A high level of financial literacy, encompassing financial skills, knowledge, and behavior, significantly optimizes business performance and prudent operational management for MSME actors (Wahyundaru et al., 2024, p. 2655). This underscores the imperative for MSMEs to enhance their financial acumen to navigate complex economic landscapes and foster sustainable development.

Moreover, the convergence of technological and financial literacy, termed techno-finance literacy, is increasingly recognized as a crucial knowledge-based tool for addressing the rapid digitalization of business operations within SMEs (Kulathunga et al., 2020). This multifaceted challenge highlights the necessity of investigating how financial capability and financial technology influence MSME financial performance, particularly when mediated by varying levels of financial knowledge (M. et al., 2024). Thus, a deeper understanding of these interdependencies is essential to formulating strategies that bolster MSME resilience and foster their successful integration into the broader digital economy (Thathsarani & Jian-guo, 2022). This study aims to meticulously analyze the intricate interplay among financial capability, financial technology adoption, and the financial performance of MSMEs, with a particular focus on the moderating role of financial knowledge.

Specifically, it seeks to determine how enhanced financial literacy among MSME operators contributes to more effective financial decision-making, improved access to capital, and ultimately, superior business performance (Ye & Kulathunga, 2019; Yun et al., 2022, p. 3). This includes addressing the pervasive challenges MSMEs face, such as limited financial stability and difficulties in resolving financial management issues (Bawono et al., 2022, p. 2). Many MSME leaders often lack crucial corporate financing knowledge, and a significant portion do not engage in savings or investment planning, which directly impacts their corporate performance (Tóth et al., 2022, p. 10). This deficiency in financial acumen often correlates with an inability to effectively manage cash flow, credit, savings, and investments, thereby hindering their capacity to leverage financial products and services (Mabel, 2022, p. 100).

Moreover, a robust understanding of financial principles enables entrepreneurs to make informed decisions, which is crucial for business continuity and growth (Goyal et al., 2025; Togun et al., 2023, p. 24). Specifically, an adequate level of financial literacy empowers MSME owners to recognize when external financial consultancy services are necessary for complex decisions and to better manage debt and credit, thereby mitigating financial constraints (Charfeddine et al., 2024, p. 8). Furthermore, financial literacy facilitates a greater understanding of financial products and services, enabling MSMEs to leverage financial technology solutions more effectively to improve their operational and financial performance (Lontchi et al., 2023). Indeed, several studies confirm that sufficient financial literacy is positively correlated with enhanced SME innovation and overall performance, emphasizing its critical role in capital resource management and business success (Sakti et al., 2025, p. 2).

This foundational understanding also extends to technological literacy, which is increasingly vital for MSMEs to effectively utilize financial technology solutions, enabling them to expand their operations and enhance efficiency in information processing (Hamdana et al., 2022, p. 1449). Given these challenges, enhancing financial capability and leveraging financial technology is paramount for MSMEs to thrive in competitive markets (Padachi et al., 2018, p. 416). This study, therefore, investigates the intricate relationship between financial capability, financial technology adoption, and the financial performance of MSMEs, while examining the moderating influence of financial knowledge on these dynamics. This research aims to bridge existing literature gaps by exploring how these factors collectively impact MSMEs, offering insights into optimizing financial strategies for sustainable growth (Hussain et al., 2018, p. 988).

Specifically, this study posits that enhanced financial knowledge serves as a crucial moderator, amplifying the positive effects of both financial capability and financial technology on the financial performance of MSMEs. The theoretical framework delineates that greater financial knowledge equips MSME proprietors to strategically apply financial technology and financial capability, thereby translating into improved financial outcomes.

This perspective aligns with prior research indicating that financial literacy significantly influences the financial performance of MSMEs by enabling better financial management and risk mitigation (Miswanto et al., 2023, p. 414). For instance, adequate financial literacy can empower MSME owners to prepare for financial adversities through effective risk-mitigation strategies such as asset diversification and judicious debt management (Alshebami & Murad, 2022, p. 3). Furthermore, a comprehensive understanding of financial principles is essential for optimizing capital

budgeting techniques and navigating the complexities of financial markets, thereby enhancing overall financial performance (Sartamorn et al., 2025, p. 50). This includes the ability to interpret financial statements, forecast financial trends, and make informed decisions regarding investment and financing options, all of which are critical for sustained growth (Gómez-Guillamón et al., 2023, p. 2). The absence of such understanding often leads to suboptimal financial decisions, exacerbating vulnerabilities and hindering the potential for resilience and sustainable development within the MSME sector (Ariana et al., 2024, p. 1000). Conversely, the judicious integration of financial technology can significantly augment the operational efficiency and financial accessibility for MSMEs, offering advanced tools for managing transactions, accessing credit, and streamlining financial processes (Daud et al., 2021, p. 38).

