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Digital Management Accounting Systems and Fintech Adoption as Drivers of SME Financial Resilience: The Mediating Role of Financial Literacy

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Abstract

Small and medium-sized enterprises (SMEs) in emerging economies face growing challenges in maintaining financial resilience amid economic volatility, yet limited attention has been given to how digital tools and financial literacy jointly address this issue. This study investigates the effects of Digital Management Accounting Systems (DMAS) and fintech adoption on the financial resilience of SMEs in Cirebon City, Indonesia, with financial literacy as a mediating variable. A quantitative survey was administered to 150 SME owners and managers across trade, culinary, and creative industries, analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). Results show that DMAS ($\beta = 0.342$) and fintech adoption ($\beta = 0.298$) significantly enhance financial literacy, which in turn is the strongest predictor of financial resilience ($\beta = 0.411$). Financial literacy partially mediates both relationships, while direct effects of DMAS ($\beta = 0.214$) and fintech adoption ($\beta = 0.193$) on resilience remain significant. The model explains 56.3% of variance in financial resilience ($R^2 = 0.563$). This study is limited to one city and cross-sectional data; future research should employ longitudinal designs across broader SME populations to strengthen generalizability.

Keywords: **Digital Management Accounting Systems, Financial Literacy, Fintech Adoption, Financial Resilience, SMEs**

INTRODUCTION

The rapid advancement of digital technologies has fundamentally transformed management accounting practices, creating both opportunities and imperatives for small and medium-sized enterprises (SMEs) to adapt to an increasingly dynamic and uncertain business environment. Among the most consequential developments is the emergence of Digital Management Accounting Systems (DMAS)—defined here as integrated, technology-enabled accounting infrastructures that combine cloud-based software, real-time data processing, automated reporting modules, and digital dashboards to support budgeting, cost control, cash flow monitoring, and managerial decision-making at the firm level (Appelbaum et al., 2017; Quattrone, 2016). Unlike conventional accounting systems that rely on periodic, manual data entry, DMAS enable continuous transaction recording, automated reconciliation, and dynamic financial reporting—capabilities that are particularly valuable for resource-constrained SMEs (Knudsen, 2020; Bhimani & Willcocks, 2014). Concurrently, financial technology (fintech)—encompassing digital payment systems, peer-to-peer lending platforms, and automated financial management tools—has substantially lowered transactional costs, expanded credit access, and improved operational cash flow management for SMEs in developing economies (Gomber et al., 2017; Yu & Shih, 2021). In Indonesia specifically, fintech adoption among SMEs accelerated markedly following the COVID-19 pandemic, with the Financial Services Authority (OJK) recording a 47% year-on-year increase in active fintech users between 2020 and 2022 Suryono & Budi, 2020).

Financial literacy—defined by Lusardi & Mitchell (2014) as "the knowledge and ability to use knowledge to manage financial resources effectively for a lifetime of financial well-being"—has been widely identified as a foundational determinant of effective financial management among SME owners. The financial literacy of business owners is particularly consequential, influencing the quality of financial planning, budgeting, risk assessment, and capital allocation decisions (Adomako et al., 2016). Empirical evidence consistently reveals that a significant proportion of SME owners in developing economies exhibit low to moderate financial literacy. In Indonesia, the National Survey on Financial Literacy and Inclusion conducted by OJK (2022) reported that only 49.7% of Indonesians met the threshold for financial literacy, with SME owner-managers in non-metropolitan areas scoring considerably lower—findings corroborated by the World Bank (2022) and Long et al. (2023). Such deficits constrain owners' ability to leverage available financial tools and technologies effectively, limiting the contribution of digital adoption to long-term organizational resilience (Ozili, 2021; Visconti, 2019).

Despite the growing body of literature on digital accounting, financial literacy, and fintech adoption, existing studies predominantly examine these factors in isolation, failing to capture the interactive and mediated pathways through which they collectively influence SME financial outcomes. More critically, the concept of financial resilience—defined by Salignac et al. (2019) as "a firm's dynamic capacity to anticipate, absorb, and recover from financial shocks while sustaining core operational functions and strategic continuity"—remains underexplored in the SME management accounting literature. Prior research has predominantly focused on financial performance metrics such as profitability and growth, which inadequately capture a firm's adaptive capacity in turbulent environments (Korber & McNaughton, 2017). Given the increasing frequency of economic disruptions—including the COVID-19 pandemic, inflationary pressures,

and global supply chain volatility—financial resilience has emerged as a critical outcome variable warranting empirical investigation.

This study addresses three interrelated research gaps that establish its novelty. First, no prior study has empirically tested an integrated model linking DMAS, fintech adoption, financial literacy, and financial resilience within a single analytical framework. Second, the mediating role of financial literacy in translating digital technology adoption into financial resilience outcomes has not been tested, leaving a significant theoretical gap regarding the cognitive mechanism through which technology enables resilience. Third, existing research remains largely Western-centric, with limited empirical evidence from the context of Indonesian SMEs, despite Indonesia's status as Southeast Asia's largest economy and one of the world's fastest-growing fintech markets (Suryono & Budi, 2020). Theoretically, this study extends the Resource-Based View (RBV) and Dynamic Capability Theory by positioning financial literacy as an explanatory cognitive mechanism that mediates the translation of technological resources into resilience outcomes, offering a novel integrative framework.

