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Analysis of Islamic Financial Literacy and Islamic Fintech Adoption on Financial Inclusion and Business Performance of Halal MSMEs in Banten Province

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ABSTRACT

The development of Islamic financial services and digital financial technology provides significant opportunities to strengthen financial inclusion and improve the competitiveness of halal Micro, Small, and Medium Enterprises (MSMEs). However, limited financial knowledge and restricted access to appropriate financial services remain major challenges faced by many halal MSMEs. This study aims to analyze the influence of Sharia Financial Literacy and Sharia Fintech Adoption on Financial Inclusion and Business Performance of Halal MSMEs in Banten Province. This research employs a quantitative explanatory approach using a cross-sectional survey method. Data were collected from 155 halal MSME actors in Banten Province using a structured questionnaire measured with a five-point Likert scale. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 3. The results indicate that Sharia Financial Literacy has a positive and significant effect on Financial Inclusion, while Sharia Fintech Adoption also positively influences Financial Inclusion. Furthermore, Sharia Financial Literacy, Sharia Fintech Adoption, and Financial Inclusion, significantly contribute to improving MSME Business Performance. The mediation analysis confirms that Financial Inclusion partially mediates the relationship between Sharia Financial Literacy and Business Performance, as well as between Sharia Fintech Adoption and Business Performance. These findings highlight that strengthening Islamic financial knowledge and accelerating the adoption of Sharia-based digital financial services are essential strategies for improving financial accessibility and sustainable growth of halal MSMEs. The study provides practical implications for policymakers, Islamic financial institutions, and fintech providers in developing inclusive financial ecosystems that support halal MSME development.

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1. INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) are a central component of Indonesia's economic structure because of their contribution to employment, income generation, and regional economic development. Their ability to absorb labor and sustain local economic activity has also made MSMEs important in strengthening economic resilience during periods of uncertainty [1], [2]. Within this broader sector, halal-oriented MSMEs have gained increasing relevance as consumer demand for products and services that comply with Islamic principles continues to expand. The development of the halal economy has therefore created new opportunities for MSMEs to participate in wider value chains and serve increasingly segmented markets [3], [4]. Despite this potential, many halal MSMEs still face persistent constraints, particularly limited access to formal financing, weak financial management practices, and insufficient capacity to utilize financial services that can support business growth and continuity.

Financial inclusion is increasingly recognized as an important condition for improving the sustainability and competitiveness of MSMEs. Effective access to affordable, appropriate, and reliable financial services allows business owners to obtain working capital, manage cash flow, conduct transactions more efficiently, and plan business expansion. Yet, access alone does not necessarily guarantee effective utilization [5], [6]. Many MSME owners continue to face barriers arising from limited financial knowledge, low confidence in formal financial institutions, administrative constraints, and insufficient understanding of available financial products [2], [7]. These issues become more specific in the context of halal MSMEs, where financial decisions are also shaped by compliance with Islamic principles, including the avoidance of riba, gharar, and maysir [8], [9]. Consequently, financial inclusion among halal MSMEs should be understood not merely as access to finance, but also as access to financial services that are considered appropriate, trustworthy, and consistent with Sharia principles.

One factor that may strengthen this process is Sharia financial literacy. Sharia financial literacy reflects the knowledge, understanding, and ability of business owners to manage financial matters and make financial decisions in accordance with Islamic financial principles. MSME owners with higher Sharia financial literacy are more likely to understand the characteristics of Islamic financing instruments, distinguish between conventional and Sharia-compliant financial products, assess financial risks, and select financial services that are appropriate for their business needs [10], [11]. Stronger literacy may therefore reduce information asymmetry and increase confidence in interacting with Islamic financial institutions. Although previous studies have linked financial literacy with financial behavior, financial access, and business performance, much of the existing evidence remains centered on conventional financial literacy [10], [11]. The specific role of Sharia financial literacy in shaping financial inclusion and business outcomes among halal MSMEs, particularly at the regional level, remains less extensively examined.

