JURNAL BISNIS, MANAJEMEN & PERBANKAN

RESEARCH ARTICLE
Published: April, 25, 2026
doi: 10.21070/jbmp.v12i1.2261

Digital Financial Recording and MSME Performance in Rural Areas: The Moderating Effect of Government Support

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Abstract

Micro, small, and medium enterprises (MSMEs) play a crucial role in sustaining local economies and employment in rural Indonesia. However, many rural MSMEs continue to face financial challenges, such as managing cash flow, maintaining profitability, and ensuring business sustainability, amid increasing digital and market pressures. This study examines how digital financial recording, financial literacy, and human resource capacity affect the financial performance of MSMEs in rural Indonesia, considering government support as a moderating variable. A quantitative explanatory survey design with purposive sampling was used to collect data from 200 MSME owners/managers operating in rural Banyumas Regency. The data were analyzed using partial least squares structural equation modeling (PLS-SEM). The results reveal that digital financial recording has the strongest positive effect on MSME performance, while financial literacy contributes significantly, albeit to a lesser extent. However, human resource capacity shows no significant direct influence. Notably, government support moderates the relationship between digital financial recording and performance, amplifying the impact of digital adoption on business outcomes. These findings extend the Resource-Based View (RBV) by highlighting the synergy between internal capabilities and external enablers in enhancing MSME competitiveness. The study implies that sustainable MSME growth in rural areas requires digital adoption as well as supportive policies, infrastructure, and training programs. The study provides theoretical and practical insights for MSMEs, policymakers, and financial institutions that aim to accelerate inclusive digital transformation in Indonesia's rural economy.

Keywords: *Digital Financial Recording, Financial Literacy, Government Support, Human Resource Capacity, MSME Performance.*

OPEN ACCESS

ISSN 2528-4649 (online)
ISSN 2338-4409 (print)

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Citation:
Received: ***October, 29, 2025***
Accepted: ***February, 27, 2026***
Published: ***April, 25, 2026***
JBMP: Jurnal Bisnis, Manajemen dan Perbankan.
Vol: 12 No. 01
doi: **10.21070/jbmp.v12i1.2261**

1. INTRODUCTION

Micro, small, and medium enterprises (MSMEs) are a vital engine of economic growth and employment in Indonesia. As of 2023, they contribute approximately 60.5% to the national gross domestic product (GDP) and employ over 97% of the total workforce (Badan Pusat Statistic, 2023). In rural areas, MSMEs play a crucial role in job creation, poverty alleviation, and preserving local economies and cultural practices. However, despite their strategic importance, most rural MSMEs face persistent financial challenges due to limited capacity to adopt formal financial practices, low financial literacy, and inadequate institutional support.

One of the most significant transformations in the business sector over the past decade has been the rise of digital financial technologies. The shift toward digital bookkeeping, mobile accounting applications, and cloud-based financial records offers MSMEs the opportunity to streamline operations, increase transparency, and make data-driven decisions (Lanlan et al., 2019). In Indonesia, the Ministry of Cooperatives and SMEs has promoted financial digitalization through initiatives like "UMKM Go Digital." Nevertheless, adoption remains uneven, especially in rural areas, due to barriers such as low digital readiness, limited human capital, and a lack of technical guidance. According to Kominfo (2023), Indonesian MSMEs reported using digital platforms for financial recording, with rural penetration significantly lower.

