

Digitalization Bankability and Resource Conversion in Explaining MSME Performance in an Emerging Economy

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(Received: March 10, 2026; Revised: May 15, 2026; Accepted: August 5, 2026; Available online: September 23, 2026)

Abstract

This study examines whether internal business resources are converted into micro, small, and medium enterprise (MSME) performance through the same mechanism, or whether credit access operates selectively across different resource types. Grounded in the Resource-Based View, the study integrates firm characteristics, entrepreneurial characteristics, and information technology use within a single structural model in which credit access is positioned as a potential resource-conversion mediator rather than a universal one. Data were collected through a structured questionnaire from 384 credit-experienced micro-enterprises in Banten Province, Indonesia, all of which had prior or current access to formal financing, and were analyzed using covariance-based structural equation modeling (CB-SEM) estimated in LISREL. Firm characteristics significantly increased credit access ($\beta=0.530$, $p<0.001$) and directly improved performance ($\beta=0.277$, $p<0.001$), whereas entrepreneurial characteristics ($\beta=0.201$, $p=0.281$) and information technology use ($\beta=0.089$, $p=0.535$) did not significantly increase credit access, despite both showing significant direct effects on performance ($\beta=0.261$ and $\beta=0.327$, respectively). Credit access positively predicted performance ($\beta=0.136$, $p<0.001$) and partially mediated the effect of firm characteristics, while no comparable mediation was observed for entrepreneurial characteristics or information technology. Because several constructs were highly correlated and associated with elevated variance inflation factors, these path estimates are interpreted as an associational pattern of selective resource conversion rather than as isolated causal effects. The findings suggest that operational capability and financial legitimacy are not automatically acquired together: digital and entrepreneurial resources can strengthen business performance without necessarily generating the signals that formal lenders recognize. For MSME development policy and practice, these results indicate that strengthening digital and entrepreneurial capability should be paired with deliberate efforts toward business formalization and financial documentation if improved bankability is also a goal.

Keywords: MSME Performance, Credit Access, Firm Characteristics, Entrepreneurial Characteristics, Information Technology, Resource-Based View, Resource Conversion

1. Introduction

Micro, small, and medium-sized enterprises (MSMEs) constitute a central component of economic activity in emerging economies because of their contribution to employment, production, entrepreneurship, and local economic development. In Indonesia, approximately 59.52 million MSMEs were recorded in 2024, accounting for more than 60% of national gross domestic product and absorbing nearly 97% of the workforce [1]. Nevertheless, the structure of Indonesian MSMEs remains heavily concentrated in micro-enterprises, indicating that the key development challenge is no longer simply increasing the number of businesses but enabling existing firms to scale, formalize, and improve their long-term performance. This issue is particularly relevant in Banten Province, where the number of non-agricultural MSMEs increased from 1,169,567 in 2024 to 1,174,765 in 2025, reflecting a large and expanding entrepreneurial base located within one of Indonesia's major industrial and commercial regions [1], [2].

Despite their economic importance, MSMEs continue to face substantial financial constraints. Limited collateral, weak financial documentation, information asymmetry, and insufficient information available to financial institutions can restrict their ability to obtain appropriate external financing [3]. Earlier evidence similarly shows that credit accessibility is closely associated with SME performance because external financing enables firms to alleviate liquidity constraints, expand productive capacity, and exploit growth opportunities [4], [5], [6], [7]. However, the financing

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DOI: <https://doi.org/10.47738/jads.v7i3.1571>

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problem is not determined by financial demand alone. Lenders must assess whether a business is sufficiently credible, stable, and capable of repayment. Consequently, observable firm characteristics, including business age, legality, ownership structure, scale, and growth prospects, can become important signals in the allocation of formal credit [8], [9]. The financing mechanism therefore represents a potentially important link between the resources controlled by an MSME and its eventual business performance.

At the same time, MSME performance increasingly depends on resources that extend beyond conventional physical and financial assets. Entrepreneurial knowledge, managerial competence, education, innovation, and the ability to identify and exploit market opportunities can determine how efficiently limited resources are converted into business outcomes [10], [11]. Previous studies have consequently linked entrepreneurial characteristics and orientation to superior SME performance, particularly through stronger managerial capability, innovation, and adaptation [10], [11], [12]. From a resource-based perspective, these capabilities constitute firm-specific resources that can support sustained performance when they are effectively organized and deployed [13]. Yet the same resources may not necessarily be observable or directly valued by formal lenders. An entrepreneur may possess strong innovation and managerial capabilities while the business itself continues to lack the documentation, formalization, or financial history required in institutional credit assessment. This creates an important distinction between resources that strengthen business capability and resources that strengthen financial legitimacy.

Digitalization further complicates this relationship. Information technology can improve communication, marketing, operational efficiency, information processing, market reach, and business adaptability, and previous studies have associated digital adoption with improved SME performance [11], [14]. Digital technologies may also reduce information frictions and potentially provide alternative information for financing decisions [15]. However, greater technology adoption does not necessarily imply greater formal credit accessibility. Evidence from rural financing contexts has even identified a negative relationship between technology access and financial access under certain institutional conditions [16]. This distinction is particularly relevant to Banten, where the original empirical setting indicates that digital business activity remains substantially concentrated in accessible technologies such as social media, messaging applications, and e-commerce rather than fully integrated financial information systems. Thus, being digitally active may improve how an MSME operates without necessarily making the enterprise more transparent or assessable to a formal lender.

Despite this large body of work, one important issue remains unresolved. Firm characteristics, entrepreneurial characteristics, technology adoption, access to finance, and SME performance have mostly been examined as separate direct effects rather than as an integrated system in which credit access functions as an intermediate resource-acquisition mechanism [4], [8], [10], [11], [14]. Consequently, the literature offers limited evidence on whether internal resources are converted into performance through a single common pathway or through different pathways for different resource types. Treating credit access as a uniform consequence of stronger business resources risks obscuring a more selective process, in which some resources primarily strengthen operational capability while others additionally generate the signals that formal lenders use to extend credit.

Grounded in the Resource-Based View (RBV), this study addresses this gap by conceptualizing credit access as a selective resource-conversion mechanism linking internal business resources to MSME performance. RBV argues that heterogeneous resources and capabilities form the basis through which firms achieve superior outcomes [13]; however, resource ownership alone does not explain how internal capabilities facilitate the acquisition of complementary external resources. Accordingly, this study integrates firm characteristics, entrepreneurial characteristics, and information technology use as three distinct resource domains and examines their effects on both credit access and MSME performance. Credit access is subsequently positioned as a mediator to determine whether the performance contribution of each resource domain is transmitted through external financial-resource acquisition.

