



The Impact of Fintech, E-Commerce, and Skills on MSME Financial Performance: Financial Literacy and Trust as Mediators

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Abstract :

The rapid expansion of digital technology has transformed business practices among Micro, Small, and Medium Enterprises (MSMEs), yet its impact on financial performance remains inconclusive. Despite increasing adoption of financial technology and e-commerce, many MSMEs continue to face financial sustainability challenges, as reflected in the rising non-performing loan ratio. This study aims to examine the direct and indirect effects of financial technology, e-commerce adoption, and entrepreneurial skills on the financial performance of MSMEs, incorporating financial literacy and trust as mediating variables. A quantitative approach was employed, using survey data collected from 200 MSME actors in West Java, and the data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings indicate that financial technology and entrepreneurial skills have a positive and significant direct effect on financial performance. In contrast, e-commerce adoption does not directly influence performance but becomes significant when mediated by financial literacy and trust. Furthermore, both mediators strengthen the indirect effects of digital adoption and entrepreneurial capabilities on financial outcomes. This study contributes to the literature by highlighting the critical role of cognitive and relational factors in enhancing the effectiveness of digital transformation among MSMEs.

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) play a pivotal role in sustaining economic growth and social stability, particularly in developing economies such as Indonesia. Contributing more than 60% to national GDP and absorbing nearly 97% of the workforce, MSMEs are not only engines of economic activity but also critical instruments for poverty reduction and inclusive development (Bastida et al., 2021; Khanzode et al., 2021; Mutmainah et al., 2023). In provinces such as West Java, where MSME concentration is the highest nationally, their contribution becomes even more strategic in driving regional competitiveness and economic resilience. However, in the context of rapid digital transformation, MSMEs' ability to translate technological adoption into improved financial outcomes remains a pressing concern (Mafruhat et al., 2024; Risman, 2024). This indicates that while digitalization offers significant opportunities, its benefits are not automatically realized without sufficient supporting capabilities and enabling conditions.

Despite the increasing penetration of digital technologies, such as financial technology (Fintech) and e-commerce, MSMEs in Indonesia continue to face structural challenges in improving their financial performance. Empirical evidence suggests that the growth in MSME numbers has not been accompanied by proportional gains in profitability and operational efficiency (Salsabillah et al., 2023). This paradox is further reflected in the rising non-performing loan ratio among MSMEs, indicating persistent financial vulnerability. While fintech simplifies access to financial services and e-commerce expands market reach, many MSMEs are unable to fully capitalize on these tools due to limitations in financial knowledge, managerial capability, and digital readiness (Karyatun, 2023; Setiawan et al., 2021). In addition, low levels of trust in digital platforms, stemming from concerns about security, complexity, and fraud, continue to hinder effective technology use. These conditions highlight a critical gap between digital adoption and actual performance outcomes in MSMEs.

Prior studies have extensively examined the role of digital technologies and entrepreneurial capabilities in enhancing MSME performance. For instance, Mardianto et al. (2023), Khaki et al. (2022), and Bakri et al. (2023) demonstrate that financial technology significantly improves business efficiency and financial outcomes. Similarly, Vorontsovskiy (2020) and Wahid et al. (2024) emphasize the importance of e-commerce adoption in expanding market access and increasing sales performance. Meanwhile, Veronica et al. (2020), Ahmad et al. (2020), and Iddris (2025) highlight the crucial role of entrepreneurial skills in fostering innovation and competitiveness among small businesses.

However, existing studies tend to examine these variables in isolation, resulting in fragmented insights into MSME performance. More importantly, the mechanisms through which these factors influence financial outcomes remain underexplored. Several studies suggest that financial literacy and trust mediate the relationship between digital adoption and performance (Mercader et al., 2021; Zia et al., 2021). Nevertheless, empirical evidence integrating financial technology, e-commerce, and entrepreneurial skills within a single comprehensive model, while simultaneously incorporating financial literacy and trust as dual mediators, remains limited (Southern et al., 2020; Wibowo, 2025). This gap is particularly critical in emerging markets such as Indonesia, where heterogeneity in digital capability and institutional trust significantly influences technology adoption outcomes.