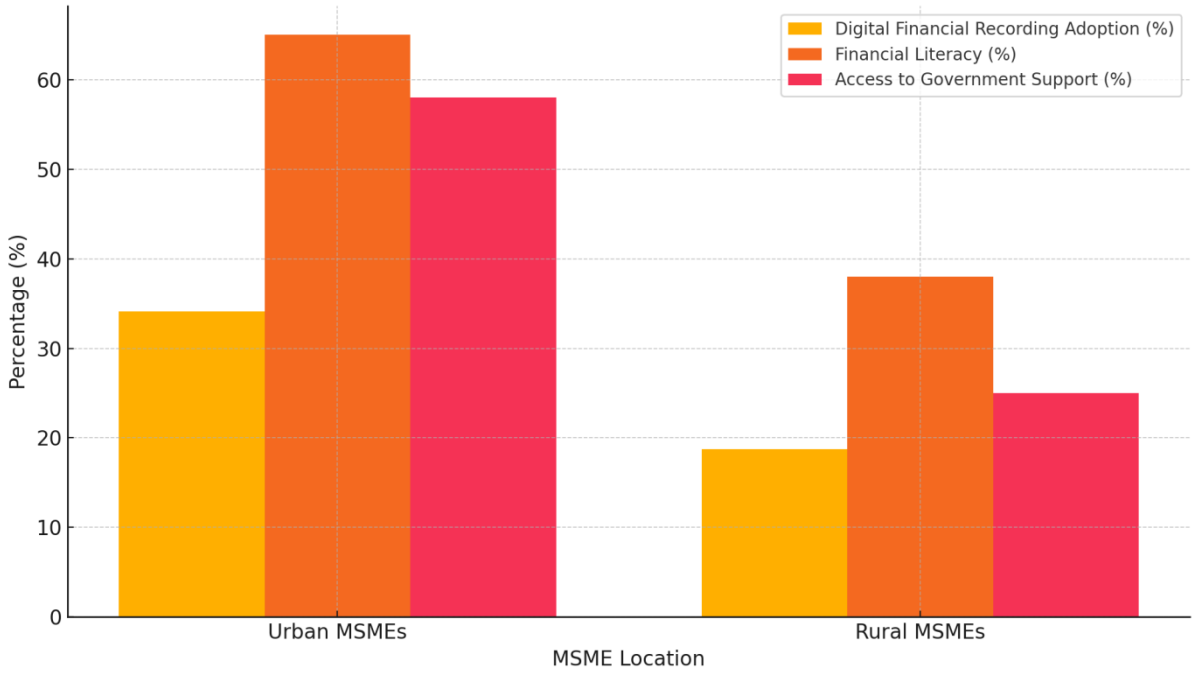

Figure 1. Digital and Financial Inclusion Gap Between Urban and Rural MSMEs in Indonesia

Figure 1 illustrates the substantial differences between urban and rural MSMEs in Indonesia across three areas: adoption of digital financial recording, financial literacy, and access to government support. While 34.1% of urban MSMEs have adopted digital financial tools, only 18.7% of rural MSMEs have done so, indicating a significant digital divide. Financial literacy is also unevenly distributed: 65% of urban MSMEs demonstrate adequate knowledge, compared to 38% of rural MSMEs. Furthermore, only 25% of rural MSMEs report receiving government support, such as training, subsidies, or access to digital platforms, compared to 58% of urban MSMEs. These disparities highlight a structural performance gap, revealing that rural MSMEs face compounded disadvantages in accessing the internal capabilities and external enablers necessary for financial growth. Thus, it is crucial to investigate the combined effect of these factors on their financial performance.

Financial literacy has also emerged as a key determinant of MSME sustainability. Entrepreneurs with sound financial knowledge are more likely to manage cash flows effectively, make informed borrowing decisions, and adopt formal financing

tools (Musah et al., 2023; Sa'eed et al., 2020). Similarly, human resource capacity, especially in financial management, is linked to organizational learning and operational efficiency (Singh et al., 2016). However, many MSMEs in rural Indonesia are family-run businesses with informal systems and limited access to structured training (Lackson & Muba, 2021). This limits their ability to integrate financial knowledge into business decision-making.

To support MSME development, the Indonesian government has introduced policies to enhance digital transformation, financial inclusion, and business capacity building. However, the effectiveness of these interventions depends on how well they align with the internal readiness of MSMEs. While some programs provide infrastructure and subsidies, their reach and impact in remote rural areas remain limited (Che Nawi et al., 2022). Therefore, government support may act as a moderating factor that strengthens or weakens the influence of internal MSME resources on performance outcomes.

Recent studies in Tanzania (Mang'ana et al., 2024), Malaysia (Che Nawi et al., 2022), and Nigeria (Sa'eed et al., 2020) have examined the role of financial practices, literacy, and institutional support in MSME performance. These studies highlight the positive impact of digital and financial capabilities supported by enabling environments. However, few empirical studies have examined the combined effect of digital financial recording, financial literacy, and human resource capacity on MSME financial performance in rural Indonesian contexts, particularly with government support as a moderating variable. This gap is particularly critical given Indonesia's ongoing push toward inclusive digitalization and regional economic development.

According to the Resource-Based View (RBV), digital financial recording capability, financial literacy, and HR capacity are conceptualized as internal, intangible resources that create value through better control, learning, and resource allocation (Barney, 1991). However, the RBV also implies that resources generate superior performance only when they are effectively deployed and supported by complementary assets. For rural MSMEs facing infrastructure gaps and institutional voids, government support, such as training, digital infrastructure, subsidies, facilitation, and access-to-market programs, can function as external complements that strengthen the conversion of internal resources into superior performance outcomes (Alon et al., 2021; Che Nawi et al., 2022).

However, existing empirical studies often examine digital accounting adoption, financial literacy, or institutional support in isolation. Evidence from other developing contexts may not transfer directly to rural Indonesia, which has a distinct digital and policy landscape (Mang'ana et al., 2024; Sa'eed et al., 2020). To address this gap, this study tests an integrated resource-based view (RBV)-based model that jointly considers digital financial recording, financial literacy, and human resource (HR) capacity. The model specifies government support as a boundary condition that moderates the extent to which these internal resources translate into financial performance. The study offers two novel contributions. First, it operationalizes digital financial recording as a strategic capability, not merely technology use, and evaluates how performance returns change with varying levels of government support. Second, it extends resource-based view (RBV) in the rural micro, small, and medium enterprise (MSME) setting by empirically demonstrating when external support amplifies the value creation of internal resources.