This study therefore aims to: (1) examine the direct effects of DMAS and fintech adoption on financial literacy; (2) investigate the direct effects of DMAS, fintech adoption, and financial literacy on the financial resilience of SMEs in Cirebon City; and (3) test the mediating role of financial literacy in the relationships between digital technology adoption and financial resilience. Empirically, the study provides rigorous quantitative evidence from 150 SMEs in Cirebon City, Indonesia, using Partial Least Squares Structural Equation Modeling (PLS-SEM). Practically, the findings offer actionable insights for policymakers and SME support institutions seeking to design holistic digital transformation and financial literacy programmes. The remainder of this paper is organized as follows: Section 2 reviews the relevant literature and develops the research hypotheses; Section 3 describes the research methodology; Section 4 presents and discusses the results; and Section 5 concludes with theoretical and practical implications, limitations, and directions for future research.

LITERATURE REVIEW

Theoretical Foundation: Resource-Based View and Dynamic Capability Theory

This study is grounded in two complementary theoretical frameworks: the Resource-Based View (RBV) and Dynamic Capability Theory. The RBV posits that firms achieve sustained competitive advantage through the ownership and effective deployment of resources that are valuable, rare, inimitable, and non-substitutable (VRIN) (Barney, 1991). Within this framework, DMAS, fintech tools, and financial literacy can be conceptualized as distinct but interrelated organizational resources. DMAS constitutes a technological resource that enhances information processing capacity; fintech adoption represents a relational and operational resource that expands access to financial services; and financial literacy constitutes an intangible human capital resource that enables the effective utilization of both technological and financial tools.

Dynamic Capability Theory, as elaborated by Teece (2018), extends the RBV by emphasizing a firm's capacity to sense environmental changes, seize opportunities, and reconfigure internal resources in response to evolving conditions. In SME contexts characterized by high

environmental uncertainty and resource limitations, dynamic capabilities are particularly critical for building organizational resilience. DMAS facilitates sensing through real-time information generation; fintech enhances seizing through rapid access to financial services; and financial literacy enables the reconfiguration of financial strategies in response to changing circumstances. The theoretical novelty of this study lies in its articulation of financial literacy as a cognitive dynamic capability that mediates the relationship between technological resource adoption (DMAS and fintech) and financial resilience—a conceptualization that aligns with Teece (2018) argument that managerial cognition and knowledge are central to dynamic capability.

Digital Management Accounting Systems and Financial Literacy

The digitalization of management accounting has progressively transformed the information environment within which SMEs operate. DMAS—encompassing cloud-based accounting software, integrated enterprise resource planning (ERP) systems, real-time dashboards, and automated financial reporting tools—enable firms to generate granular, timely, and accurate financial data that was previously inaccessible to resource-constrained SMEs (Bhimani & Willcocks, 2014; Knudsen, 2020). Critically, regular interaction with DMAS has been shown to enhance users' understanding of financial concepts and their ability to interpret financial data, as digital tools create feedback loops enabling users to observe the financial consequences of their decisions in real-time (Vial, 2021). Knudsen (2020) found that SMEs adopting digital accounting systems demonstrated significantly greater comprehension of financial ratios and cost structures compared to non-adopters.

Similarly, Appelbaum et al. (2017) demonstrated that exposure to cloud-based accounting environments improved practitioners' ability to interpret and act upon financial information—a finding with direct implications for SME owner-managers who learn accounting concepts through technology use rather than formal training. In the Indonesian context, Ahyaruddin & Akbar (2018) reported that SMEs using digital bookkeeping applications exhibited higher levels of financial management awareness compared to those relying on manual methods. Taken together, these arguments and findings support:

H1: Digital Management Accounting Systems have a positive and significant effect on the financial literacy of SMEs.

Fintech Adoption and Financial Literacy

The proliferation of fintech platforms has not only expanded access to financial services but has also served as an educational mechanism for SME owners unfamiliar with formal financial instruments. P2P lending platforms, digital wallets, and automated savings and investment tools present financial information in accessible formats, effectively democratizing financial knowledge (Gomber et al., 2017; Ozili, 2021). Okello Candiya Bongomin et al. (2018) found that mobile money adoption was positively associated with financial knowledge among users in Uganda, demonstrating that fintech use drives financial literacy development even in low-income populations. Shen et al. (2020) demonstrated that digital financial inclusion was associated with statistically significant improvements in individual financial knowledge and capability.

Morgan & Trinh (2019) further showed that the use of digital financial services was a significant positive predictor of financial literacy scores across six Asian economies including Indonesia. Specifically, Suryono & Budi (2020) observed that SME owners who actively used fintech platforms exhibited higher levels of financial awareness and a greater ability to evaluate financial products compared to non-users. Collectively, this body of evidence supports:

H2: Fintech adoption has a positive and significant effect on the financial literacy of SMEs.