At the same time, the rapid expansion of financial technology has introduced new mechanisms through which MSMEs can access and use financial services. Sharia fintech combines digital financial innovation with Islamic financial principles through services such as digital payments, peer-to-peer financing, crowdfunding, and other technology-enabled financial solutions. These platforms have the potential to reduce geographical, administrative, and transactional barriers that often constrain smaller businesses [12], [13]. For halal MSMEs, Sharia fintech may provide a more accessible channel for financing and transactions while maintaining compatibility with religious considerations. Nevertheless, adoption is not automatic. MSME owners may differ in technological readiness, perceived usefulness, trust in digital platforms, risk perception, and understanding of Sharia-compliant digital services [11], [14]. This suggests that Sharia fintech adoption should be viewed not only as a technological issue, but also as a financial and behavioral mechanism that may influence inclusion and, eventually, business performance.

Banten Province provides a relevant setting for examining these relationships because of its growing MSME sector, strategic economic position, proximity to major industrial and urban centers, and expanding market for halal products and services. Despite these advantages, many MSMEs in the province continue to experience difficulties in obtaining financing, adopting digital financial technologies, and developing effective financial management practices [15], [16]. These conditions raise an important question regarding whether stronger Sharia financial literacy and greater adoption of Sharia fintech can improve financial inclusion and strengthen the performance of halal MSMEs. The study is conceptually informed by financial capability and technology adoption perspectives. Financial capability emphasizes the importance of knowledge and skills in enabling individuals and firms to access and manage financial resources effectively, while technology adoption perspectives explain how perceived usefulness, accessibility, trust, and related factors shape the willingness to adopt digital innovations. Integrating these perspectives allows financial knowledge and digital financial adoption to be examined as complementary drivers of financial inclusion and business performance.

Although financial literacy, fintech adoption, financial inclusion, and MSME performance have been widely discussed in previous studies, important gaps remain. First, empirical research focusing specifically on halal MSMEs is still limited, even though their financial decisions are strongly influenced by Sharia compliance. Second, previous studies often examine conventional financial literacy and fintech adoption separately, providing insufficient explanation of how Sharia financial literacy and Sharia fintech adoption jointly contribute to financial inclusion and business outcomes. Third, evidence from Banten Province remains relatively limited, leaving a contextual gap in understanding the financial development of halal MSMEs at the regional level. Accordingly, this study aims to analyze the influence of Sharia financial literacy and Sharia fintech adoption on financial inclusion and the business performance of halal MSMEs in Banten Province, including their direct and indirect effects. The study is expected to contribute theoretically by integrating Islamic financial literacy, digital financial adoption, financial inclusion, and MSME performance within a unified framework, while offering practical implications for policymakers, Islamic financial institutions, fintech providers, and MSME development agencies in designing more effective strategies to strengthen the financial accessibility, competitiveness, and sustainability of halal MSMEs.

2. LITERATURE REVIEW

2.1 *Financial Capability Theory*

Financial Capability Theory provides an important foundation for understanding how individuals and business actors acquire, manage, and utilize financial resources effectively. The theory emphasizes that financial outcomes are determined not only by access to financial resources but also by the ability to understand financial information, evaluate available alternatives, and make appropriate financial decisions through the combination of financial knowledge and financial behavior [17]. In the context of Micro, Small, and Medium Enterprises (MSMEs), stronger financial capability enables business owners to prepare financial plans, evaluate financing alternatives, control operational costs, allocate resources efficiently, and participate more confidently in formal financial systems, whereas limited capability may constrain access to external financing and the adoption of financial innovations. For halal MSMEs, financial capability has a more specific dimension because financial decisions must also comply with Islamic principles [18], [19]. Business owners therefore require not only general financial knowledge but also an understanding of Sharia-compliant financing mechanisms, Islamic contracts, profit-sharing arrangements, and ethical financial practices. In this context, Sharia financial literacy can be positioned as a specific manifestation of financial capability that enables halal MSME actors to evaluate financial options, make informed Sharia-compliant decisions, and participate more effectively in the Islamic financial ecosystem [20]–[22].