The purpose of this study is to examine the effects of digital financial recording, financial literacy, and human resource capacity on the financial performance of MSMEs in rural regions of Indonesia and to evaluate the moderating role of government support in these relationships. The findings aim to provide MSME practitioners, policymakers, and researchers with empirical insights to optimize the strategic alignment of internal resources and institutional support, thereby improving the resilience and competitiveness of rural MSMEs.

2. LITERATURE REVIEW

2. 1 Resource-Based View (RBV)

According to the Resource-Based View (RBV), firm performance differences stem from the heterogeneity of resources and capabilities owned or controlled by the firm (Barney, 1991). Resources include assets, knowledge, and organizational processes, while capabilities refer to patterned routines that enable firms to deploy resources effectively. In MSMEs, particularly

in rural areas, intangible resources (e.g., managerial know-how, financial skills, and organizational routines) often play a more decisive role than physical assets because they influence how limited capital is allocated and controlled.

The RBV further suggests that resources contribute to superior outcomes when they are valuable and difficult to replace and when firms can combine them with complementary resources to create value in context (Alvarez et al., 2020; Barney, 1991). For rural MSMEs operating under infrastructure constraints, external support, such as training, facilitation, and digital infrastructure programs, can strengthen the effectiveness of internal capabilities rather than substitute for them (Alon et al., 2021).

2. 2 MSME Financial Performance in Rural Contexts

The financial performance of micro, small, and medium enterprises (MSMEs) reflects the extent to which a business achieves desirable financial outcomes, such as profitability, cash flow stability, liquidity, and operational efficiency. In rural areas, businesses often face volatile demand, higher distribution costs, and limited access to formal financing. This makes internal financial control and timely decision-making crucial (Lubawa et al., 2018). Thus, performance improvements in rural MSMEs are closely linked to capabilities that reduce information gaps and improve resource allocation.

2. 3 Digital Financial Recording and MSME Performance

Digital financial recording involves using electronic tools, such as mobile bookkeeping applications, cloud accounting, and digital invoicing, to capture, store, and summarize financial transactions. Previous studies have shown that digital accounting practices can improve the timeliness and accuracy of records, enhance internal control, and enable faster managerial responses. These factors have been linked to better financial outcomes in SMEs (Lanlan et al., 2019; Nguyen & Ha, 2023). However, adoption in rural areas remains uneven due to cost constraints, limited skills, and infrastructure gaps (Che Nawi et al., 2022; Kesale, 2017). Digital financial recording should be considered a capability, not just the use of technology, because value arises when MSMEs incorporate digital recording into routines for monitoring cash flow, evaluating margins, and making budgeting or pricing decisions. This capability is valuable because it reduces errors, improves transparency, and strengthens financial discipline in day-to-day operations (Bayrakçeken et al., 2019). This capability is also comparatively non-substitutable in rural MSMEs because manual or ad hoc recording cannot replicate the real-time integration, searchable history, and standardized reporting that enable faster learning and control. Once established, firm-specific datasets and routines are difficult to replace without losing informational advantages (Barney, 1991). Therefore, stronger digital financial recording capabilities are expected to be associated with higher MSME financial performance.

H1: Digital financial recording has a positive effect on MSME financial performance.

2. 4 Financial Literacy and Entrepreneurial Decision-Making

Financial literacy is typically defined as the knowledge and abilities necessary to comprehend financial concepts and make informed decisions about budgeting, saving, credit, and investment (Lusardi & Mitchell, 2014). In MSMEs, financial literacy is an intangible capability that enables entrepreneurs to interpret financial information, anticipate cash flow risks, and take actions that improve profitability and sustainability (Musah et al., 2023; Nkundabanyanga et al., 2017). Within the resource-based view (RBV), this intangible capability is critical because it determines whether available information, whether produced digitally or manually, can be transformed into resource allocation decisions (e.g., cost control, pricing strategy, inventory policy, and financing choices). Consequently, MSME owners/managers with higher financial literacy are more likely to use accounting information to guide decisions and improve financial performance (Sa'eed et al., 2020).

H2: Financial literacy positively affects MSME financial performance.

2. 5 Human Resource Capacity in MSMEs

Human resource (HR) capacity refers to the availability and competence of personnel to perform essential business functions, including basic administrative and financial tasks. In micro, small, and medium-sized enterprises (MSMEs), HR

capacity is usually reflected in the skills and experience of owners and employees, as well as their ability to maintain operational routines (Singh et al., 2016). Adequate HR capacity enables consistent financial recordkeeping and the use of information for daily control, improving efficiency and reducing operational leakages (Dwangu & Mahlangu, 2021). From an RBV perspective, HR capacity represents human capital that enables the deployment of other resources and capabilities. MSMEs with stronger HR capacity are expected to execute financial routines more reliably and respond to financial signals more quickly, leading to better financial performance.