Financial Literacy and Financial Resilience

Financial literacy is widely recognized as a foundational determinant of effective financial management and organizational sustainability. Lusardi & Mitchell (2014) define financial literacy as encompassing financial knowledge, financial attitudes, and financial behaviours, and demonstrate that individuals with higher financial literacy exhibit superior capacity for financial planning, risk management, and lng-term decision-making. Financial literacy enables SME owners to accurately diagnose their financial position, identify emerging risks, and implement timely corrective strategies—all essential components of resilient financial behaviour (Salignac et al., 2019).

Nguyen & Nguyen (2020) found that financial literacy was a significant positive predictor of firm survival rates among Vietnamese SMEs. Long et al. (2023) demonstrated that financially literate owner-managers were significantly more likely to maintain adequate liquidity buffers and access formal credit instruments during economic downturns. Dahmen & Rodríguez (2014) found that SME owners who participated in financial literacy training showed marked improvements in cash flow management and financial planning. Based on this converging evidence:

H3: Financial literacy has a positive and significant effect on the financial resilience of SMEs.

Direct Effects of DMAS and Fintech Adoption on Financial Resilience

Beyond the mediated pathway through financial literacy, DMAS and fintech adoption may also exert direct effects on financial resilience by providing immediate operational benefits that strengthen a firm's ability to respond to financial shocks. In the case of DMAS, these direct effects operate through the provision of real-time financial information that enables timely managerial responses to emerging liquidity risks, cost overruns, and revenue shortfalls (Bhimani & Willcocks, 2014).

Rikhardsson & Yigitbasioglu (2018) found that firms using real-time management control systems exhibited significantly faster financial response times and lower rates of cash flow deterioration during periods of market volatility. Quattrone (2016) similarly argues that digital accounting infrastructures enhance organizational adaptability by rendering financial processes more transparent and responsive. For fintech, direct resilience effects are realized through rapid access to emergency financing through P2P platforms and automated cash flow optimization tools (Gomber et al., 2017). Based on this evidence:

H4: Digital Management Accounting Systems have a positive and significant direct effect on the financial resilience of SMEs.

H5: Fintech adoption has a positive and significant direct effect on the financial resilience of SMEs.

Mediating Role of Financial Literacy

This study further proposes that financial literacy mediates the relationships between digital technology adoption (DMAS and fintech) and financial resilience. Technology alone does not automatically generate resilience; rather, it is the cognitive capacity of SME owners—enhanced through technology use—that translates digital tools into resilient financial behaviours. Teece (2018) argues that managerial cognition is the critical conduit through which technological sensing capabilities are converted into strategic organizational outcomes. When SME owners develop financial literacy through interaction with DMAS and fintech platforms, they become better equipped to utilize the insights generated by those technologies to make sound financial decisions and respond effectively to adversity. This mediated pathway reflects the Dynamic Capability Theory proposition that sensing capabilities (technology) must be combined with reconfiguration capacity (financial literacy) to produce higher-order outcomes (financial resilience). Accordingly, the following mediation hypotheses are proposed:

H6: Financial literacy mediates the relationship between Digital Management Accounting Systems and the financial resilience of SMEs.

H7: Financial literacy mediates the relationship between fintech adoption and the financial resilience of SMEs.