The paper is organized around a single storyline: the financing constraint facing MSMEs, the conceptual gap regarding how internal resources are converted into external financing, the proposed selective resource-conversion mechanism, and the empirical evidence that tests it. Within this storyline, this study contributes to the literature in three respects. First, it moves beyond a conventional direct-determinant model by distinguishing business-enhancing resources from lender-recognizable resources. Second, it extends the RBV-based explanation of MSME performance by examining

whether access to external finance functions as a common or selective transmission mechanism for heterogeneous internal resources. Third, by simultaneously considering organizational characteristics, entrepreneurial capability, and information technology within a sample of MSMEs in Banten Province, the study provides empirical evidence from an emerging-economy context in which business formalization, digitalization, and financial inclusion are developing concurrently. The resulting framework is intended to provide a more precise explanation of how internal resources are transformed into MSME performance and why greater business capability may not necessarily correspond to greater bankability.

2. Literature Review

The Resource-Based View (RBV) provides the theoretical foundation for explaining how heterogeneous firm resources contribute to differences in organizational outcomes. RBV emphasizes that resources create value when firms are able to organize, deploy, and combine them effectively to support competitive activities [13]. In the context of MSMEs, these resources are not limited to physical or financial assets but also include organizational maturity, entrepreneurial knowledge and competence, technological capability, and access to complementary external resources. Empirical evidence shows that firm-, entrepreneur-, and institution-related characteristics jointly contribute to the performance of small enterprises [17]. This study extends this argument by proposing that internal resources may contribute to MSME performance through two mechanisms: a direct capability pathway, in which resources improve business operations directly, and an external resource-acquisition pathway, in which internal resources facilitate access to credit that can subsequently be converted into productive activities.

Firm characteristics represent relatively observable attributes of an enterprise, including business age, legal status, ownership structure, scale, and future business prospects. Such characteristics reduce uncertainty regarding business continuity and provide financial institutions with information that can be used to evaluate borrower quality. Previous studies have demonstrated that firm attributes are associated with the ability of SMEs to obtain external financing [8], [9]. Essel et al. [17] further demonstrate that organizational and institutional characteristics influence small-firm outcomes, while Fatoki and Asah [18] report that firm characteristics affect access to debt financing. Similarly, Kira and He [19] indicate that business size, age, ownership, and other observable attributes influence financing accessibility. Firm maturity and formalization can therefore reduce information asymmetry and strengthen lender confidence. Braun et al. [20] additionally show that stronger organizational connections with financial institutions improve firms' access to external financial resources, while Wang et al. [21] highlight the broader role of resource acquisition in translating organizational resources into firm outcomes.

H1: Firm characteristics have a positive effect on credit access.

Entrepreneurial characteristics constitute human and managerial resources embedded in the business owner or manager. These include knowledge, education, managerial skills, experience, innovation capability, and the capacity to develop the business. In small enterprises, where ownership and management are frequently concentrated in the same individual, such characteristics can also influence how effectively entrepreneurs communicate business prospects, prepare financing requirements, and interact with financial institutions. Fernalista et al. [22] indicate that entrepreneurial characteristics are related to credit access and business performance, whereas Ogubazghi and Muturi [23] show that owner-manager attributes such as age, education, and experience can influence access to bank loans. Additional evidence suggests that education, experience, and managerial capacity improve entrepreneurs' ability to manage and communicate business information [24], [25]. Entrepreneurial orientation may also encourage firms to seek external resources to exploit growth opportunities [26], while competent human resources can facilitate more rational financial decisions and improve financing readiness [27].

H2: Entrepreneurial characteristics have a positive effect on credit access.

Information technology may influence financing accessibility by reducing information frictions between firms and financial institutions. Digital activities can generate observable information regarding customer interaction, transactions, market activity, and business continuity. Trinugroho et al. [28] show that digital technologies are increasingly integrated into the activities of micro and small enterprises, while Eller et al. [29] identify information technology as an important resource in SME digitalization. Digital traces may also supplement traditional financial

information in credit evaluation. Putra et al. [30], for instance, demonstrate that social-media data can contribute to SME credit-scoring models, whereas Benami and Carter [15] argue that digital technologies can reshape credit markets by reducing transaction and information constraints. Technology adoption may therefore improve business visibility to financial institutions, although its impact remains dependent on whether digital information can actually be incorporated into formal lending processes [15], [16]. Related evidence also confirms the increasing role of information technology in SME activity and organizational adaptation [31], [32], [33].

H3: Information technology use has a positive effect on credit access.

Access to credit represents the ability of an enterprise to obtain external financial resources under conditions that are compatible with its operational and investment requirements. Financing is particularly important for MSMEs because internally generated funds are often insufficient to finance inventory, productive assets, technology adoption, marketing, and business expansion. Existing studies consistently associate greater financial accessibility with stronger SME outcomes [4], [5], [6], [7]. Credit can relax liquidity constraints and allow firms to exploit opportunities that would otherwise remain unrealized. Buchdadi et al. [7] further demonstrate that access to finance can function as an important mechanism linking internal financial capabilities with SME performance. Thus, external financing represents not simply another firm resource, but a complementary resource that can enable internal capabilities to be converted into productive outcomes.

H4: Credit access has a positive effect on MSME performance.

Firm characteristics can also affect performance independently of financing. Business experience contributes to accumulated operational knowledge, while formalization and clearly defined ownership structures can improve governance, credibility, and organizational stability. Larger or more developed firms may also possess greater capacity to utilize assets efficiently, establish stronger supplier and customer relationships, and exploit economies of scale. Evidence from previous studies shows that firm age, ownership, size, legality, and business prospects are associated with superior enterprise performance [8], [17], [34]. These attributes therefore represent organizational resources that can directly strengthen the firm's ability to operate, adapt, and grow.

H5: Firm characteristics have a positive effect on MSME performance.

Entrepreneurial characteristics similarly provide a direct capability mechanism. Entrepreneurs with stronger managerial skills, knowledge, experience, and innovative capacity are better positioned to identify opportunities, respond to market changes, solve operational problems, and allocate resources effectively. Previous evidence associates entrepreneurial characteristics and orientation with business success and performance [10]–[12], [22]. Purnawan and Taufan [24] demonstrate that owner characteristics such as experience, age, and education are associated with business outcomes, while Hutahayan [25] emphasizes the role of entrepreneurial competence and innovation in improving SME performance. From the RBV perspective, these characteristics represent intangible strategic capabilities that can generate value without necessarily requiring an intervening external resource.

H6: Entrepreneurial characteristics have a positive effect on MSME performance.

Information technology constitutes another performance-enhancing capability because digital tools can improve communication, information processing, marketing, market reach, and operational efficiency. Digital platforms enable small firms to reach customers beyond their immediate locations, obtain market information more rapidly, and manage interactions with customers and suppliers at relatively low cost. Trinugroho et al. [28] associate digital adoption with improved micro- and small-business activity, while Eller et al. [29] find that SME digitalization contributes positively to organizational and financial outcomes. Information technology can additionally support transaction management, online promotion, record keeping, and customer service [14], [32], [33]. Consequently, digital capability can generate direct performance gains even when the technology is not integrated into formal financing systems.