H3: Human resource capacity positively affects MSME financial performance.

2. 6 The Moderating Role of Government Support

Government support is essential for fostering the development of micro, small, and medium enterprises (MSMEs), particularly in rural and underserved areas. This support can manifest as digital infrastructure, subsidies, training programs, market access, and financial inclusion initiatives. According to the literature, MSMEs are more likely to adopt financial technologies and improve performance when institutional support mitigates the risks and costs of innovation (Alon et al., 2021; Che Nawi et al., 2022). In their study of agri-SMEs, Mang'ana et al. (2024) found that perceptions of government support significantly influenced the adoption of financial management practices. Despite these findings, the moderating effect of government support on the relationship between internal resources and financial performance remains under-explored in the Indonesian rural context.

H4: Government support strengthens the positive effect of digital financial recording on MSME financial performance.

3. RESEARCH METHOD

3. 1 Research Design and Sample

This study used a quantitative, explanatory survey design to test the relationships between digital financial recording, financial literacy, human resource capacity, government support, and micro, small, and medium enterprise (MSME) financial performance in rural Banyumas Regency, Indonesia. Because the study required respondents with direct knowledge of financial recording and decision-making practices in their businesses, a purposive sampling strategy was applied. The inclusion criteria were as follows: (1) the respondent is the owner or manager of an MSME that operates in rural Banyumas Regency, (2) the MSME has operated for at least 12 months, (3) the respondent is directly responsible for financial recording and/or financial decision-making (e.g., bookkeeping, cash flow monitoring, budgeting, pricing, or financing decisions), (4) the respondent is 18 years of age or older, and (5) the respondent provided informed consent. Questionnaires were excluded if they were substantially incomplete (e.g., with more than 10% missing responses) or if the respondent did not meet the inclusion criteria. A total of 200 valid responses were retained for analysis.

3. 2 Instrumentation

Data were collected using a structured questionnaire with closed-ended statements designed to measure the study variables. Respondents provided their perceptions using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The questionnaire assessed digital financial recording, financial literacy, human resource capacity, government support as a moderating variable, and financial performance as the dependent variable (Nkundabanyanga et al., 2017). Items in the questionnaire were adapted from previous studies and subjected to expert validation to ensure content accuracy and relevance. Table 1 shows the research instruments.

TABLE 1 | Research Instruments

Variable	Code	Indicators	Source
Digital Financial Recording (X^1)	DF1	I use a digital application to record my business financial transactions	(Lanlan et al., 2019; Mang'ana et al., 2024)
	DF2	My financial records are managed using cloud-based or mobile software	
	DF3	I can monitor my business cash flow in real-time through a digital system	
	DF4	Digital record keeping helps me prepare accurate financial reports	
	DF5	I feel that a digital financial record keeping system saves time and operational costs	
Financial Literacy (X^2)	FL1	I understand the importance of preparing a business budget	(Musah, A., Gakpetor, E. D., & Portia, 2023; Nkundabanyanga et al., 2017; Sa'eed et al., 2020)
	FL2	I can calculate and understand loan interest rates	
	FL3	I know how to read business financial statements	
	FL4	I have sufficient knowledge to make business financial decisions	
	FL5	I understand the risks and benefits of various financial products	
Human Resource Capacity (X^3)	HR1	My employees have the skills to manage business finances	(Lackson & Muba, 2021; Singh et al., 2016)
	HR2	I have staff capable of using digital technology in business operations	
	HR3	I regularly provide training or guidance to staff on business management	
	HR4	My human resource capacity is sufficient to support business growth	
	HR5	The role of human resources in my business contributes to operational efficiency	
Government Support (Z)	GS1	I received government training on digital financial record-keeping	(Che Nawi et al., 2022; Mang'ana et al., 2024)
	GS2	The government provided assistance or subsidies to support the digitalization of my business	
	GS3	I have access to goverrnment-provided digital platforms	
	GS4	Government policies support the development of small businesses in my area	
	GS5	The government provides assistance in managing small business finances	
MSME Financial Performance (Y)	FP1	My business has experienced an increase in revenue in the last 12 months	(Musah, A., Gakpetor, E. D., & Portia, 2023; Singh et al., 2016)
	FP2	I am able to manage my business debt and obligations well	
	FP3	My business generates stable profits	
	FP4	I feel my business financial condition is better than last year	
	FP5	My business has sufficient liquidity to support daily operations	

Source: Data Processed (2025)

3. 3 Validity and Reliability

To ensure the instrument's accuracy and consistency, confirmatory factor analysis (CFA) was conducted to test the construct validity of the measurement model. Reliability was assessed using Cronbach's alpha coefficients. All constructs demonstrated acceptable internal consistency by exceeding the minimum threshold value of 0.70. These tests confirmed that the measurement instrument was valid and reliable for this study's purpose.