This study advances the existing literature by proposing an integrative framework that simultaneously examines the direct and indirect effects of financial technology, e-commerce adoption, and entrepreneurial skills on MSME financial performance. Unlike prior studies that focus on partial relationships, this research incorporates financial literacy and trust as dual mediating variables to capture both cognitive and relational mechanisms underlying digital transformation. By doing so, the study provides a more comprehensive explanation of why digital adoption does not always lead to improved financial outcomes. Furthermore, this research offers empirical evidence from West Java, Indonesia's largest MSME hub, thereby contributing context-specific insights into how digital and entrepreneurial capabilities interact in a developing economy.

To provide a clearer understanding of the relationships among variables, this study develops a conceptual framework integrating financial technology, e-commerce adoption, and entrepreneurial skills as key drivers of MSME financial performance, with financial literacy and trust as mediating mechanisms.

Direct Effects: Financial technology enables MSMEs to improve efficiency, reduce transaction costs, and expand access to financial services, which ultimately enhances financial performance.

H1: Financial technology positively and significantly affects MSME financial performance. E-commerce adoption allows MSMEs to reach broader markets and increase sales opportunities through digital platforms.

H2: E-commerce adoption positively and significantly affects MSME financial performance. Entrepreneurial skills, such as innovation and strategic decision-making, enable MSMEs to effectively manage resources and adapt to market changes, thereby improving performance.

H3: Entrepreneurial skills positively and significantly affect MSME financial performance.

Mediation via Financial Literacy (Cognitive Mechanism): Financial literacy enhances MSMEs' ability to understand and utilize digital financial tools effectively, thereby strengthening the impact of fintech and e-commerce on performance.

H4: Financial technology, mediated by financial literacy, positively and significantly affects MSME financial performance.

H5: E-commerce adoption, mediated by financial literacy, positively and significantly affects MSME financial performance.

H6: Entrepreneurial skills, mediated by financial literacy, positively and significantly affect MSME financial performance.

Mediation via Trust (Relational Mechanism): Trust reduces perceived risks and increases MSMEs' willingness to adopt and utilize digital platforms, thereby enhancing the effectiveness of fintech and e-commerce in improving performance.

H7: Financial technology, mediated by trust, positively and significantly affects MSME financial performance.

H8: E-commerce adoption, mediated by trust, positively and significantly affects MSME financial performance.

H9: Entrepreneurial skills, mediated by trust, positively and significantly affect MSME financial performance.

Drawing on the Resource-Based View (RBV), internal capabilities such as entrepreneurial skills and financial literacy are considered strategic resources that enhance firm performance. Meanwhile, the Technology Acceptance Model (TAM) explains how perceived usefulness and trust influence the effective adoption of fintech and e-commerce. Therefore, integrating cognitive (financial literacy) and relational (trust) factors is essential to explain how digital technologies translate into financial outcomes.

RESEARCH METHODS

This study adopts a quantitative research approach using a cross-sectional survey design grounded in the positivist paradigm (Hossan, Dato' Mansor, and Jaharuddin 2023). The objective is to examine the direct and indirect relationships among financial technology, e-commerce adoption, entrepreneurial skills, and MSME financial performance, with financial literacy and trust as mediating variables (Kotronoulas et al., 2023). The unit of analysis comprises MSME owners who actively use fintech and e-commerce in their business operations in West Java, Indonesia.

The study employs a purposive sampling technique, targeting MSME owners who meet the following criteria: (1) actively operating a business for at least one year, (2) utilizing fintech services (e.g., e-wallets, digital payments, or online lending), and (3) engaging in e-commerce platforms for business transactions. A total of 200 valid responses were collected through a structured questionnaire distributed both online and offline across several districts and cities in West Java (Ghanad, 2023). The sample size is considered adequate for Structural Equation Modeling using Partial Least Squares (PLS-SEM), as recommended by Hair et al., which suggests a minimum sample size based on the “10-times rule” and model complexity. Given the number of constructs and indicators in this study, the sample size satisfies the minimum requirement for robust statistical analysis.