However, while empirical evidence suggests that the synergy between financial technology adoption and robust financial literacy enables MSMEs to capitalize on innovations for enhanced operational efficiency and competitive advantage (Kiky, 2023, p. 7; Lontchi et al., 2023), existing studies reveal notable research gaps, including limited examination of financial knowledge as a moderator in the interplay of financial capability, fintech utilization, and MSME financial performance, particularly considering discrepancies in direct effects and calls for retesting with contextual mediators like innovation and risk attitudes (Meldona et al., 2023, p. 195; Rahadjeng et al., 2023, p. 148; Thottoli et al., 2024). This study intends to address these gaps by rigorously investigating the multifaceted interplay of these variables within the MSME sector. Specifically, this research aims to analyze the direct and indirect relationships among financial capability, financial technology, and financial performance, mediated by financial knowledge, within the Indonesian MSME context (Kusumawardhani et al., 2023, p. 13; Ruiz et al., 2024, p. 4).

Moreover, it seeks to explore how digital financial literacy, which remains low among Indonesian MSMEs, influences their capacity to leverage digital financial services for improved efficiency and access to working capital (Gosal & Nainggolan, 2023, p. 4). This nuanced approach is vital for understanding the mechanisms through which MSMEs can enhance their financial performance, particularly given the dynamic interplay between technological advancements and financial acumen (Rosyidiana & Narsa, 2024). This comprehensive analysis will provide valuable insights for policymakers and practitioners aiming to bolster the financial resilience and growth trajectories of MSMEs (Artana et al., 2024).

To that end, the novelty of this study lies in its pioneering examination of financial knowledge as a moderator in the combined influence of financial capability and financial technology adoption on MSME financial performance within the Indonesian context. This addresses a critical gap, as prior research has largely focused on isolated direct effects or fintech-specific moderations without integrating financial capability (Jamilah & Mardiana, 2024),(Candraningrat et al., 2025, p. 2),(Meldona et al., 2023, p. 195),(Nugraheni et al., 2024), employing structural equation modeling to empirically validate these intricate causal pathways and hypothesized relationships. This rigorous analytical approach aims to provide a robust understanding of how these interconnected factors collectively contribute to the sustained growth and resilience of MSMEs in Indonesia, particularly concerning their strategic financial decisions and operational adjustments in a rapidly evolving economic landscape (Wahyono & Hutahayan, 2020). It also addresses the need for a deeper understanding of fintech adoption drivers in Indonesia, extending existing models by incorporating financial literacy, user innovativeness, government support, and trust, especially during periods of economic disruption (Nugraha et al., 2022, p. 210).

Furthermore, the urgency of this research is underscored by the acute vulnerability of traditional market SMEs in Indonesia to financial risks and their persistent barriers to accessing financial resources, exacerbated by inadequate financial literacy and low levels of digital adoption. These factors threaten their competitiveness amid intensifying rivalry from modern retailers and post-pandemic economic pressures (Artana et al., 2024; Gosal & Nainggolan, 2023, p. 4; Kurniasari et al., 2023). Given the critical role of MSMEs in economic development and job creation, particularly in countries like Indonesia where they contribute significantly to the GDP, understanding these dynamics is paramount for fostering economic stability and growth (Rahadjeng et al., 2023, p. 3;

Siska et al., 2025, p. 911). Therefore, this study aims to delineate the pathways by which augmented financial knowledge moderates the nexus between financial capability, fintech adoption, and MSME financial performance, thereby reinforcing their resilience to economic disruptions and advancing long-term sustainability in the Indonesian context (Aeni et al., 2024; Artana et al., 2024; Widagdo & Sa'diyah, 2023, p. 128).

THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

Primarily grounded in the Technology Acceptance Model to explain fintech adoption behaviors and the Resource-Based View to frame financial capability as a strategic resource, and incorporates empirical evidence on financial capability, financial technology, financial knowledge as a moderator, and their collective impact on MSME financial performance (Adukpo & Mensah, 2025; Nugraha et al., 2022, p. 210; Nurhidayah et al., 2023). This review further explores how gender-specific financial literacy can influence digital marketing adoption and entrepreneurial sustainability among women-led MSMEs (Nuraisyiah et al., 2025), an underexplored area in the broader literature concerning financial technology and performance. It also scrutinizes existing literature on financial inclusion challenges faced by MSMEs, particularly highlighting how fintech can democratize access to financial services that were traditionally prohibitive for smaller businesses (Obiki-Osafiele et al., 2024, p. 1487). Furthermore, the review will consider how government initiatives and policy frameworks can facilitate the integration of digital financial services, thereby enhancing MSME competitiveness and financial performance (Evinita et al., 2025).

Additionally, it will examine the mediating role of financial inclusion in the relationship between financial technology adoption and the financial performance of MSMEs, acknowledging the challenges of low financial literacy and limited access to financial services in regions such as Banten Province (Rohaeni et al., 2026). The analysis will also incorporate how intellectual capital and risk attitudes, influenced by financial literacy, impact the business sustainability of specific creative industries within Indonesia (Idris et al., 2023, p. 114). This comprehensive literature review establishes a theoretical and empirical foundation for investigating the intricate relationships between financial capability, financial technology, and MSME financial performance, with particular emphasis on the moderating role of financial knowledge. The subsequent discussion will systematically elaborate on each of these constructs, beginning with a detailed exposition of financial capability and its dimensions relevant to MSMEs.

Technology adaptation and innovative financial practices positively impact sustainable financial performance within MSMEs, drawing on studies that highlight the significance of agility in confronting economic disruptions (Kurniawan et al., 2023). Finally, this section will synthesize the extant literature to establish a conceptual framework. This framework guides the empirical investigation into the moderating role of financial knowledge on the relationship between financial capability, fintech adoption, and MSME financial performance, thereby addressing the identified research gaps. It will specifically consider the impact of financial knowledge on financial inclusion, which is critical for supporting women entrepreneurs in Indonesia, where low financial literacy often hinders access to formal financial institutions and perpetuates supply-side discrimination (Lestari et al., 2025).

The theoretical framework underpinning this study integrates the Resource-Based View and the Technology Acceptance Model, positing that financial capability and technology adoption, when synergistically enhanced by financial knowledge, serve as critical internal resources that drive competitive advantage and superior financial performance for MSMEs (Parmitasari & Rusnawati, 2023, p. 4). Specifically, the Resource-Based View posits that firms achieve sustained competitive advantage through heterogeneous, valuable, rare, inimitable, and non-substitutable resources, which in this context include robust financial capabilities and adept integration of financial technologies (Ullah et al., 2021, p. 3). Conversely, the Technology Acceptance Model elucidates how perceived usefulness and ease of use influence MSMEs' intention to adopt and utilize fintech solutions, thereby translating into improved operational efficiencies and financial outcomes (Hidayat-ur-Rehman, 2024; Setiawan et al., 2023, p. 460). Furthermore, incorporating financial literacy as a moderating variable within this combined framework acknowledges its pivotal role in optimizing resource deployment

and maximizing the benefits derived from technological advancements, particularly in enhancing financial performance metrics such as revenue growth, return on assets, and overall profitability (Ezeilo & Ebomah, 2025, p. 682).

Empirical studies grounded in the Resource-Based View affirm that financial capability exerts a significant positive direct effect on MSME financial performance by enhancing cash flow management, resource allocation, and investment decision-making, thereby fostering operational resilience and profitability in resource-constrained environments (Hendrawan et al., 2023, p. 73; Nurhidayah et al., 2023; Parmitasari & Rusnawati, 2023, p. 8; Sulaiman, 2024). Similarly, the Technology Acceptance Model has been instrumental in explaining how MSMEs' willingness to embrace fintech solutions, driven by perceptions of their utility and ease of implementation, directly correlates with improved financial metrics and market positioning (Peter et al., 2024). However, despite extensive research in both domains, a notable gap persists in understanding the comprehensive interplay between financial capability, fintech adoption, and the moderating influence of financial knowledge on MSME financial performance, particularly within the unique socioeconomic context of developing economies (Sari et al., 2023, p. 1746).