3. 4 Data Analysis

We analyzed the collected data using partial least squares structural equation modeling (PLS-SEM) with the assistance of SmartPLS version 4.0. PLS-SEM was chosen because it can estimate complex relationships between latent variables and test the moderating effect of government support within the proposed model (Hair et al., 2019). The data analysis was conducted in two main stages. First, the measurement model was assessed to evaluate convergent and discriminant validity, as well as internal consistency reliability. Second, the structural model was tested to examine the direct and moderating effects among the variables, including the coefficients of determination (R^2) and the significance of the paths (Henseler et al., 2015). To enhance the robustness of the findings, the bootstrapping method with 5,000 subsamples was employed to assess the statistical significance of the hypothesized relationships.

4. RESULTS AND DISCUSSION

4. 1 RESULTS

4. 1. 1 Descriptive Statistics

Table 1 presents the demographic profile of the respondents, including business sector, location, and ownership characteristics. The majority of MSMEs operated in the culinary and retail sectors, with 58%. Over 72% of respondents were owners actively managing the financial activities of their business.

TABLE 1 | Descriptive characteristics of MSME respondents (N = 200)

Variable	Category	Frequency	Percentage (%)
Business Sector	Culinary	98	49.0
	Retail	61	30.5
	Services	41	20.5
Owner's Role	Owner/Manager	145	72.5
	Financial Staff	55	27.5

Source: Data Processed (2025)

4. 1. 2 Measurement Model Evaluation

The construct reliability and validity test was carried out by examining Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE). According to Hair et al. (2019), the reliability of a construct is considered satisfactory if the value of Cronbach's Alpha and Composite Reliability exceeds 0.70, while convergent validity is met when the AVE value is greater than 0.50. The results in Table X demonstrate that all constructs in this study fulfill these criteria. Specifically, Digital Financial Recording (α = 0.883; CR = 0.915; AVE = 0.682), Financial Literacy (α = 0.885; CR = 0.916; AVE = 0.686), Government Support (α = 0.837; CR = 0.884; AVE = 0.603), HR Capacity (α = 0.865; CR = 0.902; AVE = 0.647), and Performance (α = 0.883; CR = 0.915; AVE = 0.682) all exceeded the recommended thresholds. These results indicate that the measurement model has good internal consistency reliability and acceptable convergent validity, confirming that the indicators used are reliable in explaining their respective constructs.

TABLE 2 | Construct Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Digital Financial _Recording	0,883	0,886	0,915	0,682
Financial Literacy	0,885	0,889	0,916	0,686
Goverment Support	0,837	0,846	0,884	0,603
HR Capacity	0,865	0,874	0,902	0,647
Performance	0,883	0,890	0,915	0,682

Source: Data Processed (2025)

A discriminant validity test was conducted to ensure that each construct is distinct from the others and that the indicators measure only their intended construct. According to the Fornell–Larcker criterion, a construct has discriminant validity when its square root AVE is greater than its correlations with other constructs. The results indicate that Digital Financial Recording, Financial Literacy, Government Support, HR Capacity, and Performance meet this requirement. For instance, the correlation between digital financial recording and financial literacy is 0.735, which is lower than the square root of their respective AVEs (0.826 and 0.828). Similarly, HR capacity shows strong correlations with financial literacy (0.778) and digital financial recording (0.665); however, both values remain below the square root of its AVE (0.804). Government support shows relatively lower correlations with the other constructs (ranging from 0.190 to 0.362), which further confirms its distinctiveness. The interaction term (government support × digital financial recording) also demonstrates acceptable correlation levels, indicating no serious multicollinearity issue. These findings confirm that the constructs in this study satisfy the discriminant validity criterion, ensuring that each variable measures a unique concept within the model.

TABLE 3 | Discriminant validity

	Digital Financial _Recording	Financial Literacy	Goverment Support	HR Capacity	Performance
Digital Financial _Recording					
Financial Literacy	0,735				
Goverment Support	0,201	0,239			
HR Capacity	0,665	0,778	0,190		
Performance	0,734	0,726	0,288	0,720	
Goverment Support x Digital Financial _Recording	0,488	0,341	0,362	0,333	0,243

Source: Data Processed (2025)

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TABLE 4 | Fornell-Larcker Criterion

	Digital Financial _Recording	Financial Literacy	Goverment Support	HR Capacity	Performance
Digital Financial _Recording	0,826				
Financial Literacy	0,651	0,828			
Goverment Support	0,169	0,209	0,777		
HR Capacity	0,588	0,691	0,160	0,805	
Performance	0,652	0,650	0,257	0,645	0,826

Source: Data Processed (2025)

The results of the Fornell–Larcker criterion test confirm that discriminant validity is well established. As shown in Table 4, the square roots of the AVE values (on the diagonal) are greater than the correlations between constructs in the corresponding rows and columns. For example, the square root of the AVE for digital financial recording is 0.826, exceeding its correlations with financial literacy (0.651), government support (0.169), human resource capacity (0.588), and performance (0.652). Similarly, financial literacy has a square root of AVE of 0.828, which exceeds its correlations with other constructs, such as HR capacity (0.691) and performance (0.650). Government support shows a square root of AVE of 0.777, which exceeds its correlations with other constructs (ranging from 0.160 to 0.257). Both HR Capacity (AVE = 0.805) and Performance (AVE = 0.826) meet the same requirement because their diagonal values surpass their respective correlations with other constructs. These results demonstrate that all constructs possess adequate discriminant validity, indicating that each construct is empirically distinct and measures a unique dimension within the research model.