Conceptual Framework

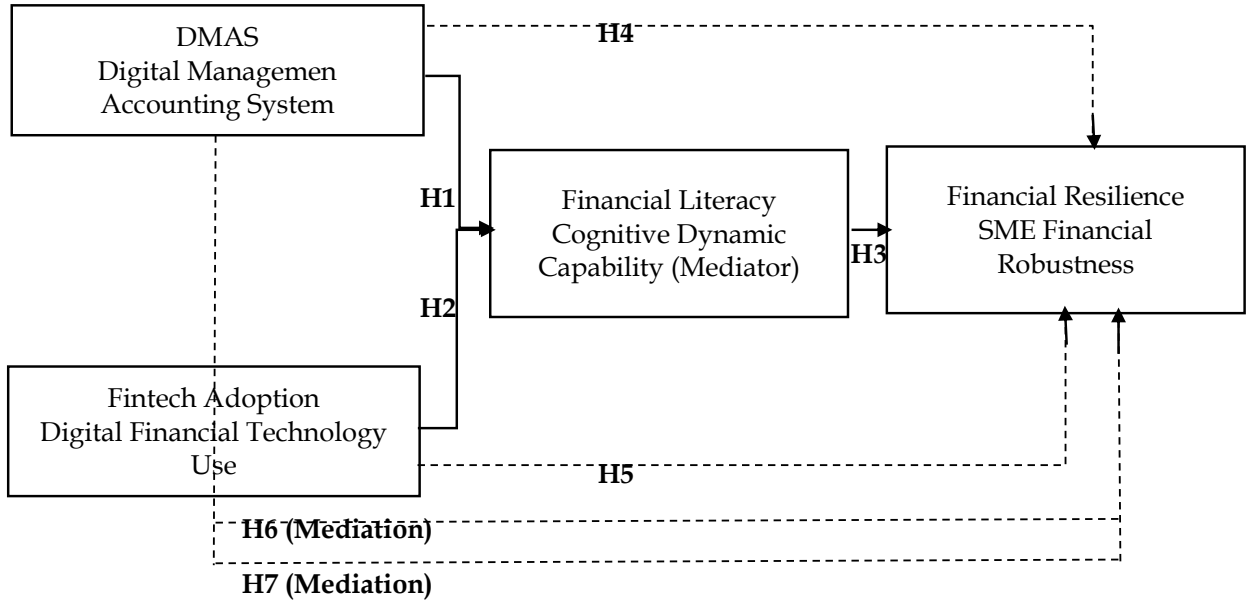

Figure 1. Conseptual Framework

Based on the theoretical foundations and empirical evidence reviewed above, the conceptual framework of this study posits that DMAS and fintech adoption influence the financial resilience of SMEs through two pathways: (1) a direct pathway, whereby digital tools provide immediate operational benefits that enhance resilience; and (2) an indirect (mediated) pathway, whereby technology adoption enhances financial literacy, which in turn strengthens financial resilience. Financial literacy thus functions as a cognitive dynamic capability mediating the translation of technological resources into resilience outcomes. This integrated framework is illustrated conceptually by the following relationship: DMAS and Fintech Adoption → Financial Literacy (mediator) → Financial Resilience, with additional direct paths from DMAS and Fintech Adoption to Financial Resilience.

METHOD

Research Design

This study employs a quantitative, cross-sectional survey design to empirically test the proposed mediation model. A deductive research strategy is adopted, whereby hypotheses derived from RBV and Dynamic Capability Theory are tested against empirical data. A cross-sectional design was selected as appropriate given the study's objective of measuring the relationships among established constructs at a defined point in time (Saunders et al., 2019). Data were collected between October and December 2023.

Population and Sample

The study population comprises SMEs operating in Cirebon City, West Java, Indonesia, encompassing three major sectors: trade, culinary/food, and creative industries. According to data from Dinas Koperasi dan UKM Kota Cirebon (2023), approximately 4,200 active SMEs operate in these sectors. A purposive sampling technique was applied based on the following eligibility criteria: (1) SMEs in operation for at least one year; (2) business owners or managers with direct responsibility for financial decision-making; (3) SMEs engaged in basic financial recording practices; and (4) SMEs that used at least one form of digital financial service within the preceding 12 months. The minimum sample size was determined using the "10-times rule" for PLS-SEM (Hair et al., 2019), and a target of 150–200 respondents was established to ensure robust statistical power. A total of 185 questionnaires were distributed; 162 were returned, of which 150 met validity and completeness criteria, yielding a usable response rate of 81.1%.

Measurement Instrument

A structured questionnaire was developed using validated scales adapted from prior studies and modified to suit the SME context in Cirebon City. All items are measured on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The instrument was subjected to forward-backward translation by bilingual experts to ensure linguistic equivalence between Indonesian and English versions. A pilot test was conducted with 30 SME respondents prior to full-scale data collection; Cronbach's Alpha for all constructs in the pilot exceeded 0.70, confirming preliminary reliability.

The Digital Management Accounting Systems (DMAS) construct comprises five indicators—covering digital software use, real-time data access, cross-functional integration, digital reporting for decision-making, and accuracy improvement—each represented by one questionnaire item, adapted from Bhimani (2020) and Knudsen (2020). The Financial Literacy (FL) construct comprises five indicators—covering understanding of financial concepts, cash flow monitoring, financial planning and budgeting, understanding of financial products, and evaluation of financial alternatives—each represented by one questionnaire item, adapted from Lusardi & Mitchell (2014).

The Fintech Adoption (FA) construct comprises five indicators—covering use of digital payment systems, financial transaction management, peer-to-peer financing, ease of use, and transaction efficiency—each represented by one questionnaire item, adapted from Chen et al. (2021) and Gomber et al. (2017). The Financial Resilience (FR) construct comprises five indicators—covering operational sustainability during adversity, maintenance of financial reserves, financial risk management, cash flow stability, and post-shock recovery capacity—each represented by one questionnaire item, adapted from Salignac et al. (2019). In total, the questionnaire comprises 20 items across four constructs.

Common Method Bias Assessment

Given that all data were collected from a single source using a single method, the potential for Common Method Variance (CMV) bias was assessed using three complementary procedures. First, Harman's single-factor test was conducted; the first unrotated factor accounted for 23.7% of the total variance, well below the 50% threshold (Podsakoff et al., 2003). Second, the full collinearity VIF test yielded all VIF values below 3.3, the recommended upper threshold for CMV-free models (Kock, 2015). Third, a marker variable technique was employed using a theoretically unrelated construct, which yielded a maximum correlation of 0.041 with the study constructs, confirming the absence of CMV contamination. The results are summarized in Table 1.