This research seeks to bridge this gap by meticulously examining how financial knowledge acts as a critical moderating variable, amplifying the positive effects of both financial capability and fintech adoption on the financial performance of MSMEs (Hutabarat et al., 2025). This holistic approach not only addresses the direct impacts of these variables but also uncovers the synergistic effects that can propel MSMEs toward greater economic stability and growth. Moreover, fintech solutions, particularly digital payment systems and data-driven analytics, play a pivotal role in advancing financial inclusion for MSMEs by democratizing access to finance and enabling real-time monitoring of environmental, social, and governance metrics to optimize impacts and align with sustainable development goals (Campanella et al., 2025, p. 2; Obiki-Osafiele et al., 2024, p. 1487; Tanchangya et al., 2025).

Hypothesis (H1) financial capability is proposed to have a positive impact on MSME financial performance

Enabling MSMEs to optimize resource allocation, implement effective risk mitigation strategies, and capitalize on growth opportunities amid economic volatility, thereby enhancing their overall financial health (Dwyanti, 2024, p. 1; Kaur & Bansal, 2020; Nurjannah et al., 2023, p. 3). Conversely, the integration of financial technology has been demonstrated to significantly enhance financial performance by offering improved convenience, reduced costs, and expanded accessibility to financial services for MSMEs (Alkhaldeh et al., 2023, p. 1021). However, the success of FinTech adoption in achieving sustainable profitability and performance hinges on organizational readiness, effective ESG management, and strategic alignment, rather than solely on the technology itself (AlQudah et al., 2025, p. 5).

Hypothesis 2 Financial technology is proposed to have a positive impact on MSME financial performance

Furthermore, financial knowledge serves as a critical moderator in the relationship between financial capability and MSME financial performance, strengthening the positive impact of financial capability by enabling more effective resource utilization, decision-making, and risk management in resource-constrained settings (Abdallah et al., 2024; Nurhidayah et al., 2023; Parmitasari & Rusnawati, 2023, p. 8). Specifically, greater financial knowledge empowers MSME operators to critically assess financial products, negotiate favorable terms, and strategically deploy capital, thereby amplifying the positive effects of their inherent financial capabilities (Molina-García et al., 2025, p. 3). Similarly, financial knowledge also modulates the relationship between FinTech adoption and MSME financial performance by equipping entrepreneurs with the understanding to discern appropriate technologies, optimize their application, and interpret the resulting data for strategic advantage (Elmi et al., 2025).

Empirical evidence corroborates this moderating effect, revealing that financial knowledge significantly strengthens the positive relationship between FinTech adoption and MSME financial

performance by enabling entrepreneurs to select suitable fintech tools, mitigate associated risks, and harness data analytics for superior operational efficiency and profitability, particularly in contexts like Indonesia where studies on food and beverage MSMEs in Surabaya and Bali confirm this amplification (Candraningrat et al., 2025, p. 5; Jamilah & Mardiana, 2024; Zobi et al., 2025). Therefore, Hypothesis 3 proposes that financial knowledge significantly moderates the relationship between financial capability and MSME financial performance, while Hypothesis 4 suggests that financial knowledge similarly moderates the relationship between FinTech adoption and MSME financial performance. This comprehensive understanding of these interrelationships will provide valuable insights for policymakers, financial institutions, and MSME stakeholders in fostering a more robust and sustainable entrepreneurial ecosystem (Sudrajad et al., 2023, p. 1).

This includes enhancing financial literacy, which involves understanding financial concepts and the ability to make effective financial decisions, thereby playing a foundational role in financial stability (Chinh et al., 2024, p. 799). Indeed, heightened financial knowledge empowers MSME owners to make informed financing decisions, manage credit risk effectively, and navigate complex financial landscapes, all of which contribute to enhanced business sustainability and performance (Indrawati et al., 2025; Purnamawati & Yuniarta, 2020, p. 3589).

Hypothesis 3 Financial knowledge positively moderates the relationship between financial capability and MSME performance.

Hypothesis 4 Financial technology positively moderates the relationship between financial capability and MSME performance.