4. 1. 3 Structural Model Evaluation

We evaluated the structural model using PLS-SEM with 5,000 bootstrap samples. The model yielded an R^2 value of 0.610, indicating that the three predictors and the moderating effect explain 61.0% of the variance in MSME financial performance. Figure 1 displays the structural model results, including the path coefficients and their respective significance levels. The results demonstrate that all hypothesized relationships are statistically significant. Digital financial recording has a strong positive effect on performance ($\beta = 0.383$, $t = 5.824$, $p < 0.001$), indicating that implementing reliable digital financial systems substantially improves MSME performance. Financial literacy also positively influences performance ($\beta = 0.213$, $t = 2.698$, $p < 0.01$), suggesting that higher levels of financial knowledge enhance MSMEs' ability to manage resources effectively. Government support was also found to significantly affect performance ($\beta = 0.150$, $t = 2.888$, $p < 0.01$), confirming the importance of policy and institutional backing in strengthening MSME outcomes. Additionally, the interaction effect between government support and digital financial recording on performance is significant ($\beta = 0.090$, $t = 2.423$, $p < 0.05$), suggesting that digital financial recording's positive impact on performance is amplified by favorable government interventions. Together, these findings highlight the crucial roles of both internal capacities (digital financial recording and financial literacy) and external enablers (government support) in driving MSME performance.

TABLE 5 | Structural path coefficients

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Digital Financial _Recording -> Performance	0,383	0,387	0,066	5,824	0,000
Financial Literacy -> Performance	0,213	0,205	0,079	2,698	0,007
HR Capacity -> Performance	0,150	0,153	0,052	2,888	0,004
Goverment Support x Digital Financial _Recording -> Performance	0,090	0,087	0,037	2,423	0,015

