

Financial innovation and access to funding among micro, small and medium enterprises in developing countries

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Keywords

Financial innovation, digital payment innovation, digital lending innovation, mobile banking, access to funding, MSMEs, developing countries.

Abstract

The shortage of funding is a key obstacle facing micro, small and medium enterprises (MSMEs) in developing nations, which restricts their expansion, innovation, and impacts on economic development. The intention of this study was to investigate the financial innovation - financial funding linkage of MSMEs in Nigeria. Particularly, these were linked as relationship between digital payment innovation and accessing government grants, digital lending innovation and accessing FinTech loans, then lastly as mobile and internet banking relationship with access to traditional bank loans. The study used a cross sectional survey design, involving the owners and managers of the MSMEs from Abia, Akwa Ibom and Kogi States, Nigeria. A total sample of 750 participants was captured for the study, the hypotheses were analyzed by using Partial Least Squares Structural Equation Modeling (PLS-SEM) through the SmartPLS 4. The results showed that digital payment innovation significantly contributes to the access to grants. Digital lending innovation was also seen to positively and significantly impact access to FinTech loans. In the same way, access to traditional bank loans also had a significant improvement with the mobile/internet banking services. With regard to financing options, the study concludes that financial innovation is a key determinant of easing the financing constraints and broadening financing opportunities to MSMEs in developing economies. The study suggests that it is necessary for MSME owners and managers to be optimistic in the use of digital payment systems, digital lending platforms, and mobile or smartphone value-added service to better avail their access to a variety of funding sources.

Introduction

Micro, Small and Medium Enterprises (MSMEs) play an important role in the developing world economies, both in terms of the number of businesses registered and the proportion of employment and value addition they contribute. Empirical synthesis of the sector has shown that MSME growth is significantly influenced by the combination of entrepreneurial skills, optimization of resources and the institutional environment, and that entrepreneurial developmental growth is significantly different across developed and developing economies due to differences in infrastructure, regulations and maturity of the markets. Similarly, it is reported by the International development institutions that the MSME sectors constitute about 90% of all businesses and more than half of all employment around the world, and their contribution to the gross domestic product is particularly high in developing and emerging economies (International Finance Corporation [IFC], 2024; World Bank Group, 2024). Nevertheless, MSMEs in developing nations remains highly disadvantaged and remain constrained in terms of managerial capability, lack of formalization, and worst of all, receive limited access to the capital needed to be able to start, sustain and scale their business activities (Fajarika et al., 2024).

There is a consensus that funding is the biggest limitation for the survival and growth of MSMEs in a developing economy. Previous empirical research by Beck et al. (2006) on survey responses from more than 10,000 companies in 80 countries strongly indicated that the availability of external financing was not necessarily evenly distributed but was rather systematically linked to firm size, firm age and ownership structure, with the financing difficulties to using external finance being significantly higher for smaller and

younger companies. For MSMEs, this financing constraint proves to be enduring versus being a short-term barrier, as recent evidence and gap mapping of the global literature indicate that credit is often a prerequisite that MSMEs cannot provide and is denied to them on a regular basis by traditional lenders (Dela Cruz et al, 2025). The size of the shortfall is large as well, international financial institutions, for example, estimate that annually, there is a financing gap of several trillion dollars that needs to be plugged for the world's formal MSMEs in the developing world, and this figure certainly exceeds the total required financing for the informal sector.

This constant deficiency has incentivised both the research community and policy makers to explore the assets available for funding other than the traditional bank loan channel, seeking a wider variety of funding sources. Evidence and gap-mapping efforts in this area have identified a minimum of five distinct forms of intervention to enhance MSME financial access which have emerged starting from regulatory reforms, financing systems, to direct lending instruments, as well as demand-side financial-literacy programming, revealing that the landscaping of 'access to funding' is no longer a one-size-fits-all concept, but an outcome occurring across multiple channels through varying institutional logics (Dela Cruz et al., 2025). The government-backed schemes, fintech-backed loans, and bank-originated loans all have different screening procedures, risk levels, and eligibility criteria, such that a particular MSME may be suitable for one while not being suitable for others. Therefore, analyzing access to funding calls for disaggregation of access to financial facilities over time, especially since digital technologies have become the medium that's increasingly used to uncover, apply for, and be awarded funding by MSMEs. (Kumar et al., 2024)