2.2 *Sharia Financial Literacy*

Sharia financial literacy refers to the ability to understand and apply Islamic financial concepts, products, contracts, and ethical principles in financial decision-making. For halal MSMEs, this capability is important because financial management should support both business objectives and Sharia compliance [12], [13]. Higher Sharia financial literacy enables entrepreneurs to distinguish between conventional and Islamic financial products, select appropriate financing options, and use Sharia-based financial services more confidently. It can also improve budgeting, record-keeping, financing decisions, and strategic planning [23], [24]. Therefore, stronger Sharia financial literacy is expected to enhance financial inclusion and contribute to better business performance among halal MSMEs.

H1: Sharia financial literacy has a positive and significant effect on financial inclusion among halal MSMEs in Banten Province.

H3: Sharia financial literacy has a positive and significant effect on the business performance of halal MSMEs in Banten Province.

2.3 *Sharia Fintech Adoption*

Sharia fintech refers to technology-based financial services that operate in accordance with Islamic principles, including transparency, fairness, profit-sharing, and the avoidance of prohibited financial practices. For MSMEs, its adoption can provide easier access to digital payments, financing, crowdfunding, and other financial services while reducing transaction costs and geographical barriers [12], [25]. From a technology adoption perspective, MSME owners are more likely to use Sharia fintech when they perceive it as useful, accessible, trustworthy, and compatible with Islamic values. Consequently, Sharia fintech adoption can strengthen financial inclusion by expanding access to formal financial services and alternative financing sources, while also improving business performance through greater transaction efficiency, financial accessibility, productivity, and competitiveness [26], [27].

H2: Sharia fintech adoption has a positive and significant effect on financial inclusion among halal MSMEs in Banten Province.

H4: Sharia fintech adoption has a positive and significant effect on the business performance of halal MSMEs in Banten Province.

2.4 *Financial Inclusion*

Financial inclusion refers to the availability and accessibility of affordable and appropriate financial services that enable individuals and businesses to participate effectively in the formal financial system. For MSMEs, access to financing, savings, payments, and insurance can support productivity, risk management, and business expansion [5], [6]. In the Islamic economic context, financial inclusion also requires compliance with Sharia principles, making Sharia banking, Islamic financing, and Sharia fintech particularly relevant for halal MSMEs. Greater financial inclusion can improve business performance by increasing access to capital and supporting investment and operational growth [7], [28]. Moreover, financial inclusion may act as a mediating mechanism through which Sharia financial literacy and Sharia fintech adoption are translated into better business outcomes.

H5: Financial inclusion has a positive and significant effect on the business performance of halal MSMEs in Banten Province.

H6: Financial inclusion mediates the relationship between Sharia financial literacy and the business performance of halal MSMEs in Banten Province.

H7: Financial inclusion mediates the relationship between Sharia fintech adoption and the business performance of halal MSMEs in Banten Province.

2.5 *Business Performance of Halal MSMEs*

Business performance reflects the extent to which MSMEs achieve operational and strategic objectives, commonly measured through revenue growth, profitability, productivity, market expansion, customer growth, and operational efficiency [3], [29]. In halal MSMEs, performance is also influenced by the ability to maintain Sharia compliance while competing in the growing halal market. Stronger Sharia financial literacy can improve financial management and strategic decision-making, while Sharia fintech adoption can enhance transaction efficiency and access to financing. At the same time, financial inclusion enables MSMEs to obtain and utilize appropriate financial resources for business development [30], [31]. Therefore, halal MSME performance is shaped by the combined role of financial knowledge, technology adoption, and inclusive access to Sharia-compliant financial services.

3. METHODS

3.1 Research Design

This study employs a quantitative explanatory research design to examine the causal relationships among Sharia Financial Literacy, Sharia Fintech Adoption, Financial Inclusion, and the Business Performance of halal MSMEs in Banten Province. Data are collected using a cross-sectional survey to capture respondents' perceptions, behaviors, and experiences at a single point in time. The proposed theoretical model and hypotheses are analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 3. This method is appropriate because the study involves multiple latent constructs, mediation relationships, and a predictive structural model, while also accommodating moderate sample sizes and data that do not necessarily meet multivariate normality assumptions.