H7: Information technology use has a positive effect on MSME performance.

The influence of firm characteristics on performance may also operate indirectly through credit access. Mature, formalized, and better-organized enterprises may be perceived by financial institutions as more credible borrowers because they provide stronger signals of continuity, governance quality, and repayment capacity. Improved financing

accessibility subsequently allows such firms to acquire working capital, productive assets, and other resources required for growth. Braun et al. [20] demonstrate that stronger relationships with financial institutions can enhance access to credit and organizational outcomes, while evidence from firm-characteristics research indicates that business maturity and formalization can simultaneously improve financial accessibility and performance [17], [18], [19]. Credit access may therefore represent an additional mechanism through which organizational resources are transformed into MSME performance.

H8: Credit access mediates the positive relationship between firm characteristics and MSME performance.

A comparable mechanism may apply to entrepreneurial resources. Capable entrepreneurs can identify opportunities and formulate growth strategies, but their ability to implement these strategies may depend on the availability of financing. Entrepreneurial orientation encourages innovation, proactive behavior, and calculated risk taking, yet activities such as product development, market expansion, and investment generally require financial resources [26]. Human capital can also strengthen financing readiness because knowledgeable and competent entrepreneurs are better positioned to produce business plans, organize financial information, and communicate their business prospects to lenders [23], [27]. If these capabilities improve credit accessibility, the acquired funding can subsequently be used to operationalize entrepreneurial initiatives. Thus, credit may convert entrepreneurial potential into tangible performance outcomes.

H9: Credit access mediates the positive relationship between entrepreneurial characteristics and MSME performance.

Finally, information technology may influence performance indirectly when digital activities facilitate access to financing. Digital transactions, electronic records, customer histories, and other technology-generated information can potentially reduce information asymmetry and provide lenders with additional evidence of business activity [30], [31]. Financing obtained through improved financial visibility may then be allocated to inventory, technology, market expansion, and other productive investments. However, this pathway requires digital activity to generate information that is sufficiently standardized and credible for formal financial assessment. Technology may therefore improve performance through two conceptually distinct channels: directly through greater operational and market capability [28], [29], and indirectly when digital visibility contributes to financing accessibility.

H10: Credit access mediates the positive relationship between information technology use and MSME performance.

Across these hypotheses, the reviewed literature agrees that firm-level maturity and formalization are the resource domain most consistently linked to formal lenders' assessment of creditworthiness [8], [9], [17], [18], [19], [20], whereas evidence on whether entrepreneurial competence and technology use are similarly recognized by lenders is comparatively sparse and mixed, with some studies emphasizing operational rather than financial benefits [15], [16], [28], [29]. This asymmetry motivates treating credit access as a selective, rather than uniform, conversion mechanism, and it is this distinction — not simply the sign of each individual path — that organizes the analysis that follows. Taken together, these hypotheses establish an integrated resource-conversion framework in which firm characteristics, entrepreneurial characteristics, and information technology use may improve MSME performance either directly or through the acquisition of external financial resources. The model therefore evaluates not only whether different internal resources contribute to business outcomes, but also whether the resources that enhance enterprise capability are the same resources that enhance bankability. This distinction forms the central theoretical mechanism underlying the structural model presented in Figure 1.

3. Methodology

3.1. Research Setting and Design

This study employed a cross sectional quantitative design to examine the relationships among firm characteristics (FC), entrepreneurial characteristics (EC), information technology use (IT), credit access (CA), and MSME performance (BP). The study was conducted in Banten Province, Indonesia, using registered micro, small, and medium enterprises as the sampling frame. The recorded population comprised 1,169,567 registered enterprises. The unit of analysis was the business enterprise, represented by an owner or manager with sufficient knowledge of the firm's operating

characteristics, financing experience, technology use, and business performance. The model specifies FC, EC, and IT as exogenous constructs, CA as an intermediate endogenous construct, and BP as the final endogenous construct. The conceptual and structural relationships examined in the study are presented in figure 1.

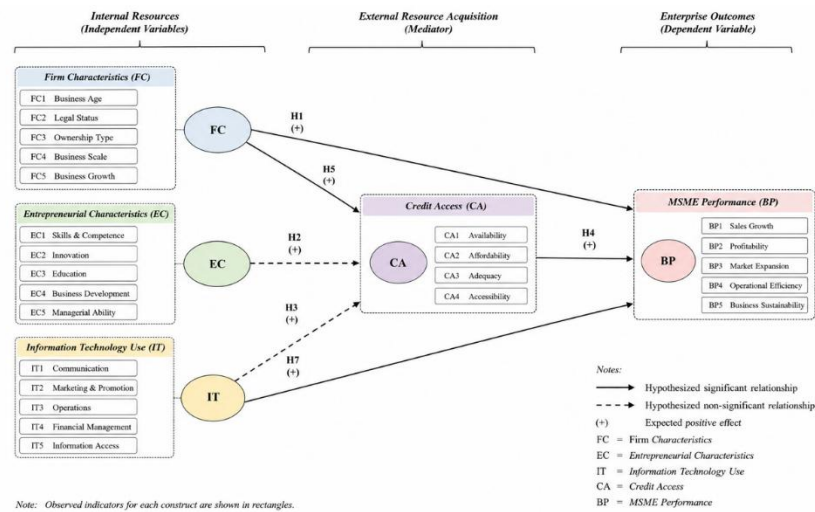


Figure 1. Conceptual and Structural Research Framework

The research framework was designed to distinguish two mechanisms. The first captures how internal business attributes affect institutional financing accessibility, while the second evaluates whether these attributes influence business performance directly or indirectly through credit access.

3.2. Sampling and Data Collection

Purposive sampling was adopted because the empirical model required respondents with relevant experience in both business financing and digital business activities. Eligible enterprises were required to: (1) have operated for at least one year in Banten Province; (2) possess formal business legality; (3) have previously accessed or currently use credit or financing from a financial institution or commercial bank; and (4) use information technology in business activities, including social media or e-commerce platforms. The minimum sample was determined using the Krejcie and Morgan sampling formulation, with the original research establishing a required sample of 384 respondents. The general sample-size formulation can be expressed compactly as:

$$n = \frac{\chi^2 NP(1-P)}{d^2(N-1) + \chi^2 P(1-P)} \quad (1)$$

where n denotes the required sample, N the population size, P the assumed population proportion, d the tolerated sampling error, and χ^2 the chi-square value at the selected confidence level. Primary data were collected using a structured questionnaire distributed through Google Forms and social media channels, supplemented by direct visits to eligible business operators. All substantive items were measured using a seven point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree. Because prior or current financing experience was an inclusion criterion, credit access (CA) should be interpreted as experienced credit accessibility and financing adequacy rather than as the probability that an MSME will obtain financing. The overall data collection and analytical procedure is presented in figure 2.