All variables were operationalized using measurement scales adapted from prior validated studies. The financial technology construct was adapted from Jiang (2020) and Sait et al. (2023) and comprises perceived usefulness, perceived ease of use, reliability, and security. E-commerce adoption was measured using the scales from Pizzan et al. (2024) and Chen et al. (2022), including perceived usefulness, ease of use, and compatibility. Entrepreneurial skills were adapted from Jardim et al. (2021), Asad (2024), and Iddris (2025) and cover personal and managerial competencies. The mediating variable, financial literacy, comprises financial knowledge and financial behavior dimensions, whereas trust comprises credibility and benevolence dimensions. MSME financial performance was measured using indicators of profitability and operational efficiency.

All items were measured using a five-point Likert scale ranging from 1 (“strongly disagree”) to 5 (“strongly agree”). To ensure content validity, the questionnaire was reviewed by academic experts and practitioners. A pilot test was conducted on a small sample of MSME actors to assess clarity and reliability. In addition, a translation-back-translation procedure was applied to ensure linguistic consistency between the original and the adapted instruments (Sudirjo et al., 2023). The indirect effects are explored through two mediating variables: financial literacy and trust. A total of nine hypotheses (H1–H9) were formulated to test these relationships, including both the primary predictors and the mediating mechanisms through which they influence financial outcomes.

This study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS software to analyze the data (Rasoolimanesh et al., 2021). PLS-SEM is chosen due to several considerations: (1) the model involves multiple constructs with complex mediation relationships, (2) the research is prediction-oriented, and (3) the method is robust for relatively small sample sizes and does not require strict normality assumptions. The analysis is conducted in two stages: evaluation of the measurement model (outer model) and the structural model (inner model). The measurement model is assessed using criteria such as outer loadings, Average Variance Extracted (AVE), composite reliability, and discriminant validity. The structural model is evaluated using path coefficients, t-statistics, p-values, the coefficient of determination (R^2), and effect size (f^2).

Hypothesis testing is performed using bootstrapping procedures (Hair et al. 2021; Shibin et al., 2020). A hypothesis is considered significant if the t-statistic exceeds 1.96

(for a 95% confidence level) and the p-value is less than 0.05. The mediating roles of financial literacy and trust are examined to determine whether they function as full or partial mediators in the relationship between independent variables and MSME financial performance. Indirect effects are evaluated using bootstrapping, and mediation is classified based on the significance of direct and indirect paths.

To address potential common-method bias, this study uses Harman’s single-factor test. The results indicate that no single factor accounts for the majority of variance, suggesting that common method bias is not a serious concern. Additionally, procedural remedies such as ensuring respondent anonymity and minimizing item ambiguity were implemented during data collection.

RESULTS AND DISCUSSION

Results

The following table presents an overview of the key demographic and business-related characteristics of the surveyed MSME respondents in this study, which investigates the influence of financial technology, e-commerce, and entrepreneurial skills on financial performance, with financial literacy and trust as mediating variables.

Table 1. Characteristic Respondent

Characteristic	Categories
Gender	Male: 41% Female: 59%
Age	15–20: 3.5% 21–30: 56% 31–40: 34% 41–50: 4.5% >50: 2%
Business Age	<1 year: 17% 1–3 years: 50.5% 4–6 years: 19.5% >6 years: 13%
Education Level	Primary: 1% Junior High: 2.5% Senior High: 55% Bachelor’s: 38.5% Master’s: 3% Doctorate: 0%
Business Scale	Micro: 85.5% Small: 12% Medium: 2.5%
Number of Employees	None: 36.5% 1–5: 47.5% 6–10: 8.5% 11–15: 3.5% >15: 5%
Business Sector	Culinary: 51.5% Fashion: 12.5% Handicraft: 4.5% Trade: 22.5% Others: 9%
Fintech Used	E-Wallet: 58.5% Payment Gateway: 30.5% Digital Bank: 10% P2P Lending: 0.5% Investment: 0.5%
E-Commerce Platform	Shopee: 52% Tokopedia: 9.5% Bukalapak: 1.5% Lazada: 3.5% Gojek: 24.5% Others: 9% Blibli: 0%