Financial innovation is a major cause of this change; it represents new invention in technology, platforms, and service delivery that will change the way financial products are brought to previously untouched businesses. Gomber et al. (2017) describe this phenomenon in very general terms as "digital finance": an umbrella term for a range of new financial services products, business models, and customer interaction channels that are delivered online and via mobile devices instead of through brick-and-mortar banks. These, broadly speaking, can be broken down into three dimensions relevant to MSMEs in developing countries: digital payment innovation, which reduces the cost of transaction; digital lending innovation, which uses non-traditional data and algorithmic credit scoring to reach a credit market which would not have been reached with traditional "paper" documentation; and mobile and internet banking, which provides access to financial accounts and management where there are no local bank branch offices. Results across Sub-Saharan Africa indicate that FinTech development has overall positive impacts, though with variance across the development of a firm and the prevailing regulatory landscape (Sanga & Aziakpono, 2024). The positive impacts of digital inclusive finance on financing constraint of SMEs has also been substantiated through complementary evidence obtained from China, finding that digital inclusive finance has a more significant positive effect on non-state-owned firms (NSOEs) and technology-rich firms (TRFs) (Gu et al., 2023). The series as a whole indicates that financial innovation does not impact all MSMEs equally or equally all funding channels.

It is in the unevenness that this study is significant. Most of the literature on financial innovation recognises the positive impact of financial innovation in general on MSME lending outcomes, however, financial innovation and financial access are treated as lumpsum, undifferentiated concepts and there has been a tendency to consider only overall effects in recent studies of large cross sections of data, which register the variety of financial innovations found in their evidence to be heterogeneous rather than homogeneous on impact, therewith only limited evidence on the effects on MSMEs in region-specific contexts exists (Kumar et al., 2024); and cross-country evidence on the effects of financial innovation similarly shows that effects are complex and not uniformly applicable across financial firms and settings (Sanga & Aziakpono, 2024), that is that effects are heterogeneous. The gap is a study which breaks down financial innovation by channels, digital payments, digital lending and mobile-Internet banking, and applies each to the unique funding options that MSMEs use: government grants, FinTech loans, and traditional bank loans. The present study takes off from that definite departure point. This study moves the more specific, actionable, and useful question from the existing literature of so many "does financial innovation help MSMEs" towards a central question of who can be useful to MSME managers to put their financial innovation technology into practice, and who and what can be useful to policy makers looking to

target specific intervention of hybrid combinations, rather than blanket interventions, to address the MSME financing gap in developing countries.

Statement of the Problem

Micro, small, and medium enterprises (MSMEs) in developing countries continue to have funding access issues, the World Bank Group estimates that these companies suffer from an annual financing gap in the trillions of dollars because they are denied credit by mainstream lenders because they do not provide collateral and have no formal credit history (Beck et al., 2006; IFC, 2024; World Bank Group, 2024). This gap in financing hampers broader economic growth, especially in developing economies, where MSMEs contribute the majority of employment and economic value. This financing gap not only affects individual businesses but can negatively impact the overall economic growth of developing economies, particularly for MSMEs, which provide the bulk of the employment and value in an economy. Financial innovativeness; digital payment platforms, digital lending, and mobile/internet banking has been proposed as the solution that can close this gap because it helps to mitigate the information gap by lending credit using a collateral model that is not extensive (Gomber et al., 2017; Sanga & Aziakpono, 2024). However, it is yet to be determined which variant of financial innovation has a positive impact on access to which specific source of funds, because current research tends to focus on the aggregate level of both financial innovation and financial sources of funds (Kumar et al., 2024). The present attempt to explore the relationship which is still unresolved, particularly in terms of the channel.

Literature Review

Theoretical Framework

Diffusion of Innovation Theory

This study is grounded, on the independent variable end, in Roger's (2003) Diffusion of Innovation theory that provides a conceptual framework for understanding the spread of new ideas and technologies into a population of potential adopters, their subsequent adoption, and the speed at which the process occurs. Rogers 2003, identifies five attributes which affect the speed of innovation adoption; relative advantage, compatibility, complexity, trialability, and observability, stating that innovations perceived to have clear and visible benefits above their alternatives to others have more chances of spreading than those that are not perceived this way. In this application financial innovation is understood to be to this very thing precisely a diffusing technology: the new lending possibilities offered through mobile and online banking and digital platforms, and the growth of digital payments are all innovations that compete with one another for market share from their legacy and established counterparts of cash banking and branch centricity payments. The theory is a good fit for this study because it not only posits that MSMEs will adopt these innovations in actually doing so, but that there will be variation in adoption according to their perceived relative advantage and expected compatibility with adapting to the innovation such that the pattern of variation in funding outcomes will resemble that of their digital tool adoption.