Figure 2. Data Collection and Analytical Procedure

3.1. Construct Measurement and Model Specification

The measurement instrument comprised 34 observed indicators across five latent constructs. The original model specifies six indicators for FC, eight for EC, six for IT, six for CA, and eight for BP. FC captures business experience, legality, ownership characteristics, business scale, and business prospects. EC represents accumulated knowledge, skills, education, innovation, and business-development capability. IT captures social-media use, WhatsApp, e-commerce, online promotion, email, and digital data-management practices. CA reflects ease, frequency, adequacy, repayment conditions, financing cost, and available credit ceilings. BP represents employment, sales, product development, profitability, market expansion, and new-product introduction. These domains follow the operational definitions used in the original dissertation instrument.

Several constructs, particularly Firm Characteristics (FC) and Entrepreneurial Characteristics (EC), combine indicators that represent attributes of different conceptual natures. As shown in [table 1](#), FC includes indicators such as business age, legal status, ownership structure, business scale, and future business prospects, while EC encompasses age, education, managerial skills, innovation capabilities, gender perceptions, and business development concepts. Following the original dissertation instrument, these constructs are retained as reflective constructs for consistency with the original data collection and measurement specification. However, this specification warrants careful consideration because changes in one indicator do not necessarily imply corresponding changes in the other indicators. Therefore, formative or composite specifications may also be theoretically defensible in future model respecifications, particularly when the indicators are conceptualized as distinct components that collectively define the construct. This measurement consideration should be taken into account when interpreting the structural estimates reported in the subsequent analysis.

Table 1. Construct Operationalization

Construct	Code	Measurement Indicator	References
Firm Characteristics (FC)	FC1	Business age and accumulated operating experience	[9], [17], [20], [31]
	FC2	Business licensing and formal legality	[9], [17], [31]
	FC3	Number of business owners	[17], [20]
	FC4	Clarity of ownership proportion	[17], [20]
	FC5	Business scale and development	[9], [17], [31]
	FC6	Future business prospects	[20], [31]
Entrepreneurial Characteristics (EC)	EC1	Age and accumulated entrepreneurial knowledge	[17], [22], [24]
	EC2	Business management skills	[22], [25]

	EC3	Formal education	[17], [23], [24]
	EC4	Educational experience/duration	[23], [24]
	EC5	Product innovation capability	[22], [25], [26]
	EC6	Marketing innovation capability	[22], [25], [26]
	EC7	Perception that gender is not a barrier to business success	[17], [24]
	EC8	Clarity of business development concept	[22], [25], [26]
Information Technology (IT)	IT1	Use of social media for business promotion	[11], [14], [28], [29]
	IT2	Use of WhatsApp for customer communication	[11], [28]
	IT3	Use of e-commerce to expand market reach	[28], [29], [32]
	IT4	Regular online business promotion	[11], [28], [32]
	IT5	Use of email to support work efficiency and productivity	[14], [29]
	IT6	Digital data storage and business reporting	[14], [29], [33]
Credit Access (CA)	CA1	Ease of obtaining formal business credit	[4], [7], [22], [34]
	CA2	Frequency of accessing business credit	[4], [22]
	CA3	Adequacy of credit received relative to business needs	[4], [7], [34]
	CA4	Ability to maintain smooth installment repayment	[4], [7]
	CA5	Acceptability of credit terms and interest rates	[4], [34]
	CA6	Adequacy of the approved credit ceiling	[4], [7], [34]
MSME Performance (BP)	BP1	Growth in the number of employees	[9], [17], [25]
	BP2	Improvement in workforce quality	[17], [25]
	BP3	Growth in sales volume	[9], [17], [24], [25]
	BP4	Development of product variety	[25], [28], [29]
	BP5	Growth in business profit	[9], [17], [25]
	BP6	Improvement in profitability	[17], [25]
	BP7	Expansion in the number of markets served	[9], [28], [29]
	BP8	Introduction of new products to the market	[25], [28], [29]

3.2. Analytical Technique

The model was estimated using covariance-based structural equation modeling (CB-SEM) with LISREL 10.2, consistent with the original analytical specification. The structural model simultaneously estimates the relationships among the five latent constructs while accounting for measurement error. The analysis follows four sequential stages:

First, the dataset is screened for completeness, distributional characteristics, and potentially influential observations. Descriptive diagnostics include mean, standard deviation, skewness, kurtosis, and multivariate distributional assessment. Second, the measurement model is evaluated using confirmatory factor analysis. Indicator reliability, internal consistency, and convergent validity are assessed through standardized factor loadings, Cronbach's alpha, composite reliability, and average variance extracted. Composite reliability and AVE are compactly defined as:

$$CR = \frac{(\sum_{i=1}^k \lambda_i)^2}{(\sum_{i=1}^k \lambda_i)^2 + \sum_{i=1}^k \theta_i}, \quad AVE = \frac{\sum_{i=1}^k \lambda_i^2}{\sum_{i=1}^k \lambda_i^2 + \sum_{i=1}^k \theta_i} \quad (2)$$

λ_i represents standardized factor loading and θ_i represents indicator error variance.

Third, construct distinctiveness and structural adequacy are examined through inter-construct correlations, discriminant-validity diagnostics, collinearity assessment, and global model-fit indices. Particular attention is given to construct separation because conceptually related internal-resource variables can exhibit substantial shared variance. Fourth, the structural model is evaluated using standardized path coefficients, test statistics, probability values, explanatory power, and indirect-effect analysis. Mediation is assessed from the estimated indirect effect and its sampling uncertainty rather than from direct-path significance alone.

Mediation significance in stage four was assessed using the Sobel test applied to the LISREL structural estimates, consistent with the original analytical specification. Because indirect effects can have asymmetric sampling

distributions, particularly under multivariate non-normality, bias-corrected bootstrap confidence intervals would provide a more robust alternative; this is discussed as a limitation in Section 5.

4. Results and Discussion

4.1. Sample Characteristics and Preliminary Data Analysis

A total of 384 valid responses were included in the analysis. The sample was predominantly male (59.9%), while 40.1% of respondents were female. Most respondents were relatively young: 48.7% were below 25 years of age and 39.8% were between 25 and 35 years, indicating that 88.5% of the sample was younger than 35 years. In terms of education, 59.4% had completed senior high school and 28.1% held undergraduate degrees. The businesses were also predominantly in an early stage of development. Approximately 74.0% had operated for only 1–3 years, whereas 11.7% had operated for 4–6 years. Trading (28.6%) and culinary businesses (27.9%) represented the largest business categories, followed by services (21.4%).