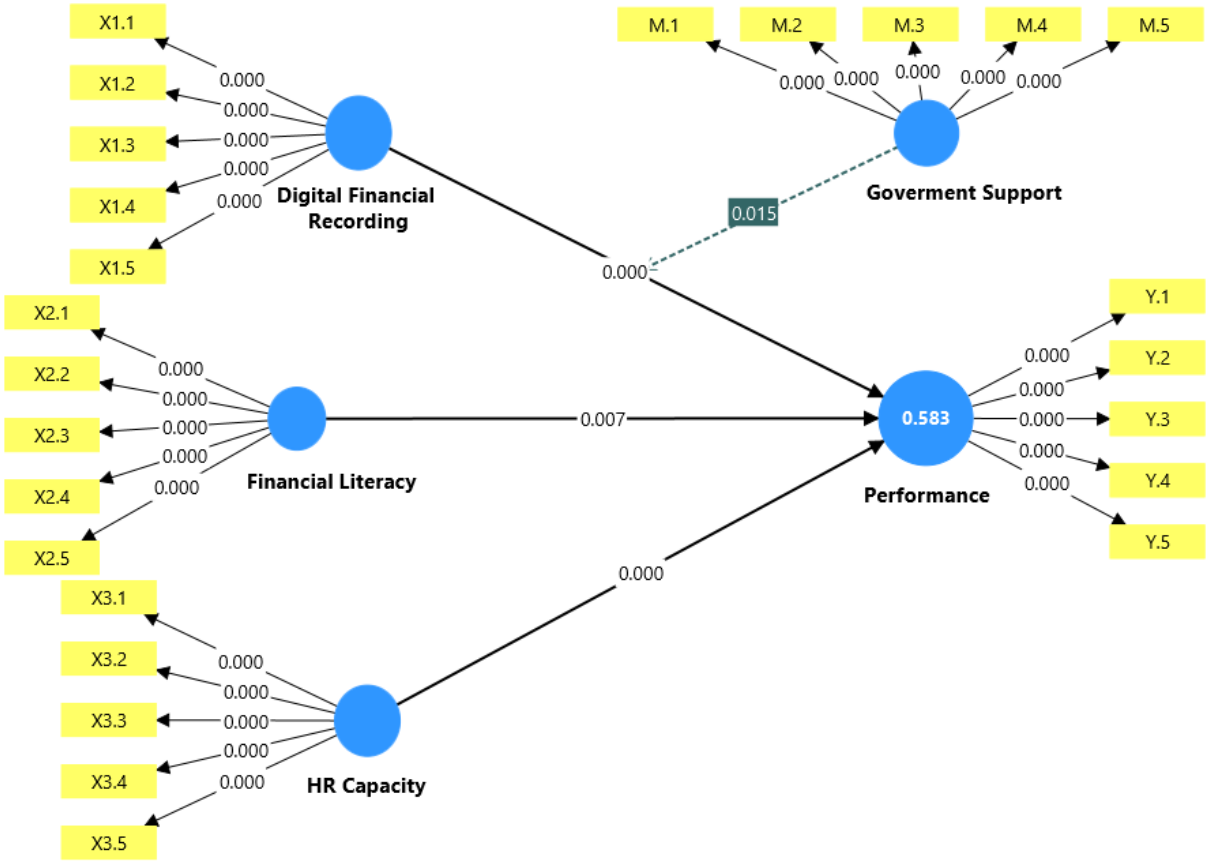

Figure 1. Structural model results with standardized path coefficients

4. 2 DISCUSSION

The findings reveal that digital financial recording has the strongest positive effect on the financial performance of micro, small, and medium enterprises (MSMEs) ($\beta = 0.383$, $p < 0.000$). This aligns with a growing body of literature indicating that financial digitalization enhances the efficiency, transparency, and decision-making processes of small businesses (Alon et al., 2021; Lanlan et al., 2019). In rural and semi-formal MSMEs, digital tools reduce transaction costs and enable more accurate, real-time financial tracking (Lubawa et al., 2018). These results support the Resource-Based View (Barney, 1991), which posits that firm-specific capabilities, such as technology use, can serve as strategic resources offering sustainable performance advantages. Furthermore, these results reinforce Kesale's (2017) argument that digital platforms allow MSMEs to bypass traditional barriers to accessing financial services.

Beyond enhancing internal efficiency, digital financial recording improves SMEs' external credibility. Recent studies confirm that digitalized records increase the likelihood of obtaining formal financing because lenders can more accurately assess business performance through transparent digital documentation. This is particularly crucial for rural MSMEs, which often struggle to demonstrate creditworthiness using traditional methods (Nguyen & Ha, 2023).

The significant interaction term ($\beta = 0.090$, $p < 0.015$) indicates a clear moderation mechanism: government support amplifies the performance returns of digital financial recording. One plausible mechanism is that support programs reduce adoption and usage frictions (e.g., skills gaps, troubleshooting, and connectivity constraints) and increase entrepreneurs' ability and confidence to interpret digital reports and translate them into managerial actions. Government support can also increase the external legitimacy of digitally recorded information, e.g., for financing or partnership discussions, thereby strengthening the pathway from "having data" to "using information" to improve performance in rural settings (Alon et al., 2021; Che Nawi et al., 2022). This finding aligns with prior studies by Mang'ana et al. (2024) and Che Nawi et al. (2022), who found that public sector interventions, such as infrastructure provision, training programs, and digital incentives, are essential for enhancing MSME adoption of financial technologies. Government support can offset the high fixed costs of adoption and address institutional voids, especially in rural settings where digital literacy, connectivity, and affordability are often low. From an RBV perspective, this illustrates how external support can transform potential resources into actual competitive advantages (Alvarez et al., 2020).

This outcome aligns with the growing body of research that emphasizes the importance of fostering supportive ecosystems. For instance, Kahveci (2025) emphasizes that digital literacy, inclusion, and organizational flexibility are critical enablers for successful SME digital transformation through the DASAT framework: Digital Awareness, Digital Strategy and Roadmap, Digital Adoption and Implementation, and Digital Transformation Continuous Improvement.

Financial literacy was also found to have a statistically significant, albeit smaller, effect on MSME financial performance ($\beta = 0.213$, $p = 0.007$). This is consistent with previous studies that emphasize the foundational role of financial knowledge in strategic budgeting, saving behavior, and loan management (Musah et al., 2023; Sa'eed et al., 2020). MSMEs benefit from financial literacy in two ways: it improves internal efficiency and increases access to external financing (Nkundabanyanga et al., 2017). However, the modest effect observed suggests that financial knowledge alone is insufficient without enabling mechanisms, such as digital systems or institutional trust (Dwangu & Mahlangu, 2021).

The modest effect of financial literacy indicates that knowledge alone does not guarantee improved financial outcomes unless it is applied. As Lusardi and Mitchell (2014) argue, financial literacy is most effective when paired with behaviorally oriented interventions that encourage entrepreneurs to apply their knowledge to budgeting, saving, and loan management. Therefore, financial training for rural SMEs should combine conceptual understanding with practical applications.