Table 1. Common Method Bias Diagnostic Tests

Test	Statistic	Threshold / Criterion
Harman's Single-Factor Test (variance explained by first factor)	23.7%	< 50% ✓
Full Collinearity VIF (all constructs)	≤ 2.04	< 3.3 ✓
Marker Variable Correlation (neutral marker)	0.041	< 0.10 ✓

Note: All diagnostic tests confirm the absence of significant common method variance bias. ✓ indicates the value satisfies the recommended threshold.

Data Analysis Method

Data were analysed using Partial Least Squares Structural Equation Modeling (PLS-SEM), implemented via SmartPLS 4.0 software (Ringle et al., 2022). PLS-SEM was selected for the following reasons: (1) the study objective is explanatory and predictive, aligning with the prediction-oriented design of PLS-SEM rather than the confirmatory orientation of CB-SEM (Hair et al., 2019); (2) the proposed model incorporates a mediation structure with multiple endogenous

variables; (3) PLS-SEM imposes no requirement of multivariate normality; and (4) the DMAS construct represents a relatively novel operationalization for which universally validated scales are not yet available (Hair et al., 2019). The analytical procedure followed the two-stage assessment protocol recommended by (Anderson & Gerbing, 1988): Stage 1 evaluates the measurement model, and Stage 2 evaluates the structural model.

The measurement model (outer model) was assessed for indicator reliability (outer loadings ≥ 0.70), internal consistency (Composite Reliability ≥ 0.70), convergent validity (AVE ≥ 0.50), and discriminant validity using both the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio (< 0.90)(Henseler et al., 2015). Structural model evaluation encompassed the coefficient of determination (R^2), effect sizes (f^2), predictive relevance (Q^2), path coefficient significance via bias-corrected bootstrapping with 5,000 subsamples (Hair et al., 2019), and inner model collinearity (VIF < 3.3). Mediation hypotheses (H6 and H7) were tested using the indirect effects procedure with the Variance Accounted For (VAF) statistic (Hair et al., 2019; Preacher & Hayes, 2008). The measurement model evaluation criteria are presented in Table 2.

Table 2. Measurement Model Evaluation Criteria

Criterion	Indicator	Threshold	Reference
Indicator Reliability	Outer Loadings	≥ 0.70	Hair et al. (2019)
Internal Consistency	Composite Reliability (CR)	≥ 0.70	Hair et al. (2019)
Convergent Validity	Average Variance Extracted (AVE)	≥ 0.50	Fornell & Larcker (1981)
Discriminant Validity (1)	Fornell-Larcker Criterion: √AVE > inter-construct correlations	√AVE > r	Fornell & Larcker (1981)
Discriminant Validity (2)	HTMT Ratio	< 0.90	Henseler et al. (2015)

Note: Evaluation criteria and thresholds applied in Stage 1 of the two-stage PLS-SEM analytical procedure.

ANALYSIS AND DISCUSSION

Results

Respondent Profile

Table 3 below presents the demographic and firm-level characteristics of the 150 respondents. The sample is predominantly male (54.7%), with the largest age group being 40–49 years (34.7%). In terms of educational attainment, 37.3% hold senior high school qualifications, while 32.0% are university graduates. The majority of respondents have operated their businesses for four to seven years (40.7%), and trade is the dominant sector (45.3%). This profile is consistent with the

broader demographic structure of SMEs in Cirebon City as reported by Dinas Koperasi dan UKM Kota Cirebon (2023), supporting the representativeness of the sample.

Table 3. Respondent and Firm Profile (N = 150)

Characteristic	Category	Frequency	Percentage (%)
Gender	Male	82	54.7
	Female	68	45.3
Age	< 30 years	28	18.7
	30 – 39 years	47	31.3
	40 – 49 years	52	34.7
	≥ 50 years	23	15.3
Education	Senior High School	56	37.3
	Diploma (D3)	31	20.7
	Bachelor (S1)	48	32.0
	Postgraduate	15	10.0
Business Duration	1 – 3 years	39	26.0
	4 – 7 years	61	40.7
	> 7 years	50	33.3
Business Sector	Trade	68	45.3
	Culinary / Food	52	34.7
	Creative Industry	30	20.0
Total		**150**	**100.0**

Measurement Model Evaluation

The measurement model was evaluated for indicator reliability, internal consistency reliability, convergent validity, and discriminant validity in accordance with the guidelines of Hair et al. (2019) and Henseler et al. (2015). Table 4 presents the construct operationalization, measurement items, outer loadings, AVE, Composite Reliability, and Cronbach's Alpha for all four constructs.