Conventional commercial banks were the largest financing source (47.4%), followed by other financing sources (17.7%), cooperatives (15.1%), Islamic banks (11.5%), and fintech/online lending (8.3%). All respondents had financing experience, with 59.9% having previously used business credit and 40.1% actively using credit during data collection. Digital use was concentrated on relatively accessible technologies. WhatsApp was the primary technology used by 49.5% of respondents, followed by marketplace/e-commerce (19.0%), Instagram/Facebook (18.2%), business websites (8.3%), and email (4.9%). This profile suggests that digital adoption among the sampled enterprises was predominantly communication- and market-oriented rather than based on sophisticated financial information systems. The overall respondent and enterprise characteristics are summarized in [table 2](#).

Table 2. Respondent and Enterprise Profile

Characteristic	Dominant Category	n	%
Gender	Male	230	59.9
Age	<25 years	187	48.7
Education	Senior high school	228	59.4
Business age	1–3 years	284	74.0
Business sector	Trading	110	28.6
Financing source	Commercial bank	182	47.4
Credit status	Previously used credit	230	59.9
Primary technology	WhatsApp	190	49.5
Largest location group	Serang City	98	25.5

The construct-level descriptive scores were generally above the midpoint of the seven-point scale, indicating moderately positive perceptions across all constructs. Entrepreneurial characteristics recorded the highest mean score ($M = 4.837$), followed by information technology use ($M = 4.783$), firm characteristics ($M = 4.603$), MSME performance ($M = 4.545$), and credit access ($M = 4.473$). Credit access therefore received the lowest mean score among the constructs, suggesting that respondents perceived this domain less favorably than the others, despite all respondents having previous or current credit experience. The construct-level descriptive statistics are summarized in [table 3](#).

Table 3. Construct-Level Descriptive Statistics

Construct	Mean	SD
Firm Characteristics (FC)	4.603	1.348
Entrepreneurial Characteristics (EC)	4.837	1.386
Information Technology Use (IT)	4.783	1.454
Credit Access (CA)	4.473	1.306
MSME Performance (BP)	4.545	1.475

Note: construct SDs were recalculated from the reported item covariance matrix.

At the item level, skewness ranged approximately from -0.490 to 0.237 , while kurtosis ranged from approximately -1.489 to -0.450 , suggesting no extreme univariate asymmetry. However, the multivariate normality test was statistically significant ($\chi^2=11,441.562$, $p<0.001$), with relative multivariate kurtosis of 1.525 . Therefore, the subsequent maximum-likelihood estimates should be interpreted with attention to their robustness to multivariate non-normality.

4.2. Measurement Model Assessment

Confirmatory factor analysis indicated strong indicator reliability across the five constructs. Standardized factor loadings ranged from 0.75 – 0.90 for firm characteristics (FC), 0.77 – 0.89 for entrepreneurial characteristics (EC), 0.80 – 0.93 for information technology use (IT), 0.69 – 0.89 for credit access (CA), and 0.87 – 0.92 for MSME performance (BP). Only CA1 had a loading slightly below the commonly preferred 0.70 threshold (0.69), although it remained close to the recommended level and was retained in the measurement model. Internal consistency was also high, with Cronbach's alpha ranging from 0.917 to 0.972 and composite reliability (CR) ranging from 0.918 to 0.972 . Average variance extracted (AVE) ranged from 0.652 to 0.808 , exceeding the commonly used 0.50 threshold for convergent validity. These results indicate satisfactory indicator reliability, internal consistency, and convergent validity across all five constructs, as summarized in [table 4](#).

Table 4. Measurement Model Quality

Construct	Loading Range	Cronbach's α	CR	AVE	$\sqrt{AVE}$
FC	0.75 – 0.90	0.926	0.927	0.680	0.825
EC	0.77 – 0.89	0.952	0.953	0.714	0.845
IT	0.80 – 0.93	0.944	0.944	0.737	0.858
CA	0.69 – 0.89	0.917	0.918	0.652	0.807
BP	0.87 – 0.92	0.972	0.972	0.808	0.899

The strong reliability estimates should, however, be considered alongside the distinctiveness of the constructs. The LISREL latent-variable correlation matrix indicates very high correlations among several constructs, particularly FC, EC, IT, and BP. The strongest correlations were observed between EC and IT ($r = 0.946$), FC and EC ($r = 0.931$), EC and BP ($r = 0.934$), IT and BP ($r = 0.925$), and FC and BP ($r = 0.922$). The HTMT results provide a similar pattern, with values of 0.936 for FC–EC, 0.934 for EC–IT, 0.931 for EC–BP, 0.929 for IT–BP, and 0.925 for FC–BP, indicating potential concerns regarding discriminant validity. In contrast, the relationships involving CA were generally lower, with HTMT values ranging from 0.767 to 0.805 , although the CA–BP relationship remained borderline. Overall, these findings suggest that, although the constructs demonstrate strong internal consistency and convergent validity, several constructs—especially FC, EC, IT, and BP—may not be sufficiently distinct empirically, as summarized in [table 5](#).

Table 5. Discriminant-Validity Diagnostics

Construct Pair	Latent (r)	HTMT	Assessment
FC–EC	0.931	0.936	Concern
FC–IT	0.898	0.899	Borderline/Concern
FC–CA	0.796	0.786	Acceptable
FC–BP	0.922	0.925	Concern
EC–IT	0.946	0.934	Concern
EC–CA	0.778	0.767	Acceptable
EC–BP	0.934	0.931	Concern
IT–CA	0.754	0.768	Acceptable
IT–BP	0.925	0.929	Concern
CA–BP	0.806	0.805	Borderline

The same pattern appears under the Fornell–Larcker criterion. For instance, the square root of AVE for FC is 0.825, which is below its correlations with EC (0.931), IT (0.898), and BP (0.922). EC and IT exhibit similar overlap. Accordingly, the measurement model provides strong convergent validity but weaker discriminant validity among the resource- and performance-related constructs. This distinction is important: high CR and AVE demonstrate internally coherent measures, but do not by themselves establish that FC, EC, IT, and BP capture fully separable empirical phenomena.

4.3. Structural Model and Direct Effects

The overall CB-SEM model provided an acceptable, although not uniformly excellent, representation of the observed covariance structure. The chi-square statistic was significant, $\chi^2(517)=1528.380$, yielding:

$$\frac{\chi^2}{df} = 2.956$$

The structural model demonstrated an overall acceptable level of fit. The RMSEA was 0.071, with a 90% confidence interval of 0.067–0.076, while the SRMR was 0.039, indicating good residual fit. The relative chi-square was also within an acceptable range ($\chi^2/df = 2.956$). Incremental fit indices provided further evidence of adequate model fit, with NFI = 0.903, NNFI/TLI = 0.928, IFI = 0.934, and CFI = 0.933. However, several secondary fit indices indicated weaker fit, including GFI = 0.804, AGFI = 0.774, and RFI = 0.895, while RMR = 0.102 was relatively high. The significant chi-square statistic ($\chi^2 = 1,528.380$, $df = 517$) should also be interpreted cautiously because chi-square is sensitive to sample size. Overall, the model showed acceptable fit based on RMSEA, SRMR, χ^2/df , and the principal incremental fit indices, although the weaker values of several secondary indices suggest that the model fit is not uniformly strong. The structural model fit statistics are presented in [table 6](#).