3.2 Population and Sample

The population of this study consists of halal Micro, Small, and Medium Enterprises (MSMEs) operating in Banten Province, Indonesia. Respondents were selected using purposive sampling based on several criteria: MSME owners or managers located in Banten Province, businesses providing halal products or services, enterprises operating for at least one year, respondents with basic knowledge of business financial management, and those familiar with or experienced in using digital financial services, including Sharia fintech. A total of 155 valid responses were obtained and analyzed. This sample size is considered adequate for PLS-SEM analysis and supports the estimation of the proposed structural model involving multiple constructs and indicators.

3.3 Data Collection Procedure

Data were collected using a structured questionnaire distributed both online and offline to halal MSME actors in Banten Province. The instrument was developed based on previous studies related to Sharia financial literacy, Sharia fintech adoption, financial inclusion, and MSME performance. Before analysis, all responses were screened for completeness, consistency, and compliance with the respondent criteria, while incomplete or ineligible questionnaires were excluded. The questionnaire consisted of demographic information, including gender, age, education, business sector, business age, and business scale, followed by measurement items for four latent constructs: Sharia Financial Literacy (SFL), Sharia Fintech Adoption (SFA), Financial Inclusion (FI), and Business Performance (BP). All indicators were adapted from previous empirical studies and measured using a five-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree.

Table 1. Measurement of Research Variables

Variable	Definition	Indicators
Sharia Financial Literacy (SFL)	The ability of MSME actors to understand, evaluate, and utilize financial information based on Islamic financial principles [10], [11].	Understanding of Sharia financial concepts; knowledge of Islamic financial products; understanding of Sharia contracts; ability to make Sharia-compliant financial decisions; awareness of Islamic financial institutions.
Sharia Fintech Adoption (SFA)	The extent to which MSME actors utilize technology-based financial services that comply with Islamic principles [12], [25].	Usage of Sharia digital payment services; utilization of Sharia fintech financing; perceived usefulness; ease of use; trust and security of Sharia fintech platforms.
Financial Inclusion (FI)	The availability and accessibility of appropriate Sharia-based financial services for MSMEs [23], [32], [33].	Access to financial services; availability of financing options; affordability of services; ease of financial transactions; participation in formal financial systems.
Business Performance (BP)	The achievement of MSME business objectives measured through financial and operational outcomes [3], [29].	Sales growth; profitability improvement; business expansion; operational efficiency; customer growth; competitiveness.

3.4 Data Analysis Technique

Data analysis was conducted using Partial Least Squares Structural Equation

Modeling (PLS-SEM) with SmartPLS 3 through two stages: measurement model and structural model evaluation. The measurement model was assessed using convergent validity through outer loadings (>0.70) and Average Variance Extracted (AVE >0.50), discriminant validity through the Fornell–Larcker criterion and HTMT (<0.90), and reliability through Cronbach's Alpha and Composite Reliability (>0.70). The structural model was evaluated using the coefficient of determination (R^2), predictive relevance (Q^2 >0), effect size (f^2), and path coefficients. Hypotheses were tested through bootstrapping, with relationships considered significant when t-statistics exceeded 1.96 and p-values were below 0.05. Mediation analysis was also performed to examine the indirect effects of Sharia Financial Literacy and Sharia Fintech Adoption on Business Performance through Financial Inclusion based on the significance of bootstrapped indirect path coefficients.

4. RESULTS AND DISCUSSION

4.1 Respondent Characteristics

This study involved 155 halal MSME actors in Banten Province as respondents. The demographic characteristics provide an overview of the background of business owners participating in the research. The respondents were categorized based on gender, age, education level, business sector, and business operating period.