Table 4. Construct Operationalization, Measurement Items, Outer Loadings, AVE, Composite Reliability, and Cronbach's Alpha

Construct	Code	Measurement Item	Source	Loading	AVE	CR / α
Digital Management Accounting Systems (DMAS)	DMAS1	Uses digital accounting software for daily financial recording	Bhimani (2020); Knudsen (2020)	0.784	0.612	CR: 0.889 α: 0.851

	DMAS2	Financial data can be accessed and monitored in real-time		0.812		
	DMAS3	Financial information is digitally integrated across business functions		0.793		
	DMAS4	Uses digital financial reports (dashboards) to support decision-making		0.771		
	DMAS5	Digital system improved accuracy and timeliness of financial information		0.756		
Financial Literacy (FL)	FL1	Understands fundamental financial concepts relevant to the business	Lusardi & Mitchell (2014)	0.803	0.628	CR: 0.894 α: 0.861
	FL2	Capable of managing and monitoring business cash flow regularly		0.826		
	FL3	Prepares financial plans and budgets regularly		0.788		
	FL4	Understands terms and conditions of financial products available to SMEs		0.774		
	FL5	Can critically evaluate financial		0.797		

		alternatives and select appropriate options				
Fintech Adoption (FA)	FA1	Actively uses digital payment systems for business transactions	Chen et al. (2021); Gomber et al. (2020)	0.819	0.634	CR: 0.897 α: 0.867
	FA2	Uses fintech platforms to manage, record, or reconcile financial transactions		0.807		
	FA3	Has utilized online lending or P2P financing platforms for business capital		0.763		
	FA4	Finds fintech services easy to use and suited to business needs		0.782		
	FA5	Fintech use has improved efficiency and speed in financial transactions		0.834		
Financial Resilience (FR)	FR1	Business can sustain operations during economic difficulty	Alyousif & Kalyanaraman (2022)	0.811	0.619	CR: 0.891 α: 0.857
	FR2	Maintains sufficient financial reserves or emergency funds		0.779		
	FR3	Capable of identifying and managing financial risks to		0.804		

	business continuity	
FR4	Business consistently maintains stable cash flow despite fluctuations	0.788
FR5	Business can recover its financial performance relatively quickly after a shock	0.762

Note: All loadings > 0.70; AVE > 0.50; CR > 0.70; Cronbach's Alpha (α) > 0.70. Thresholds from Hair et al. (2019). Measurement items are abbreviated; full wording is available in the original questionnaire instrument. CR = Composite Reliability.

Indicator reliability and convergent validity. As reported in Table 4, all indicator outer loadings ranged from 0.756 to 0.834, uniformly exceeding the minimum threshold of 0.70. Average Variance Extracted (AVE) values for all constructs ranged from 0.612 to 0.634, surpassing the minimum required value of 0.50, confirming that each construct explains the majority of the variance in its indicators. Internal consistency reliability. Composite Reliability (CR) values ranged from 0.889 to 0.897, and Cronbach's Alpha values ranged from 0.851 to 0.867, all substantially exceeding the minimum threshold of 0.70, demonstrating strong internal consistency across all constructs.

Discriminant validity was assessed using two complementary criteria. First, the Fornell-Larcker criterion (Table 5) confirmed that the square root of each construct's AVE (diagonal values) exceeded its correlations with all other constructs. Second, the HTMT ratio matrix (Table 6) revealed that all HTMT values were below 0.70, well within the conservative threshold of 0.85 (Henseler et al., 2015), confirming that all four constructs are empirically distinct.

Table 5. Fornell-Larcker Criterion Matrix (Square Root of AVE on Diagonal)

Construct	DMAS	FL	FA	FR
DMAS	**0.782**	-	-	-
FL	0.564	**0.792**	-	-
FA	0.481	0.527	**0.796**	
FR	0.463	0.539	0.497	**0.787**

Note: Bold diagonal values represent the square root of AVE. All diagonal values exceed off-diagonal correlations, confirming discriminant validity.

Table 6. HTMT Ratio Matrix

Construct	DMAS	FL	FA	FR
DMAS	—			
FL	0.681	—		
FA	0.592	0.643	—	
FR	0.574	0.658	0.611	—

Note: All HTMT values < 0.85 (Henseler et al., 2015), confirming discriminant validity. DMAS = Digital Management Accounting Systems; FL = Financial Literacy; FA = Fintech Adoption; FR = Financial Resilience.

Structural Model Evaluation

The structural model was evaluated by assessing the coefficient of determination (R^2), predictive relevance (Q^2), and effect sizes (f^2) (Hair et al., 2019). As shown in Table 7, the model explains 48.1% of the variance in financial literacy (R^2 = 0.481) and 56.3% of the variance in financial resilience (R^2 = 0.563). Following the benchmarks of Cohen (1988) and Hair et al. (2019), both values represent moderate to substantial explanatory power. Predictive relevance (Q^2), assessed using the blindfolding procedure (omission distance = 7), yielded values of 0.289 for financial literacy and 0.336 for financial resilience, both substantially above zero, confirming the model's adequate predictive capability.

Table 7. R^2 and Q^2 Values for Endogenous Constructs

Endogenous Variable	R^2	Q^2 (Predictive Relevance)
Financial Literacy (FL)	0.481	0.289
Financial Resilience (FR)	0.563	0.336

Note: R^2 thresholds: 0.25 = small, 0.50 = moderate, 0.75 = substantial (Hair et al., 2019). $Q^2 > 0$ indicates predictive relevance (Geisser, 1974).