Table 6. Structural Model Fit

Fit Index	Estimate	Interpretation
χ^2	1528.380	Significant
df	517	—
χ^2/df	2.956	Acceptable
RMSEA	0.071	Acceptable
RMSEA 90% CI	0.067–0.076	Acceptable
SRMR	0.039	Good
NFI	0.903	Acceptable
TLI/NNFI	0.928	Good
IFI	0.934	Good
CFI	0.933	Good
GFI	0.804	Below preferred level
AGFI	0.774	Below preferred level
PNFI	0.832	Good
PGFI	0.698	Good

Taken collectively, the fit indices support proceeding with structural interpretation, although the model should be described as acceptable rather than unequivocally excellent. This wording is more defensible than relying solely on indices exceeding 0.90. The first endogenous equation explains 64.5% of the variance in credit access:

$$R_{CA}^2 = 0.645$$

while the performance equation explains 91.2% of the variance in MSME performance:

$$R_{BP}^2 = 0.912$$

The structural path estimates indicate that firm characteristics (FC) had a positive and statistically significant effect on credit access (CA) ($\beta = 0.530$, $p < 0.001$), supporting H1. In contrast, the effects of entrepreneurial characteristics (EC) and information technology use (IT) on CA were not statistically significant ($\beta = 0.201$, $p = 0.281$; $\beta = 0.089$, $p = 0.535$, respectively), leading to the rejection of H2 and H3. Credit access had a positive and statistically significant effect on MSME performance (BP) ($\beta = 0.136$, $p < 0.001$), supporting H4. FC, EC, and IT also showed positive and statistically significant effects on BP, with coefficients of 0.277 ($p < 0.001$), 0.261 ($p = 0.009$), and 0.327 ($p < 0.001$), respectively, supporting H5, H6, and H7. The corresponding confidence intervals were consistent with these significance tests, as they excluded zero for the supported hypotheses but included zero for H2 and H3.

The model's explanatory power should nevertheless be interpreted cautiously because the LISREL output reports substantial R^2 values using Hayduk's blocked-error R^2 , while several explanatory constructs are also highly correlated. This pattern is consistent with the discriminant-validity concerns reported in table 5 and is reflected in the relatively high VIF values for several predictors, particularly EC (VIF = 14.13–14.25), IT (VIF = 9.72–9.74), and FC (VIF = 7.67–8.45). Such multicollinearity can make it difficult to isolate the unique contribution of individual predictors and can affect the stability and interpretation of their estimated coefficients. The structural path estimates and hypothesis-testing results are presented in table 7.

Table 7. Structural Path Estimates

Hyp.	Structural Path	β	SE	z	p	Approx. 95% CI	VIF	Decision
H1	FC $\rightarrow$ CA	0.530	0.132	4.016	<0.001	[0.271, 0.789]	7.67	Supported
H2	EC $\rightarrow$ CA	0.201	0.186	1.077	0.281	[-0.164, 0.566]	14.13	Not supported
H3	IT $\rightarrow$ CA	0.089	0.143	0.620	0.535	[-0.191, 0.369]	9.72	Not supported
H4	CA $\rightarrow$ BP	0.136	0.036	3.781	<0.001	[0.065, 0.207]	2.81	Supported
H5	FC $\rightarrow$ BP	0.277	0.073	3.785	<0.001	[0.134, 0.420]	8.45	Supported
H6	EC $\rightarrow$ BP	0.261	0.100	2.605	0.009	[0.065, 0.457]	14.25	Supported
H7	IT $\rightarrow$ BP	0.327	0.078	4.194	<0.001	[0.174, 0.480]	9.74	Supported

The path results themselves reproduce the LISREL structural estimates. The VIF values were additionally derived from the reported latent predictor correlation matrix. An important analytical qualification emerges from table 7. EC exhibits VIF values above 14 in both structural equations, while FC and IT also show elevated values. Thus, the non significant EC $\rightarrow$ CA and IT $\rightarrow$ CA paths should not automatically be interpreted as evidence that these constructs are intrinsically irrelevant to financing. Rather, their unique effects are estimated after controlling for highly overlapping predictors. The standardized structural relationships among the constructs, including the estimated path coefficients, are illustrated in figure 3.

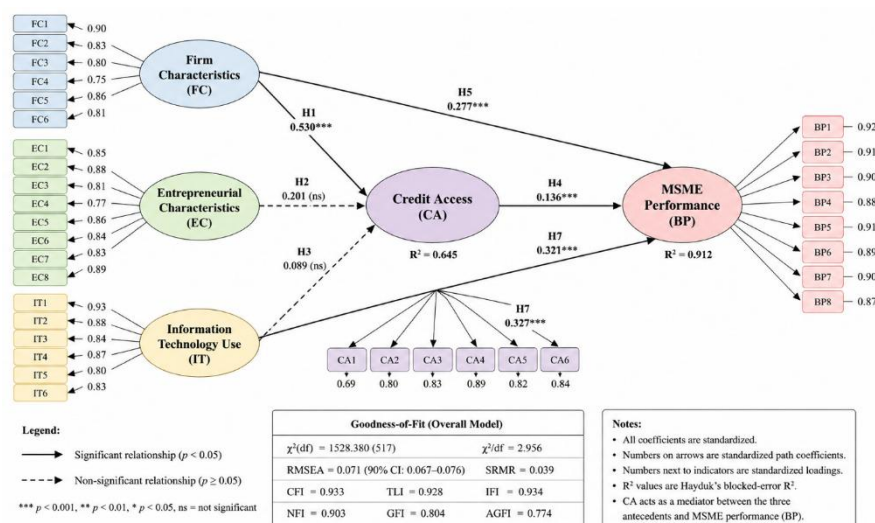


Figure 3. Standardized Structural Model

4.4. Mediation and Effect Decomposition

The structural results reveal an asymmetric mediation pattern. Credit access significantly transmitted part of the effect of FC to BP, whereas comparable mediation was not found for EC or IT. Using the structural coefficients, the indirect effects can be decomposed as:

$$FC \rightarrow CA \rightarrow BP = 0.530 \times 0.136 = 0.072$$

$$EC \rightarrow CA \rightarrow BP = 0.201 \times 0.136 = 0.027$$

and:

$$IT \rightarrow CA \rightarrow BP = 0.089 \times 0.136 \approx 0.012$$

These estimates reproduce the reduced-form total effects reported by LISREL, yielding approximately 0.349 for FC, 0.288 for EC, and 0.339 for IT. The mediation analysis shows that the indirect effect of FC on BP through CA was statistically significant ($z = 2.751$, $p = 0.006$), supporting partial mediation. In contrast, the indirect effects of EC and IT on BP through CA were not statistically significant ($z = 1.039$, $p = 0.299$; $z = 0.613$, $p = 0.540$, respectively), indicating no evidence of mediation for these two relationships.