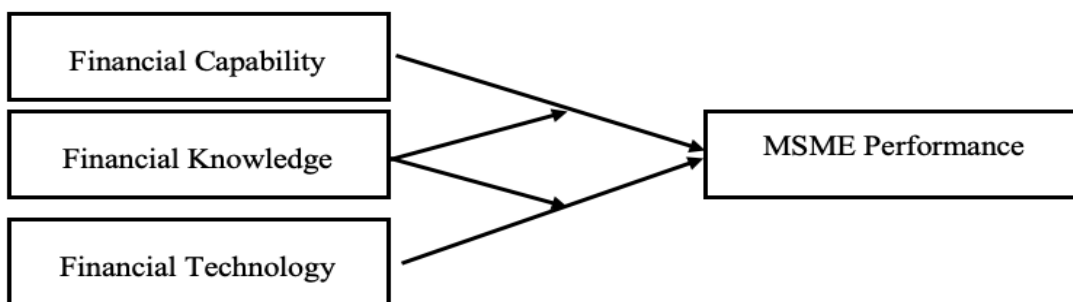


Figure Research Framework

RESEARCH METHODOLOGY

This section outlines the methodological framework employed to investigate the hypothesized relationships between financial capability, financial technology, financial knowledge, and MSME financial performance. This study utilizes a quantitative research approach, using a survey design to collect primary data from a representative sample of MSMEs within the specified economic context. The selection of MSMEs will utilize a stratified random sampling technique to ensure proportional representation across various sectors and sizes, thereby enhancing the generalizability of the findings. The survey instrument will incorporate validated scales to measure financial capability, financial technology adoption, financial knowledge, and various indicators of MSME financial performance. Data collection will involve a structured questionnaire administered through online and in-person channels to ensure a comprehensive reach within the target population.

Data collection will involve structured questionnaires administered to MSME owners or managers, focusing on quantifiable metrics related to financial capability, fintech adoption, financial knowledge, and various indicators of financial performance. Data will be collected from 210 MSME owners or managers through structured questionnaires utilizing established scales adapted from prior research, including those measuring financial literacy across dimensions of knowledge, skills, attitude, and behavior (Ismanto & Pebruary, 2022, p. 286; Oladapo, 2024; Rekha et al., 2024), as well as financial capability, fintech adoption, and performance indicators such as profitability, sales growth, and asset growth (Ismanto & Pebruary, 2022, p. 286; Surenggono & Djamilah, 2022, p. 443), to ensure construct validity and reliability. The survey instrument will incorporate Likert-type scales to capture the nuances of respondents' perceptions and practices regarding these constructs, allowing for statistical analysis of the proposed hypotheses.

Methodology: Results

The collected data will then be analyzed using advanced statistical techniques, including structural equation modeling, to rigorously test the proposed hypotheses and elucidate the direct and moderating effects of the variables. This approach facilitates the simultaneous evaluation of multiple complex relationships, providing a robust framework for understanding the intricate interplay between financial capability, financial technology, financial knowledge, and MSME financial performance. This methodology will provide a comprehensive understanding of how these factors collectively influence the financial performance of MSMEs, offering insights for targeted interventions and policy recommendations. The data collection process will involve an online survey utilizing a standardized questionnaire, distributed via email, online platforms, and professional networks, to ensure broad participation and data consistency (Allahham et al., 2023, p. 419).

RESULTS AND DISCUSSION

This study utilized data collected from 210 respondents through a questionnaire survey. Subsequently, the data were processed and analyzed through several analytical stages, as presented below.

Tabel Testing Result

Variable	Coefficient	Standard Error	t-Statistic	p-Value	Result
Partial Test					
C (Constant)	11.22260	2.508782	4.659037	0.0000	–
X1 (<i>Financial Capability</i>)	0.472073	0.062032	4.710210	0.0000	Accepted
X2 (<i>Financial Technology</i>)	0.415560	0.079083	4.473897	0.0419	Accepted
Moderation Test					
C (Constant)	20.22461	1.123530	18.00095	0.0000	–
X1Z (<i>Financial Capability × Financial Knowledge</i>)	0.025323	0.003270	7.745143	0.0000	Accepted
X2Z (<i>Financial Technology × Financial Knowledge</i>)	0.010684	0.003843	2.680060	0.0059	Accepted
Note: Significant at $\alpha < 0.05$.					
Variable Definitions: X1: <i>Financial Capability</i> , X2: <i>Financial Technology</i> , X1Z: <i>Interaction between Financial Capability and Financial Knowledge</i> , X2Z: <i>Interaction between Financial Technology and Financial Knowledge</i> . Dependent Variable: <i>MSMES Performance</i> .					