Table 2. Respondent Characteristics

Characteristics	Category	Frequency	Percentage (%)
Gender	Male	89	57.4
	Female	66	42.6
Age	< 30 years	38	24.5
	30–40 years	56	36.1
	41–50 years	39	25.2
	> 50 years	22	14.2
Education Level	High School	43	27.7
	Diploma	31	20.0
	Bachelor Degree	67	43.2
	Postgraduate	14	9.1
Business Sector	Food and Beverage	72	46.5
	Fashion and Halal Lifestyle	31	20.0
	Retail and Trading	28	18.1
	Services	24	15.4
Business Age	1–5 years	68	43.9
	6–10 years	51	32.9
	>10 years	36	23.2

The respondent profile indicates that halal MSMEs in Banten Province are represented by relatively diverse demographic and business characteristics. Male respondents constituted 57.4% of the sample, while females accounted for 42.6%, suggesting meaningful participation from both groups in halal MSME activities. Most respondents were in the productive age categories of 30–40 years (36.1%) and 41–50 years (25.2%), indicating that the businesses were largely managed by individuals with potentially substantial entrepreneurial and managerial experience. In terms of education, 43.2% held a bachelor's degree, followed by high school graduates at 27.7%, showing a generally adequate educational background to understand financial and technological aspects of business management. The food and beverage sector dominated the sample at 46.5%, reflecting the strong relevance of halal certification and Sharia-oriented practices within this industry, followed by fashion and halal lifestyle, retail and trading, and services. Regarding business age, 43.9% of MSMEs had operated for 1–5 years, while 32.9% had been established for 6–10 years, indicating that most respondents represented relatively young but operationally established enterprises.

4.2 Measurement Model Evaluation

The measurement model was evaluated through convergent validity, discriminant validity, and reliability testing. The assessment ensures that all indicators appropriately measure their respective latent constructs.

4.2.1 Convergent Validity and Reliability Testing

The results indicate that all measurement indicators achieved acceptable loading values above the recommended threshold of 0.70. Furthermore, all constructs obtained Average Variance Extracted (AVE) values greater than 0.50, confirming adequate convergent validity.

Table 3. Construct Reliability and Convergent Validity

Construct	Indicator	Outer Loading	Cronbach's Alpha	Composite Reliability	AVE
Sharia Financial Literacy	SFL1	0.812	0.891	0.920	0.697
	SFL2	0.834			
	SFL3	0.846			
	SFL4	0.857			
	SFL5	0.823			
Sharia Fintech Adoption	SFA1	0.801	0.884	0.915	0.685
	SFA2	0.826			
	SFA3	0.842			
	SFA4	0.835			
	SFA5	0.833			
Financial Inclusion	FI1	0.842	0.906	0.934	0.739
	FI2	0.859			
	FI3	0.871			
	FI4	0.865			
	FI5	0.861			
Business Performance	BP1	0.846	0.912	0.938	0.751
	BP2	0.861			
	BP3	0.872			
	BP4	0.879			
	BP5	0.868			
	BP6	0.873			

Table 3 demonstrates that the measurement model achieves satisfactory reliability and convergent validity across all constructs. All outer loading values exceed the recommended threshold of 0.70, ranging from 0.801 to 0.879, indicating that each indicator adequately represents its corresponding construct. Sharia Financial Literacy records a Cronbach's Alpha of 0.891, Composite Reliability of 0.920, and AVE of 0.697, while Sharia Fintech Adoption obtains values of 0.884, 0.915, and 0.685, respectively. Financial Inclusion shows strong internal consistency with a Cronbach's Alpha of 0.906 and Composite Reliability of 0.934, accompanied by an AVE of 0.739. Business Performance demonstrates the strongest convergent validity, with an AVE of 0.751, supported by a Cronbach's Alpha of 0.912 and Composite Reliability of 0.938. Overall, the reliability coefficients exceed 0.70 and all AVE values are above 0.50, confirming that the indicators consistently measure their intended constructs and that the measurement model is suitable for subsequent discriminant validity and structural model analysis.

4.2.2 Discriminant Validity

Discriminant validity was evaluated using the Heterotrait-Monotrait Ratio (HTMT). The results demonstrate that all

HTMT values were below the threshold of 0.90, indicating that each construct represents a distinct concept.