The decomposition of direct and indirect effects provides an additional insight beyond the hypothesis-testing results. FC contributes to MSME performance through both a direct organizational-resource pathway and an indirect financing pathway through CA, with a direct effect of 0.277 and an indirect effect of 0.072. By comparison, EC and IT contribute primarily through their direct effects on BP, with relatively small indirect effects through CA of 0.027 and 0.012, respectively. Thus, CA appears to function as a meaningful mediating mechanism in the relationship between FC and BP, but not in the relationships involving EC and IT. The direct, indirect, and total effects are summarized in [table 8](#).

Table 8. Direct, Indirect, and Total Effects on MSME Performance

Antecedent	Direct Effect	Indirect via CA	Total Effect	Sobel z	p	Mediation
FC	0.277	0.072	0.349	2.751	0.006	Partial mediation
EC	0.261	0.027	0.288	1.039	0.299	No mediation
IT	0.327	0.012	0.339	0.613	0.540	No mediation

4.5. Discussion

The findings indicate that different categories of MSME resources are associated with performance through distinct pathways. Firm characteristics (FC) were positively associated with credit access (CA) ($\beta = 0.530$, $p < 0.001$) and MSME performance (BP) ($\beta = 0.277$, $p < 0.001$), while CA was also positively associated with BP ($\beta = 0.136$, $p < 0.001$). Moreover, CA partially mediated the relationship between FC and BP, with a significant indirect effect of approximately 0.072 (Sobel $z = 2.751$, $p = 0.006$). These findings are consistent with previous evidence that firm characteristics influence access to external financing and business outcomes [17], [18], [19], [31]. They also support the Resource Based View (RBV), which emphasizes the role of firm specific resources in generating performance and competitive advantage [13], [21]. In this context, the findings extend the RBV perspective by suggesting that firm resources may contribute to performance through both direct operational mechanisms and indirect mechanisms involving access to external resources. Business age, legal status, ownership structure, business scale, and future prospects may represent organizational characteristics that facilitate access to external financing [18], [19]. Thus, CA can be viewed as a conversion mechanism through which certain internal firm characteristics are associated with the acquisition of complementary financial resources that may subsequently support business performance [7], [21], [34].

The nonsignificant effects of EC and IT on CA provide an important contrast. Entrepreneurial characteristics (EC) and information technology use (IT) were not significantly associated with CA ($\beta = 0.201$, $p = 0.281$; $\beta = 0.089$, $p = 0.535$, respectively), although both were positively associated with BP. Previous studies have documented relationships between entrepreneurial characteristics and business performance [10], [12], [17], [22], while other research has linked owner or manager characteristics to access to bank financing [18], [23]. The absence of a significant $EC \rightarrow CA$ relationship in the present study therefore suggests that the relevance of entrepreneurial characteristics may depend on

how lenders assess and incorporate such characteristics into financing decisions. Entrepreneurial capabilities such as managerial skills, education, knowledge, and innovation may be important for business performance without necessarily translating into greater experienced access to formal credit [22], [25], [26]. The finding should therefore not be interpreted as evidence that entrepreneurial characteristics are irrelevant to financing, but rather that their independent association with CA was not statistically distinguishable in the present model.

The nonsignificant IT $\rightarrow$ CA relationship may also reflect the nature of digital technologies used by the sampled enterprises. The digital profile was concentrated on relatively accessible technologies, particularly WhatsApp, marketplaces, and social media, which are primarily used for communication, promotion, and market access. Previous research shows that digital technology adoption can support MSME activities and performance [11], [28], [29], while studies on technology and financing suggest that the relationship between digital technology and credit access may depend on the type and quality of digital information generated [15], [16]. More sophisticated digital footprints may provide information that can be incorporated into credit assessment, whereas basic operational digitalization may not necessarily produce standardized financial information for lenders. Evidence that social media data can be incorporated into SME credit scoring models further suggests that the financing implications of digitalization depend on whether digital activity generates information that is usable for credit evaluation [30]. Thus, the present finding is more appropriately interpreted as a distinction between operational digitalization and financing oriented digitalization rather than as evidence that digital technology has no relevance to credit access.

The results also reveal an important distinction between resources associated with financing access and those associated primarily with business performance. EC had a positive direct effect on BP ($\beta = 0.261$, $p = 0.009$), while IT had the strongest direct effect among the three antecedents ($\beta = 0.327$, $p < 0.001$). However, neither EC nor IT showed a significant indirect effect on BP through CA. Their indirect effects were small (0.027 and 0.012, respectively), compared with the indirect effect of FC (0.072). This finding is broadly consistent with previous studies linking entrepreneurial characteristics, entrepreneurial orientation, and information technology to SME performance [10], [11], [12], [25], [28], [29]. It suggests that entrepreneurial and technological resources may contribute to performance primarily through internal operating mechanisms rather than through improved access to credit. For EC, managerial capabilities, knowledge, education, and innovation may directly support decision making, adaptation, and business development [22], [25], [26]. For IT, digital tools may directly support communication, promotion, market access, and operational efficiency [11], [28], [29]. In contrast, FC appears to operate through both direct and financing related pathways, consistent with evidence that firm characteristics can affect both financing access and business performance [17], [18], [19].

At the same time, the structural results require careful interpretation because of the substantial overlap among several explanatory constructs. The structural model includes elevated VIF values, particularly for EC, which exceeds 14 in both structural equations, while FC and IT also show relatively high values. In addition, the performance equation explains approximately 91.2% of the variance in BP, while the latent correlations among several constructs exceed 0.90, including EC IT ($r = 0.946$), EC BP ($r = 0.934$), and FC BP ($r = 0.922$). These diagnostics suggest that the predictors are strongly interconnected and that their individual path coefficients should not be interpreted as completely independent contributions. The estimates remain useful for identifying the pattern of relationships specified in the model, but their precise magnitudes may be sensitive to the high degree of shared variance among the constructs. Therefore, the results are more appropriately interpreted in terms of the overall configuration of relationships than as definitive estimates of the isolated importance of each resource category.

This concern is reinforced by the discriminant validity results. Several HTMT values exceed 0.90, particularly for FC EC (0.936), EC IT (0.934), FC BP (0.925), EC BP (0.931), and IT BP (0.929). These results indicate substantial empirical overlap among FC, EC, IT, and BP despite the strong reliability and convergent validity statistics reported for each construct. Some of this overlap may reflect genuine characteristics of resource rich enterprises, where firms with stronger organizational characteristics may simultaneously report stronger entrepreneurial capabilities, greater technology use, and better performance. However, the overlap may also be partly attributable to the operationalization of the constructs. In particular, EC combines heterogeneous attributes such as age, education, managerial skills, and innovation capability, which may not necessarily represent manifestations of a single underlying construct. This issue is relevant because reflective measurement assumes that indicators represent manifestations of an underlying construct,

whereas heterogeneous components that collectively form a construct may require a formative or composite specification. Future studies could therefore examine alternative specifications, including more homogeneous indicator sets, formative measurement, or higher order constructs, to determine whether the observed relationships remain stable under a theoretically different measurement structure.