Source: Prepared by the authors, 2025

The results of the partial test indicate that both financial capability (X1) and financial technology (X2) significantly influence financial performance (with p-values < 0.05), while the moderation test further demonstrates that financial knowledge (X1Z and X2Z) markedly strengthens these relationships, suggesting that a deeper understanding of financial concepts and tools enhances their positive impact on MSME outcomes (Masrizal et al., 2024; Toni et al., 2023, p. 573). These findings underscore the critical importance of financial literacy initiatives for MSMEs, as they can greatly amplify the benefits derived from both intrinsic financial capabilities and the adoption of modern financial technologies (Idris et al., 2023, p. 118). This aligns with previous research highlighting the role of financial information in enabling entrepreneurs to navigate economic challenges and strategize for growth (Peter et al., 2019, p. 201).

Partial Least Squares Structural Equation Modeling was used for hypothesis testing, supported by SmartPLS software, to analyze these complex interdependencies (Saadah & Setiawan, 2023, p. 58; Shore et al., 2024, p. 103069). This methodology is well-suited for examining intricate relationships between multiple latent variables, particularly in studies involving complex theoretical models and smaller sample sizes (Alkhalwaldeh et al., 2023, p. 1023; Pérez-Campdesuñer et al., 2026).

Discussion

This approach allows for the simultaneous assessment of both measurement and structural models, ensuring the robustness and reliability of the findings (Al-Afeef et al., 2023, p. 1183),(Alnsour et al., 2023, p. 1663). Specifically, validity and reliability tests evaluated the measurement model, while the structural model assessed causal relationships (Subanidja et al., 2023, p. 2159). This analytical technique facilitates the simultaneous evaluation of complex causal pathways and moderating effects, thereby enhancing the explanatory power of the model regarding MSME financial performance (Bhatti et al., 2022, p. 11). This robust statistical framework enabled the verification of hypothesized relationships, confirming the direct and moderating influences within the proposed model (Oduro & Mensah-Williams, 2023, p. 7).

This two-stage analytical process, encompassing the validation of the measurement model and subsequent verification of research hypotheses through the structural model, adheres to established best practices in SEM (Kusa et al., 2023, p. 47). The adoption of Partial Least Squares for data analysis is particularly salient given its ability to handle different measurement scales and smaller sample sizes, making it an appropriate choice for this study (Widyastuti et al., 2020, p. 2717). Furthermore, the application of SmartPLS 3 software, as utilized in similar studies, enabled a robust examination of the digital financial literacy's impact on MSME performance and the intricate relationships between various constructs (Kusumawardhani et al., 2023, p. 1).

This analytical framework rigorously assesses how digital financial literacy, combined with financial technology adoption, ultimately influences the financial behavior and performance of MSMEs (Aryan et al., 2023, p. 121; Frimpong et al., 2022). The choice of PLS-SEM was further justified by its efficacy in producing reliable results for complex constructs in social science research and its capacity for robust predictions with fewer assumptions about the data (Sharma & Adeniyi, 2025, p. 21). This method is particularly advantageous for exploratory studies aimed at developing new theories or outcomes, especially when models assessing the digitization level of new businesses are scarce in entrepreneurship research (Haq & Huo, 2023, p. 7).

The primary data collection method involved distributing online questionnaires to 120 MSMEs in Banten, Indonesia, which aligns with practices for studies employing PLS-SEM (Purba et al., 2021, p. 276). This method is especially beneficial for exploratory research and models with multiple exogenous and endogenous latent variables, allowing for accurate estimation and hypothesis testing without stringent sample size restrictions (Song et al., 2022, p. 1176; Troise et al., 2021, p. 121236). The collected data from these questionnaires, employing a Likert scale for responses, allowed for detailed statistical analysis to uncover the nuanced relationships between financial literacy, technology, and MSME financial outcomes (Udayana et al., 2023, p. 172; Wahyundaru et al., 2024, p. 2655).