The majority of respondents in this study are female business owners (59%) aged between 21–30 years (56%), indicating that young women dominate the MSME landscape in West Java. Most businesses have been operating for 1–3 years (50.5%), reflecting a growth-stage trend. In terms of education, more than half completed senior high school (55%), with 38.5% holding a bachelor’s degree. The MSMEs are primarily micro-scale (85.5%) and employ only 1–5 workers (47.5%) or none at all (36.5%), highlighting their small operational capacity.

Culinary businesses are the most prominent sector (51.5%), followed by trade and fashion. Regarding financial technology adoption, e-wallets are the most widely used platform (58.5%), showing strong digital payment integration. Shopee is the preferred e-commerce platform (52%), reflecting its popularity among small businesses for online

sales. Overall, the data presents a picture of digitally adaptive, young, small-scale entrepreneurs leading the MSME segment in the region.

Descriptive Analysis Summary

This section summarizes the descriptive analysis of each variable based on respondents' assessments, utilizing frequency distribution and continuum analysis.

Table 2. Description of Financial Technology Variable

Statement	STS	TS	RG	S	SS	Ideal Score	Total Score
Fintech meets my needs	0	5	3	45	147	1000	934
Fintech saves my time	1	5	3	37	154	1000	938
Fintech improves transaction efficiency	1	4	3	48	144	1000	930
Fintech is generally beneficial	1	3	4	43	149	1000	936
Easy-to-understand application interaction	0	3	7	54	136	1000	923
Easy to learn fintech applications	1	2	5	51	141	1000	929
Capable of using fintech apps	0	6	9	52	133	1000	912
Fintech apps are easy to use	1	3	3	49	143	1000	927
Fintech is reliable	1	5	3	57	134	1000	918
Fintech keeps promises	1	2	12	60	125	1000	906
Fintech is reliable for e-transactions	2	3	12	59	124	1000	900
My money is safe with fintech	5	5	27	60	103	1000	851
My privacy is protected with fintech	5	3	30	46	116	1000	865
Fintech is not risky	7	12	34	65	82	1000	803
Total						14000	12672

Respondents generally perceive fintech services as highly beneficial, particularly in saving time (93.8%) and improving efficiency (93.6%). However, a lower score (80.3%) indicates lingering concerns regarding potential risks. Overall, fintech adoption among MSMEs is categorized as very high, with an average level of acceptance reaching 90.5% across respondents.

Table 3. Description of Financial Technology Variable

Statement	STS	TS	RG	S	SS	Ideal Score	Total Score
Fintech meets my needs	0	5	3	45	147	1000	934
Fintech saves my time	1	5	3	37	154	1000	938
Fintech improves transaction efficiency	1	4	3	48	144	1000	930
Fintech is generally beneficial	1	3	4	43	149	1000	936
Easy-to-understand application interaction	0	3	7	54	136	1000	923
Easy to learn fintech applications	1	2	5	51	141	1000	929
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Table 4. Description of E-Commerce Adoption Variable

Statement	STS	TS	RG	S	SS	Ideal Score	Total Score
Advertise products online	2	5	16	53	124	1000	892
Sell products online	1	2	14	57	126	1000	905
Communicate with suppliers online	2	5	14	74	105	1000	875
Ensure product delivery matches specifications	1	4	13	51	131	1000	907
Receive electronic payments	6	4	14	59	117	1000	877
Use social media in online interaction	0	4	9	61	126	1000	909
Total						6000	5365

Respondents demonstrate strong utilization of e-commerce, particularly through social media (90.9%), alongside effective online sales practices. However, the relatively lower score in supplier communication (87.5%) indicates an area requiring improvement. Overall, the level of e-commerce adoption among MSMEs is categorized as very high, reaching an average of 89.4%.