The interpretation of CA also requires a clear distinction between experienced credit access and objective bankability. The mediator in this study represents respondents' experienced access to credit, including ease of obtaining financing, frequency of credit use, adequacy of credit, repayment conditions, credit terms, and approved credit limits. It does not directly measure lender side assessments such as credit scores, collateral valuation, approval decisions, or verified financial records. Consequently, the finding that FC is associated with CA should be interpreted as evidence of greater experienced credit accessibility among the sampled firms rather than as direct evidence that these characteristics improve lenders' formal underwriting decisions. Previous studies have similarly examined the relationship between firm characteristics and access to debt or bank financing [18], [19], [23]. This distinction is particularly important because all respondents in the present study had previous or current credit experience. The model therefore explains variation in experienced credit accessibility among credit experienced MSMEs rather than the broader probability of obtaining credit among all MSMEs.

A similar distinction applies to IT. The IT construct captures relatively general forms of operational digitalization, including social media promotion, WhatsApp communication, e commerce use, online promotion, email use, and digital data storage. It does not directly capture advanced financial digitalization, automated accounting systems, digital transaction histories, or alternative data credit scoring. The finding that IT is strongly associated with BP but not with CA should therefore not be interpreted as evidence that digitalization generally has no role in improving access to finance. Instead, it suggests that operational digitalization and financial digitalization may represent different mechanisms. This interpretation is consistent with research showing that digital technologies can improve SME performance and business processes [11], [14], [28], [29], while technology based information may affect credit assessment when it generates usable alternative data [15], [16], [30].

Several methodological considerations further qualify the interpretation of the findings. First, the sampling frame required respondents to have previous or current formal credit experience. This excludes MSMEs that had been rejected, discouraged from applying, or had never sought formal credit. Consequently, the findings should be interpreted within the population of credit experienced MSMEs and should not be generalized directly to all MSMEs. Second, all constructs were measured simultaneously through a self report questionnaire completed by a single respondent per enterprise. This design creates a potential risk of common method variance, particularly given the high correlations among several constructs. Although the structural analysis provides important diagnostic information, a dedicated assessment of common method variance was not reported. Therefore, some of the observed overlap among constructs and the unusually high explanatory power for BP may partly reflect the shared measurement method. Third, the mediation analysis relied on the Sobel test rather than bootstrap confidence intervals. Because indirect effects may have non normal sampling distributions, particularly when the underlying variables depart from multivariate normality, the mediation finding should be interpreted with appropriate caution and ideally confirmed through bootstrap based inference in future research.

Taken together, the findings suggest that CA operates as a selective rather than universal resource conversion mechanism within the model. CA significantly mediates the relationship between FC and BP, but no significant mediation was observed for EC or IT. FC therefore appears to be associated with MSME performance through both a direct pathway and an additional financing related pathway, whereas EC and IT are associated with performance primarily through their direct pathways. This pattern is consistent with previous evidence that access to finance can function as an important mechanism connecting firm resources or capabilities with performance [7], [21], [34]. However, given the cross sectional design, purposive sampling of credit experienced firms, high inter construct correlations, elevated VIF values, and discriminant validity concerns, these relationships should be interpreted as associational rather than as definitive evidence of causal resource conversion. The principal theoretical implication is therefore not that one category of resource is universally more important than another, but that different resource categories may operate through different mechanisms: some are more closely associated with access to external financing, whereas others appear to contribute more directly to operational and market performance. This distinction

provides a more nuanced explanation of MSME performance and highlights the importance of considering both internal capabilities and external resource access mechanisms within an integrated framework.

5. Conclusion

This study finds that firm characteristics, entrepreneurial characteristics, information technology use, and credit access are associated with MSME performance through different pathways, consistent with a selective rather than universal resource-conversion mechanism. Firm characteristics are associated with performance both directly and indirectly through credit access, whereas entrepreneurial characteristics and information technology are associated with performance mainly through a direct pathway. Within the scope of this study's design, credit access appears to function as a selective mediator rather than as a common channel through which all internal business resources reach improved performance.

The most distinctive result concerns digitalization. Information technology showed the strongest direct association with MSME performance but was not significantly associated with credit access. Because the IT construct in this study primarily captures operational and market-oriented technology use rather than financially integrated digital capability, this result is best read as evidence that operational digitalization can enhance market reach, efficiency, and customer interaction without automatically improving the specific financial visibility that formal lenders recognize — not as evidence that digitalization in general is unrelated to bankability. For MSME development, these results suggest that strengthening digital and entrepreneurial capability may need to be paired with deliberate efforts toward business formalization, financial documentation, and credit-relevant record-keeping if improved bankability, and not only improved operational performance, is also a policy objective.

The findings should be interpreted within several scope conditions. All respondents had previous or current formal credit experience, which restricts generalization to this eligible, credit-experienced, and digitally active subgroup rather than to the broader MSME population, including firms that were rejected, discouraged from applying, or credit-naïve. The design is cross-sectional and relies on single-respondent self-report data collected simultaneously across all constructs, creating a risk of common method bias that was not directly tested with dedicated diagnostics. Several constructs exhibit high inter-correlations and elevated variance inflation factors, so individual structural path estimates, and the model's overall explanatory power, should be interpreted with caution rather than as precise or fully separable effects. Mediation was tested using the Sobel test rather than bootstrap confidence intervals, and the credit access construct reflects experienced accessibility rather than objective, lender-verified bankability indicators. Future research should extend this model to credit-naïve and credit-rejected enterprises, use longitudinal or multi-wave designs to support stronger causal claims, incorporate objective financial or digital-transaction records and lender-side outcomes, apply bootstrap-based mediation testing and formal common-method-bias diagnostics, and consider fintech and peer-to-peer lending alternatives, along with financial market frictions such as interest rate volatility and collateral requirements, as additional pathways through which MSMEs may acquire external resources outside conventional formal credit channels.

6. Declarations

6.1. Author Contributions

Conceptualization: H.F., A.D.B.; Methodology: H.F., C.A.; Software: C.A., K.N.; Validation: A.D.B., C.A.; Formal Analysis: H.F.; Investigation: C.A., K.N.; Resources: A.D.B., K.N.; Data Curation: H.F.; Writing – Original Draft Preparation: H.F.; Writing – Review and Editing: A.D.B., C.A.; Visualization: K.N.; All authors have read and agreed to the published version of the manuscript.

6.2. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

6.3. Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

6.4. Institutional Review Board Statement

Not applicable.

6.5. Informed Consent Statement

Not applicable.

6.6. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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