Human resource capacity has a positive, statistically significant effect on MSME financial performance ($\beta = 0.150$, $p = 0.040$), which supports H3. This indicates that MSMEs with stronger HR capacity, as reflected by the availability of competent personnel to perform routine administrative and basic financial tasks, tend to achieve better financial outcomes. One plausible mechanism is operational reliability. Capable personnel help sustain day-to-day routines, such as documenting transactions,

monitoring cash balances, controlling expenses, and ensuring timely follow-up on receivables and payables. This reduces internal leakages and strengthens financial accountability, ultimately improving efficiency and cash-flow discipline. From an RBV perspective, HR capacity represents an intangible human capital resource that improves a firm's ability to effectively deploy and coordinate other resources, thereby translating resource utilization into performance gains (Barney, 1991). In rural MSMEs, where owner-managers often multitask across operational domains, stronger HR capacity creates the bandwidth needed to consistently maintain financial control practices. This finding is also consistent with the idea that human capital readiness promotes the consistent use of organizational systems and routines, including technology-enabled administrative processes, which can lead to better business outcomes (Bayraktaroglu et al., 2019). Taken together, these findings support the resource-based view (RBV) that performance advantages in resource-constrained contexts are often driven by intangible internal resources and their effective deployment (Alvarez et al., 2020).

The practical implications of these findings are substantial. MSME owners should be encouraged to adopt digital financial tools to improve operational and financial outcomes. Furthermore, policymakers must recognize that digitalization alone is insufficient unless accompanied by active facilitation, such as training, subsidies, and infrastructure investments, which are tailored to rural businesses. These findings also have implications for financial service providers, especially fintech firms and banks. They should design inclusive, user-friendly platforms for micro-enterprises with limited digital experience (Bayraktaroglu et al., 2019).

Theoretically, these findings refine RBV in an emerging market rural context. First, they provide evidence that digital financial recording is a valuable, non-substitutable capability because it establishes firm-specific information routines that manual or ad hoc records cannot replicate in terms of scale or timeliness. Second, the significant moderation effect shows that the value of an internal capability is realized more strongly when an external, complementary resource—government support—is present. This highlights a boundary condition for realizing the value of resources in environments characterized by institutional voids and infrastructure constraints (Alvarez et al., 2020; Barney, 1991).

Despite its contributions, this study is subject to several limitations. The cross-sectional design prevents establishing causal relationships; longitudinal data would provide stronger evidence of the dynamic effects of digitalization and capacity building. Additionally, the measurement of human resource capacity may require refinement to capture the quality and relevance of skills, not just the quantity. Additionally, the geographic focus on three regencies in Central Java, while representative of rural MSMEs in Indonesia, may limit the study's generalizability to more urbanized or diverse regions. Future research should explore sectoral variations, longitudinal effects, and potential mediators, such as innovation capability, gender, and institutional trust, to deepen our understanding of what drives the financial performance of MSMEs.

5. CONCLUSION

This study provides empirical evidence that digital financial recording significantly improves the financial performance of micro, small, and medium-sized enterprises (MSMEs) in rural Indonesia, especially when supported by government interventions. Financial literacy contributes positively as well, albeit to a lesser extent. Human resource capacity, however, did not demonstrate a significant direct effect. These results highlight the importance of internal capabilities and external support in promoting MSME growth and reinforce the Resource-Based View in the context of digital transformation. The results offer practical insights for policymakers, MSME owners, and financial institutions seeking to improve MSME resilience and competitiveness through technology-driven financial management. Future research is encouraged to address the study’s limitations by employing longitudinal designs, refining measures of human capital quality, and expanding the analysis to broader geographic and sectoral contexts

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6. LIMITATION AND IMPLICATION

This study has several limitations that should be acknowledged. First, the cross-sectional design restricts the ability to establish causal relationships among digital financial recording, financial literacy, human resource capacity, and micro, small, and medium enterprise (MSME) performance. Future research should adopt longitudinal or mixed-methods approaches to capture the dynamic impact of digital transformation and institutional support over time. Additionally, focusing on MSMEs in rural Central Java may limit the generalizability of the findings to regions or sectors with different infrastructure and culture. Using perceptual data instead of audited financial records may introduce subjective bias. Thus, integrating objective performance indicators would enhance the validity and reliability of the results.

Despite these limitations, the study has important theoretical and practical implications. Theoretically, the study extends the Resource-Based View by emphasizing the role of government support as an external enabler that amplifies the performance effects of internal resources, such as digital financial tools and financial literacy. Practically, the findings underscore the necessity for MSME owners to bolster their digital and financial capabilities. Meanwhile, policymakers must design comprehensive support programs that integrate infrastructure, training, and incentives to encourage sustainable digital adoption in rural areas. Financial institutions and fintech providers are encouraged to develop inclusive, user-friendly platforms that address the unique needs of rural enterprises.

ACKNOWLEDGEMENT

The authors would like to express their sincere gratitude to Universitas Harapan Bangsa in Purwokerto for its invaluable support and research funding provided by its LPPM (Institute for Research and Community Service). The institution's commitment to advancing research and innovation in MSME development and digital transformation made this study possible. The authors also thank the MSME owners in Banyumas Regency who participated in the study for their cooperation and valuable insights throughout the data collection process.

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Conflict of Interest Statement: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.