Pecking Order Theory

The dependent variable side of this study is based on the Pecking Order Theory by Myers and Majluf (1984) which is the theory in relation to the sequence of financing the firm when it faces a problem of information asymmetry between the manager and the outside investor. By demonstrating that external investors can not fully verify the true value of a firm, Myers and Majluf (1984) argue that firms would prefer to use internal financing before debt financing, and external equity financing only as a last resort; each level on this hierarchy signifies increased risk of investors in this stage. As extended to the MSME funding environment, this theory is able to explain why enterprises with asymmetric information tend to seek financing at initial and less demanding levels before seeking loans where they are required to provide the most verifiable proof of creditworthiness, informal and government-funded financing before moving to the digital and FinTech financing before conventional bank loans. This theory is appropriate for this study because it builds a theory directly on the reason why MSMEs are able to access or not to access government grants, FinTech loans and traditional banks loans; since each pathway for funding comes with its threshold

of verifiable information, and Pecking Order Theory provides the theory that links availability of verifiable information to the funding pathway available an enterprise.

Financial innovation

Financial innovation is a concept that finds its origin in classical financial economics, and, in broad terms, it refers to the generation and popularisation of new financial instruments, technologies, institutions and markets, instigated by a number of factors, including lower transaction costs, information asymmetry and market incompleteness (Tufano 2003). On this basis, Frame and White (2004) adapted its classification between "process" innovations (which are ones that afford new methods for carrying out older financial transactions) and "product" innovations (which are ones involving actually new financial instruments). These are the various types of remote banking that have already been developed, including telephone and internet banking. This classical framing has firmly placed the development of "financial innovation" in the context of structural market inefficiencies, a lens which still governs researchers' understanding of the current digitally facilitated reconfiguration of financial innovations.

Since then, with the advent of ICTs like the Internet and mobile applications, financial innovation has been reframed as financial channels operating online. This change Gomber et al. in 2017 call "digital finance" and refer to a variety of financial products, business models and particularly channels of communication between customer and the bank, which are offered by the Internet, mobile phones and other technologies in contrast to bank branches. However, digital finance is a more complex phenomenon, as identified by Ozili (2018), which includes mobile money, digital payment systems and a digital banking platform which tackle different barriers: cost, distance or documentation, that have historically kept historically-lesserved individuals and businesses out of formal financial services.

Research using the digital lens and enterprise financing is generally finding that financial innovation helps to make the financing conditions of small and micro businesses better – although, not invariably good conditions. Sanga's and Aziakpono's 2024 research of 47 African countries revealed that the developments in FinTech are not necessarily creating a universal increase in the digital finance available to SMEs, and this strengthening effect depends on the growth stage of the SME. Next, Gu et al. (2023) determined that, broadly speaking, the use of digital inclusive finance substantially alleviates SME financing constraints, and that the impact is particularly pronounced among high-technology and non-state owned enterprises in China. This pattern of "meaningful but uneven impact" strengthens the argument about the need to simultaneously consider financial innovation by means of multiple dimensions rather than an all-encompassing construct.

In this literature, three prominent themes of financial innovation that relate to enterprises' financial access are emerging: digital payment innovation that reduces transacting costs and geographical distance (Ozili, 2018; Sanga & Aziakpono, 2024); digital lending innovation based on alternative data (Sanga & Aziakpono, 2024; Gu et al., 2023); and mobile and internet banking, which facilitates access to accounts and financial management without relying on a physical bank branch (Kumar et al., 2024; Ozili, 2018). The three dimensions of financial innovation that are also considered in this study are as follows: Digital payment innovation is the term used for technological solutions which are implemented across the various digital payment platforms, such as mobile money and instant payment solutions and which enable the MSMEs to send and receive payments and process payments without the physical infrastructure and cash. Digital lending innovation is composed of platform-based and algorithmic-based lending instruments that evaluate the creditworthiness of MSMEs based on a range of nontraditional data to provide credit to MSMEs beyond the scope of traditional collateral-based screening process. Mobile and internet banking is the digital interface in which MSMEs can open accounts, access their finances and carry out banking activities without having to leave the home bank.