Table 4. HTMT Discriminant Validity

Constructs	SFL	SFA	FI	BP
SFL	-			
SFA	0.742	-		
FI	0.785	0.811	-	
BP	0.736	0.798	0.846	-

The HTMT results in Table 4 confirm that discriminant validity is adequately established among all constructs, as all values remain below the recommended threshold of 0.90. The HTMT value between Sharia Financial Literacy and Sharia Fintech Adoption is 0.742, while the values between Sharia Financial Literacy and Financial Inclusion and Business Performance are 0.785 and 0.736, respectively. Sharia Fintech Adoption shows HTMT values of 0.811 with Financial Inclusion and 0.798 with Business Performance, whereas the highest value is observed between Financial Inclusion and Business Performance at 0.846. Although this value indicates a relatively strong relationship, it remains below the 0.90 threshold. Therefore, the four constructs are empirically distinct from one another, confirming satisfactory discriminant validity and supporting further structural model analysis.

4.3 Structural Model Evaluation

The structural model was evaluated by examining coefficient of determination (R^2), predictive relevance (Q^2), effect size (f^2), and hypothesis testing.

4.3.1 Coefficient of Determination (R^2)

The R^2 and Q^2 results indicate that the structural model has satisfactory explanatory and predictive capability. Sharia Financial Literacy and Sharia Fintech Adoption explain 48.6% of the variance in Financial Inclusion (R^2 = 0.486; Adjusted R^2 = 0.479), indicating a moderate level of explanatory power. Meanwhile, Sharia Financial Literacy, Sharia Fintech Adoption, and Financial Inclusion jointly explain 67.2% of the variance in Business Performance (R^2 = 0.672; Adjusted R^2 = 0.665), demonstrating stronger explanatory capacity for MSME performance. In addition, the Q^2 values for Financial Inclusion (0.351) and Business Performance (0.498) are both greater than zero, confirming that the model possesses adequate predictive relevance for the endogenous constructs.

4.4 Hypothesis Testing

Hypothesis testing was performed using the bootstrapping procedure with 5,000 subsamples in SmartPLS 3. The significance level was determined based on t-statistics (>1.96) and p-values (<0.05).

Table 5. Direct Effect Hypothesis Testing

	Relationship	Path Coefficient (β)	t-value	p-value	Decision
H1	SFL → FI	0.382	5.764	<0.001	Supported
H2	SFA → FI	0.417	6.231	<0.001	Supported
H3	SFL → BP	0.214	3.426	0.001	Supported
H4	SFA → BP	0.286	4.512	<0.001	Supported
H5	FI → BP	0.391	5.947	<0.001	Supported

The direct effect results in Table 5 show that all proposed hypotheses are statistically supported. Sharia Financial Literacy has a positive and significant effect on Financial Inclusion ($\beta = 0.382$, $t = 5.764$, $p < 0.001$), while Sharia Fintech Adoption exerts a slightly stronger effect on Financial Inclusion ($\beta = 0.417$, $t = 6.231$, $p < 0.001$). Sharia Financial

Literacy also positively influences Business Performance (β = 0.214, t = 3.426, p = 0.001), whereas Sharia Fintech Adoption has a stronger direct effect on Business Performance (β = 0.286, t = 4.512, p < 0.001). Among the predictors of Business Performance, Financial Inclusion shows the strongest direct effect (β = 0.391, t = 5.947, p < 0.001).

4.5 Mediation Analysis

The mediating role of Financial Inclusion was examined through indirect effect testing.

Table 6. Mediation Analysis

	Relationship	Indirect Effect (β)	t-value	p-value	Mediation Type
H6	SFL → FI → BP	0.149	3.984	<0.001	Partial Mediation
H7	SFA → FI → BP	0.163	4.227	<0.001	Partial Mediation

The mediation results in Table 6 confirm that Financial Inclusion significantly mediates the relationships between both Sharia Financial Literacy and Sharia Fintech Adoption with Business Performance. The indirect effect of Sharia Financial Literacy on Business Performance through Financial Inclusion is positive and significant (β = 0.149, t = 3.984, p < 0.001), indicating partial mediation because Sharia Financial Literacy also has a significant direct effect on Business Performance. Similarly, Sharia Fintech Adoption has a significant indirect effect on Business Performance through Financial Inclusion (β = 0.163, t = 4.227, p < 0.001), which also represents partial mediation. The slightly stronger indirect effect of Sharia Fintech Adoption suggests that the benefits of digital Islamic financial services are more effectively translated into improved business performance when they enhance MSMEs' access to and utilization of formal financial services.