This approach further permits the assessment of both direct and indirect effects, providing a comprehensive understanding of the pathways through which financial literacy and technology influence MSME financial performance. Moreover, the utilization of SmartPLS software facilitates a rigorous examination of the proposed theoretical model, ensuring both its scientific reliability and its capacity to elucidate complex interdependencies within the dataset (Nguyen et al., 2021, p. 247; Wahyundaru et al., 2024, p. 2655). This methodological rigor enhances the study's ability to delineate the specific mechanisms by which financial knowledge moderates the relationship between financial capabilities, technology adoption, and the subsequent financial outcomes for MSMEs (Rohaeni et al., 2026).

Conclusion

The conclusion section summarizes the key findings of this study regarding the influence of financial capability and financial technology on MSME financial performance, moderated by financial knowledge. It reiterates that financial knowledge significantly strengthens the positive impact of both financial capability and financial technology on MSME financial outcomes (Rohaeni et al., 2026). These findings are consistent with previous research indicating that elevated levels of financial literacy among small business managers correlate with enhanced sustainable financial practices and improved performance (Wahyundaru et al., 2024, p. 2655).

Therefore, promoting financial literacy among MSME owners is crucial for maximizing the benefits derived from their financial capabilities and the integration of financial technology (Nugraheni et al., 2025). Such initiatives could therefore facilitate greater financial access and technology adoption among MSMEs, ultimately contributing to their overall sustainability (Kurniasari et al., 2025). This aligns with findings that emphasize the positive contributions of financial literacy and technological literacy to the longevity and productivity of SMEs, particularly in developing economies (Hamdana et al., 2022, p. 1449; Sakti et al., 2025, p. 6). Moreover, the integration of financial technology, especially aspects like cashless transactions, has been observed to positively influence financial inclusion by enhancing financial knowledge among MSME actors (Hapsari & Puspitasari, 2024, p. 58).

Limitation

Despite these insights, several limitations warrant consideration, including the relatively constrained sample size and the specific geographical focus of the study. Future research could expand the geographical scope and increase the sample size to enhance generalizability across diverse MSME ecosystems (Kurniasari et al., 2025). Additionally, exploring different methodological approaches, such as longitudinal studies, could provide more dynamic insights into the evolving relationship between financial knowledge, technological adoption, and MSME performance over time (Hamdana et al., 2022, p. 1454).

Additionally, investigating the longitudinal effects of financial technology adoption and financial literacy interventions could provide a more dynamic understanding of their long-term impact on MSME financial performance. Future studies could also integrate additional variables, such as government regulations, market competition, and external economic factors, to provide a more comprehensive analysis of MSME financial inclusion and performance (Sari et al., 2023, p. 1755).

Furthermore, alternative methodological approaches, such as experimental designs or the utilization of secondary data, could mitigate some limitations inherent in survey-based research, such as potential respondent bias or questionnaire limitations (Achmad et al., 2023, p. 256; Sakti et al., 2025, p. 7; Tjahjadi et al., 2020, p. 186). Furthermore, exploring the specific types of financial technology and financial products used by MSMEs would offer a more nuanced understanding of their differential impacts on financial performance (Hapsari & Puspitasari, 2024, p. 58).

CONCLUSION AND RECOMMENDATIONS

Future research could also incorporate additional variables such as government regulations, external factors, or market competition, which have been shown to significantly influence MSME financial performance and survival in Indonesia (Afin et al., 2024, p. 138; Fahrati et al., 2024; Fanggidae et al., 2023, p. 108). Furthermore, exploring different sampling techniques, such as probability sampling, could provide a more comprehensive representation of the MSME population and strengthen the external validity of the findings (Sari et al., 2023, p. 1755).

This approach would enable a more robust and generalizable assessment of how various financial interventions and technological adoptions influence MSME financial resilience and growth. Moreover, extending the research scope to include a broader geographical representation, such as other regions in Indonesia, would yield more accurate and comprehensive results regarding factors influencing business sustainability in MSMEs (Hamdana et al., 2022, p. 1454). Moreover, future studies might consider employing panel data research over an extended period to overcome the limitations of cross-sectional studies, thereby reflecting a more dynamic situation of MSMEs (Ariana et al., 2024, p. 1011).

DECLARATION OF ARTIFICIAL INTELLIGENCE USAGE

During the preparation of this manuscript, the author used Jenni AI to refine the sentences. All AI-generated output has been independently reviewed, edited, and verified by the author, and the author assumes full responsibility for the content of the final manuscript.

CONFLICT OF INTEREST

The author declares that there are no conflicts of interest regarding the research, writing, or publication of this article

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