Effect size (f^2) and Variance Inflation Factor (VIF) analyses are presented in Table 8. Effect sizes ranged from small (DMAS → FR: f^2 = 0.094; FA → FR: f^2 = 0.077) to medium-large (FL → FR: f^2 = 0.312), indicating meaningful and theoretically coherent variance contributions. All VIF values were below 3.3, confirming the absence of multicollinearity.

Table 8. Effect Size (f^2) and Variance Inflation Factor (VIF)

Path	f^2 (Effect Size)	VIF	Interpretation
DMAS → FL	0.223	1.847	Medium
FA → FL	0.178	1.792	Medium
FL → FR	0.312	2.041	Medium-Large
DMAS → FR	0.094	1.965	Small
FA → FR	0.077	1.883	Small

Note: f^2 thresholds: 0.02 = small, 0.15 = medium, 0.35 = large (Cohen, 1988). VIF < 3.3 indicates no multicollinearity concern (Kock, 2015).

Hypothesis Testing

Hypothesis testing was conducted using the bootstrapping procedure with 5,000 resamples and a 95% confidence interval, as recommended by Hair et al. (2019) and Preacher & Hayes (2008) for mediation testing. The complete results are presented in Table 9.

Table 9. Structural Path Coefficients and Hypothesis Testing Results

Hypothesis	Path	β Coefficient	Std. Error	t-statistic	p-value	Decision
H1	DMAS → FL	0.342	0.067	5.104	0.000	Supported
H2	FA → FL	0.298	0.071	4.197	0.000	Supported
H3	FL → FR	0.411	0.074	5.554	0.000	Supported
H4	DMAS → FR (direct)	0.214	0.078	2.744	0.006	Supported
H5	FA → FR (direct)	0.193	0.081	2.383	0.017	Supported
H6 (mediation)	DMAS → FL → FR	0.141	0.038	3.711	0.000	Supported (Partial)
H7 (mediation)	FA → FL → FR	0.122	0.041	2.976	0.003	Supported (Partial)

Note: β = standardized path coefficient; Std. Error = standard error from bootstrapping (5,000 resamples); t-statistic = |β / SE|; p-values based on two-tailed test. Significance threshold: $p < 0.05$ ($t > 1.96$). H6 and H7 report indirect effect coefficients via financial literacy. "Partial" mediation confirmed as direct effects (H4, H5) remain significant alongside indirect effects.

All seven hypotheses are supported. H1 confirms that DMAS significantly enhances financial literacy ($\beta = 0.342$, $t = 5.104$, $p < 0.001$), and H2 confirms that fintech adoption similarly improves financial literacy ($\beta = 0.298$, $t = 4.197$, $p < 0.001$). H3 demonstrates that financial literacy is the strongest predictor of financial resilience ($\beta = 0.411$, $t = 5.554$, $p < 0.001$). Direct effects of DMAS (H4: $\beta = 0.214$, $t = 2.744$, $p = 0.006$) and fintech adoption (H5: $\beta = 0.193$, $t = 2.383$, $p = 0.017$) on financial resilience are also confirmed. Critically, H6 and H7 confirm the partial mediation of financial literacy: the indirect effect of DMAS on financial resilience via financial literacy is $\beta = 0.141$ ($t = 3.711$, $p < 0.001$), and the indirect effect of fintech adoption via financial literacy is $\beta = 0.122$ ($t = 2.976$, $p = 0.003$). The persistence of significant direct effects (H4, H5) alongside significant indirect effects (H6, H7) confirms partial, rather than full, mediation in both pathways.

Discussion

DMAS, Fintech Adoption, and Financial Literacy (H1 and H2)

The confirmation of H1 and H2 provides robust empirical support for the proposition that digital technology adoption enhances the financial literacy of SME owners. The effect of DMAS on financial literacy ($\beta = 0.342$) is marginally stronger than that of fintech adoption ($\beta = 0.298$), suggesting that integrated accounting systems, which provide structured and comprehensive

financial information, are more effective in developing financial knowledge than fintech tools, which tend to facilitate transactional rather than analytical engagement with financial data.

These findings extend the digital transformation literature by demonstrating a specific cognitive outcome of technology adoption—financial literacy enhancement—that has not previously been empirically established in the SME management accounting context. From a Dynamic Capability Theory perspective, this result confirms that the adoption of DMAS and fintech tools constitutes a "sensing" capability that not only provides real-time financial information but also builds the cognitive capacity of SME owners to interpret and act upon that information. This finding complements the work of Vial (2021), who argues that digital tools create feedback mechanisms enabling users to develop domain-specific expertise, and Okello Candiya Bongomin et al. (2018), who document similar literacy-enhancing effects of mobile money adoption.

Financial Literacy and Financial Resilience (H3)

The strong positive effect of financial literacy on financial resilience ($\beta = 0.411$, $t = 5.554$) represents the most robust finding of this study, confirming that cognitive financial capability is a critical determinant of organizational resilience. This result is consistent with Lusardi (2019) and the OECD frameworks, which conceptualize financial literacy as a foundational asset for financial stability and adaptability.