Table 5. Description of Entrepreneurial Skills Variable

Statement	STS	TS	RG	S	SS	Ideal Score	Total Score
I consider myself very creative	2	3	28	66	101	1000	861
I have adequate problem-solving skills	0	3	22	79	96	1000	868
I have strong leadership	1	5	33	73	88	1000	842
I have adequate entrepreneurial skills	0	7	16	74	103	1000	873
Total						4000	3444

Respondents generally perceive themselves as possessing strong entrepreneurial capabilities, particularly in managing business operations. Although leadership scores are relatively lower compared to other dimensions, they remain within a high category. Overall, the level of entrepreneurial skills among MSMEs is considered very high, with an average score of 86.1%.

Table 6. Description of Financial Literacy Variable

Statement	STS	TS	RG	S	SS	Ideal Score	Total Score
High-return investments carry high risk	6	4	17	72	101	1000	858
Cost of living rises with inflation	1	6	15	61	117	1000	887
Save monthly for the future	0	4	16	56	124	1000	900
Save regularly for long-term goals	0	6	17	52	125	1000	896
Prefer saving over spending	0	4	13	41	142	1000	921
Think about the future	1	5	17	49	148	1000	998
Saved successfully last year	1	6	25	50	118	1000	878
Total						7000	6338

MSME actors exhibit strong financial awareness, particularly in future planning (99.8%). However, a slight misunderstanding persists regarding risk–return relationships, indicating room for improvement in financial knowledge. Overall, the level of financial literacy among MSMEs is categorized as very high, with an average score of 90.5%.

Table 7. Description of Trust Variable

Statement	STS	TS	RG	S	SS	Ideal Score	Total Score
I have a good online reputation	0	5	23	68	104	1000	871
My e-payment system is credible	0	1	12	66	121	1000	907
Customers trust me on product delivery	0	1	12	62	125	1000	911
Customers trust timely delivery	0	1	12	70	117	1000	903
Overall, customers trust my business promises	0	5	10	60	125	1000	905
Total						5000	4497

Trust in MSME actors is generally high, particularly in their ability to fulfill customer expectations (91.1%), indicating strong reliability in service delivery. However, aspects related to online reputation still require further strengthening to enhance credibility in digital environments. Overall, the level of trust among MSMEs is categorized as very high, with an average score of 89.9% across respondents.

Table 8. Description of Financial Performance Variable

Statement	STS	TS	RG	S	SS	Ideal Score	Total Score
Sales have increased	0	2	19	67	112	1000	889
Operating profit has increased	0	2	20	85	93	1000	869
ROI has increased	0	1	21	77	101	1000	878
Production costs reduced	3	11	40	60	86	1000	815
Total						4000	3451

MSMEs report notable financial growth, particularly in increased sales and return on investment (ROI), indicating improved business outcomes. However, cost reduction remains a persistent challenge, suggesting inefficiencies in operational management. Despite this limitation, overall financial performance among MSMEs is categorized as very high, with an average score reaching 86.3% across respondents in this study.

Table 9. Measurement and Structural Model Assessment

Test Category	Indicator/Result	Threshold Criteria	Conclusion
Convergent Validity	Outer Loadings: 0.713 – 0.891	> 0.70	All indicators are valid
	AVE: 0.628 – 0.735	> 0.50	Each construct is valid
Discriminant Validity	Fornell-Larcker: $\sqrt{AVE} > \text{Inter-construct Correl.}$	$\sqrt{AVE} > \text{correlations}$	Discriminant validity achieved
	HTMT: 0.780 – 0.897	< 0.90	Discriminant validity achieved
	Cross Loadings: Highest on own construct	Own > others	Discriminant validity achieved
Reliability	Cronbach's Alpha: 0.866 – 0.962	> 0.70	All constructs are reliable
	Composite Reliability: 0.909 – 0.966	> 0.70	High internal consistency
R-Square (R²)	Financial Performance: 0.672	0.50–0.75 = Moderate	Model explains 67.2% variance
Effect Size (f²)	FT: 0.029, ES: 0.027, EC: 0.000	0.02=Small, 0.15=Medium	Small effects, EC has no effect
Predictive Relevance	Q ² = 0.595 (Financial Performance)	> 0.00	Predictive relevance supported
Model Fit (GoF)	SRMR = 0.058, NFI = 0.757	SRMR < 0.10, NFI ~ 1.00	Model fit is acceptable