Discussion

The findings demonstrate that Sharia Financial Literacy has a positive and significant effect on Financial Inclusion, indicating that halal MSME actors with stronger knowledge of Islamic financial principles are better positioned to access and utilize formal financial services. Understanding Sharia-compliant financing mechanisms, profit-sharing contracts, and Islamic financial products helps business owners evaluate available financial alternatives with greater confidence [12], [13]. This knowledge reduces uncertainty toward Sharia financial institutions and supports more informed financial decisions. Accordingly, Sharia financial literacy can be viewed as an important financial capability that facilitates the participation of halal MSMEs in the formal Islamic financial ecosystem [34], [35].

Sharia Fintech Adoption also has a positive and significant effect on Financial Inclusion, with a relatively stronger influence than Sharia Financial Literacy. This finding suggests that technological accessibility plays an increasingly important role in expanding financial access among halal MSMEs. Sharia fintech platforms provide practical alternatives through digital payments, online financing, and other technology-based financial services that reduce geographical and administrative barriers associated with conventional financial institutions [12], [25], [26]. The ability to access financial services more quickly and flexibly allows MSMEs to participate more actively in formal financial systems, particularly when traditional banking access remains limited.

The results further show that both Sharia Financial Literacy and Sharia Fintech Adoption positively influence Business Performance. Financially literate MSME owners are better able to plan finances, control expenses, assess investment alternatives, and allocate business resources more effectively, while knowledge of Islamic financial principles also helps maintain consistency between financial decisions and halal business practices. At the same time, the adoption of Sharia fintech improves transaction efficiency, facilitates access to alternative financing, and supports digital financial management [11]–[13]. These benefits can strengthen operational efficiency, productivity, sales development, and market expansion, indicating that financial knowledge and digital financial capability are complementary resources for improving halal MSME competitiveness.

Financial Inclusion has the strongest direct contribution to Business Performance, emphasizing the importance of actual access to appropriate financial resources in supporting MSME development. Improved financial inclusion enables halal MSMEs to obtain financing, manage cash flow, increase production capacity, invest in business development, and respond more effectively to market opportunities. This finding shows that knowledge and technology alone are not sufficient when business actors remain unable to access or utilize suitable financial services [24], [34], [35]. Therefore, strengthening access to Sharia-compliant financial products and services represents an important mechanism for translating financial capability into tangible improvements in business performance.

The mediation analysis further confirms that Financial Inclusion partially mediates the effects of both Sharia Financial Literacy and Sharia Fintech Adoption on Business Performance. This indicates that financial literacy and fintech adoption influence performance through two pathways: directly by improving managerial and operational capabilities, and indirectly by increasing access to and utilization of financial services. The partial mediation pattern suggests that financial inclusion does not replace the direct contribution of financial knowledge and technology adoption, but strengthens their ability to generate better business outcomes. Consequently, improving the performance of halal MSMEs requires an integrated approach that combines Sharia financial education, wider adoption of Islamic digital financial services, and an inclusive financial infrastructure capable of converting knowledge and technological access into effective business resources.

5. CONCLUSION

This study confirms that Sharia Financial Literacy and Sharia Fintech Adoption significantly strengthen Financial Inclusion and improve the Business Performance of halal MSMEs in Banten Province. Financial Inclusion also has a significant positive effect on business performance and partially mediates the relationships between Sharia Financial Literacy and Business Performance, as well as between Sharia Fintech Adoption and Business Performance. These findings indicate that financial knowledge and digital financial technology generate stronger business outcomes when supported by effective access to Sharia-compliant financial services. Therefore, policymakers, Islamic financial institutions, and fintech providers should strengthen Sharia financial education, expand access to appropriate Islamic financial products, and promote accessible, secure, and transparent Sharia fintech services. This study contributes to the literature by integrating Sharia Financial Literacy, Sharia Fintech Adoption, Financial Inclusion, and Business Performance within a single empirical model, while future research may extend the framework by incorporating factors such as Islamic financial trust, digital capability, halal certification, entrepreneurial orientation, government support, or longitudinal research designs.

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