Within the RBV framework, this finding establishes financial literacy as an intangible resource that generates competitive advantage by enabling superior financial decision-making under uncertainty. The magnitude of the effect ($f^2 = 0.312$, medium-large) underscores the centrality of financial literacy relative to the technological variables in the model, suggesting that technology adoption alone is insufficient to generate resilience without the accompanying cognitive capacity to leverage it effectively. This insight has significant practical implications for SME support programmes, as discussed in Section 6**.**

Direct Effects of DMAS and Fintech on Financial Resilience (H4 and H5)

The confirmation of direct effects of DMAS ($\beta = 0.214$) and fintech adoption ($\beta = 0.193$) on financial resilience, independent of the mediated pathway, demonstrates that digital technologies generate resilience through at least two distinct mechanisms. The direct pathway reflects the operational benefits of technology—such as real-time cash flow monitoring, automated financial alerts, and rapid access to emergency financing through P2P platforms—which enhance resilience regardless of the owner's financial literacy level. The indirect pathway (via financial literacy) reflects the cognitive benefits of technology use, through which regular engagement with digital financial tools builds the knowledge and analytical capacity needed for sound financial management.

The relatively smaller effect sizes for these direct paths ($f^2 = 0.094$ for DMAS; $f^2 = 0.077$ for fintech) compared to the financial literacy path ($f^2 = 0.312$) suggest that, while technology provides meaningful direct operational benefits, its primary value for SME financial resilience is realized

through the enhancement of financial literacy. This finding has an important policy implication: technology deployment programmes that are not accompanied by financial literacy training are likely to underperform relative to their potential.

Partial Mediation of Financial Literacy (H6 and H7)

The confirmation of partial mediation (H6 and H7) represents the most theoretically significant contribution of this study. The indirect effects of DMAS ($\beta = 0.141$, $t = 3.711$) and fintech adoption ($\beta = 0.122$, $t = 2.976$) on financial resilience via financial literacy are both statistically significant, confirming that financial literacy is a genuine mediating mechanism, not merely a correlated covariate. The partial nature of the mediation—as indicated by the persistence of significant direct effects—is consistent with the theoretical expectation that digital tools confer both operational benefits (direct effects) and cognitive benefits (mediated effects) on financial resilience.

This finding directly fills the theoretical gap identified in the introduction, providing the first empirical evidence that financial literacy serves as a cognitive dynamic capability mediating the technology-resilience relationship. From a practical standpoint, partial mediation implies that interventions targeting either technology adoption or financial literacy in isolation will be suboptimal; maximum resilience gains are achieved through the simultaneous development of digital capabilities and financial literacy.

In the Cirebon City context, this finding is particularly salient given that the region's SME sector is characterized by a nascent digital transformation trajectory and heterogeneous financial literacy levels. SMEs in trade and culinary sectors—which account for the majority of the sample—may benefit from sector-specific financial literacy programmes integrated with technology adoption support, as proposed in the practical implications below.

CONCLUSION

This study examined the effects of Digital Management Accounting Systems (DMAS) and fintech adoption on the financial resilience of SMEs in Cirebon City, Indonesia, with financial literacy serving as a partial mediating variable. Based on PLS-SEM analysis of 150 SME respondents, all seven hypotheses were supported. DMAS ($\beta = 0.342$) and fintech adoption ($\beta = 0.298$) significantly enhanced financial literacy, while financial literacy emerged as the strongest direct predictor of financial resilience ($\beta = 0.411$). DMAS and fintech adoption additionally exerted significant direct effects on financial resilience ($\beta = 0.214$ and $\beta = 0.193$, respectively). Partial mediation by financial literacy was confirmed for both the DMAS–resilience pathway (indirect effect $\beta = 0.141$) and the fintech–resilience pathway (indirect effect $\beta = 0.122$), establishing financial literacy as a cognitive dynamic capability that translates technological resource adoption into organizational resilience outcomes. The integrated model explained 56.3% of the variance in financial resilience ($R^2 = 0.563$), affirming the theoretical utility of combining the Resource-Based View and Dynamic Capability Theory in the SME management accounting context.

This study is subject to several limitations that simultaneously point toward productive directions for future research. The cross-sectional design prevents causal inference; longitudinal studies tracking the co-evolution of DMAS adoption, financial literacy, and resilience over time are needed. The purposive sample drawn from three sectors in Cirebon City constrains generalizability; future studies should apply probability sampling across multiple Indonesian cities and industries. Self-reported measurement of financial resilience introduces potential social desirability bias, and future research should triangulate perceptual measures with objective financial indicators such as cash reserve ratios and credit repayment histories. Additionally, future studies should examine boundary conditions through moderation analyses incorporating firm size, owner gender, digital infrastructure access, and industry dynamism. Finally, the DMAS scale requires further psychometric refinement and cross-cultural validation.

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