All observed indicators in this study demonstrated strong convergent validity, as shown by outer loading values exceeding the minimum threshold of 0.70. This suggests that each indicator significantly contributes to the measurement of its corresponding latent construct. Specifically, the constructs of Financial Technology, E-Commerce Adoption, Entrepreneurial Skills, Financial Literacy, Trust, and MSME Financial Performance were all supported by valid and reliable indicators, with outer loading values ranging from 0.713 to 0.891. This confirms that the indicators are sufficiently reflective of the constructs they intend to measure, strengthening the robustness of the outer model.

Additionally, the Average Variance Extracted (AVE) values for all constructs ranged between 0.628 and 0.735, surpassing the recommended threshold of 0.50. This indicates that more than 50% of the variance of each indicator is explained by its respective latent variable, which further confirms the convergent validity of the model. Together, these results provide solid evidence that the measurement model is well specified and that the indicators reliably capture the theoretical dimensions of the constructs under study, enabling accurate interpretation and progression to the structural model analysis.

Hypothesis testing

The following section presents the results of hypothesis testing using the PLS-SEM approach to evaluate the proposed research model. The analysis examines both direct and indirect relationships among financial technology, e-commerce adoption, entrepreneurial skills, and MSME financial performance, with financial literacy and trust as mediating variables. Table 10 summarizes the path coefficients, significance levels, and mediation types for each hypothesis tested.

Table 10. Hypotheses Testing Results, Interpretation, and Mediation Type

No	Hypothesis	Relationship	Path Coefficient	T-Statistic	P-Value	Conclusion	Mediation Type
1	H1	Financial Technology → MSME Financial Performance	0.184	2.054	0.020	Accepted	–
2	H2	E-Commerce Adoption → MSME Financial Performance	-0.018	0.196	0.422	Rejected	–
3	H3	Entrepreneurial Skills → MSME Financial Performance	0.155	2.131	0.017	Accepted	–
4	H4	Financial Technology → Financial Literacy → MSME Performance	0.101	2.227	0.013	Accepted	Partial Mediation
5	H5	E-Commerce Adoption → Financial Literacy → MSME Performance	0.063	1.821	0.034	Accepted	Full Mediation
6	H6	Entrepreneurial Skills → Financial Literacy → MSME Performance	0.071	2.051	0.020	Accepted	Partial Mediation
7	H7	Financial Technology → Trust → MSME Performance	0.062	2.122	0.017	Accepted	Partial Mediation
8	H8	E-Commerce Adoption → Trust → MSME Performance	0.147	2.584	0.005	Accepted	Full Mediation
9	H9	Entrepreneurial Skills → Trust → MSME Performance	0.096	2.525	0.006	Accepted	Partial Mediation

The hypothesis testing results show that Financial Technology and Entrepreneurial Skills have a direct and statistically significant effect on the financial performance of MSMEs in West Java. In contrast, E-Commerce Adoption does not demonstrate a direct influence. However, when mediated by Financial Literacy and Trust, all three independent variables significantly impact financial performance, highlighting the crucial role of these mediators.

Specifically, Financial Literacy acts as a partial mediator for Financial Technology and Entrepreneurial Skills, and a full mediator for E-Commerce Adoption. Similarly, Trust partially mediates the effects of Financial Technology and Entrepreneurial Skills, and fully mediates the impact of E-Commerce Adoption. These findings suggest that digital adoption alone is not sufficient; MSMEs must also build internal capabilities and external credibility to translate technological tools into measurable financial outcomes. Therefore, enhancing financial knowledge and fostering trust is essential to optimize the digital transformation of MSMEs.

Discussion

The findings of this study indicate that financial technology and entrepreneurial skills have a positive and significant direct effect on MSME financial performance. In contrast, e-commerce adoption does not have a direct effect. This result is consistent with prior studies such as Samonte et al. (2024), Igwe et al. (2021), and Mamabolo (2020), which emphasize the role of technological utilization and entrepreneurial capability in improving business efficiency and outcomes. The descriptive results further support this, showing high levels of fintech adoption (90.5%) and entrepreneurial skills (86.1%), which contribute to improved sales and return on investment (86.3%). Theoretically, this reinforces the resource-based view, which holds that internal capabilities and technological resources are critical drivers of firm performance.

However, the insignificant direct effect of e-commerce adoption contrasts with studies such as Hu et al (2024), Quan (2021), and Duan (2024), which found a direct positive relationship between e-commerce and business performance. In this study, although e-commerce adoption is high (89.4%), its impact depends on other enabling factors. This discrepancy may be explained by the characteristics of respondents, who are predominantly micro-scale businesses (85.5%) with limited operational capacity and relatively short business experience (1–3 years). Practically, this suggests that merely adopting e-commerce platforms is insufficient without adequate capability to manage and optimize their use.

The mediating role of financial literacy is significant, acting as both a partial and a full mediation across several relationships. This finding aligns with Mousa et al. (2020), who highlight that financial knowledge enhances the effectiveness of digital tools. Despite the high level of financial literacy (90.5%), some gaps remain, particularly in understanding risk–return relationships. Theoretically, this supports the human capital theory, which holds that knowledge and skills enhance decision-making quality. Practically, it implies that strengthening financial education programs is essential to maximize the benefits of fintech and e-commerce adoption.

Similarly, trust is confirmed as a crucial mediating variable, particularly in strengthening the indirect effect of e-commerce adoption on financial performance. This is consistent with studies by Shukri et al. (2024) and Rismawan et al. (2023), which emphasize the importance of trust in digital transactions. The high trust level (89.9%), especially in fulfilling customer expectations (91.1%), indicates strong relational capital among MSMEs. However, weaker aspects such as online reputation suggest that digital credibility still needs improvement. This finding supports trust-based models of digital adoption and highlights the need for MSMEs to build stronger online branding and reputation systems.

Overall, the findings demonstrate that digital transformation in MSMEs is not solely driven by technology adoption, but by the interaction between technology, human capital, and relational factors. The model explains 67.2% of the variance in financial performance, indicating a moderate explanatory power. This study contributes theoretically by integrating fintech, e-commerce, and entrepreneurial skills through dual mediators within a single framework and by providing policymakers and practitioners with insights to enhance financial literacy and trust, thereby optimizing MSME performance in the digital era.

CONCLUSION

This study demonstrates that digital transformation in MSMEs is not solely driven by technology adoption, but also by internal capabilities and relational factors that support it. The key findings reveal that financial technology and entrepreneurial skills have a direct and significant effect on financial performance. In contrast, e-commerce adoption does not directly influence outcomes; mediating variables intervene. Financial literacy and trust emerge as critical mechanisms that strengthen these relationships, functioning as both partial and full mediators. The main insight is that successful digitalization depends not only on using technology but also on understanding, managing, and trusting digital systems. From a theoretical perspective, this study contributes by integrating the Resource-Based View and the Technology Acceptance Model through a comprehensive dual-mediation framework in the MSME context.

However, this study is subject to several limitations. First, the use of a cross-sectional design limits the ability to capture dynamic changes in MSME behavior over time. Second, the focus on West Java restricts the generalizability of findings to other regions with different characteristics. Third, the model primarily includes digital, cognitive, and relational variables, without considering external factors such as the regulatory environment or the business ecosystem. Therefore, future research is recommended to adopt a longitudinal approach, expand the study area, and incorporate additional variables such as institutional support and digital infrastructure to provide a more holistic understanding of MSME digital transformation.

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