Access to funding

Access to funding is the capacity of enterprises to secure external funds for business commencement, maintenance and development; access to funding is long recognized in literature of finance as one of the most limiting factors in enterprise development. A close look at other studies suggests that the ability to access financing is truly a growth constraint, not just a matter of convenience: Beck and Demirgüç-Kunt 2006

found that (evasively reported) small and medium enterprises with a higher degree of financing constraints grow systematically slower than those that access financing with ease. This conclusion was confirmed in a large sample of survey respondents from more than 10,000 firms in 80 countries, which showed that financing constraints are not arbitrarily assigned but are closely related in a predictable fashion to the age and size of the firm, and the ownership of the firm, with younger, smaller and domestic firms being subject to the most stringent constraints on formal credit sources, as found by Beck et al., (2006).

The impact of this constraint is significant particularly for MSMEs in developing countries. These companies usually do not have audited financial statements, fixed assets as security and have irregular credit histories as these entities do not exist in the mainstream credit market despite the strength of their businesses (Dela Cruz et al., 2025). Relying on estimates from international financial institutions, the informal MSMEs (IMSMEs) financing gap is estimated to be billions of dollars more, reaching the trillion dollars per year in the formal MSMEs alone for developing economies (IFC, 2024; World Bank Group, 2024). Through a systematic evidence and gap map of the global literature, delivered by Dela Cruz et al. (2025), it is clear that closing the gap in accessing funding becomes more of a multi-channel outcome than a simple, uniform construct, as interventions addressing the gap lean towards an approach that includes regulatory reforms, financing systems and institutions, access facilitation, direct lending instruments, and demand-side financial-literacy programs.

In practice, enterprises obtain external capital from different channels, which is clearly shown in the multi-channel picture. Although a host of other financing channels have studied on top of credit through official banking, traditional bank lending is foremost and in many settings most important or most prominent, at the same time it is the most constrained channel by collateral and documentation demands (Beck & Demirgüç-Kunt, 2006). As an intentional policy tool to connect to types of enterprises that those banks consider too risky, government-backed finance is the subject of a systematic review of 89 studies, undertaken by Crawford et al (2024), which reveals that government support is specifically carried out for enterprises that not yet capable of obtaining private loans or conventional bank loans; awareness and uptake of such schemes among these enterprises is also often low. Over the last few years, a third model in Financial Technology has come into existence and that is P2P and platform-based financial lending. Abbasi et al. (2021), using panel data for OECD nations, established that the adoption of peer-to-peer lending FinTechs has a substantial positive impact on SMEs' access to finance, and that this impact is accentuated, particularly in countries with better institutional quality. These are the three literatures that suggest that the funding flows of MSMEs today involve not just one credit market, but are truly diversified.

These three measures of access to funding as separate forms of enterprise finance reappear most consistently across this literature: traditional bank financing through collateral- and documentation-based credit assessment by conventional bank lenders (Beck & Demirgüç-Kunt, 2006; Beck et al., 2006); official funding from government grants or loans issued by public authorities (or via guarantee schemes to access the public sector) to finance enterprises with less access to private financing (Crawford et al., 2024, Dela Cruz et al., 2025); and FinTech loans, technically provided by digital and platform-based lenders performing credit appraisal based on alternative data (non-collateral) that are absent from conventional banking systems (Abbasi et al., 2021). This study will use the same three indicators for access to funding. Government Grant: Government support that is extended to MSMEs in the form of concessionary or non-repayable loans through the government agencies., schemes by the government that go the extra mile to access MSMEs. FinTech Lending is the name given to the credit available on a digital and non-banking lending platform that is not based on traditional collateral practices, but instead a credit assessment based on the algorithm or alternative data. The credit granted by a traditional commercial bank via the conventional lending model, the documentation procedure and the type of packages used as collateral.

Hypotheses Development

Digital Payment Innovation and Access to Government Grants

Unlike traditional hand-to-hand transactions, digital payment systems allow for the creation of a trail of verifiable and traceable records of payments, which could ease the blind nature of traditional hand-to-hand payments and make it more difficult for public agencies to identify and track eligible payments going to MSMEs (Ozili, 2018). As payments, savings and transaction data flow through digital finance channels rather than informal cash channels, they leave behind a trail of the financial information that governments normally require prior to granting public funds, and this can be seen as one of the main advantages that digital finance brings to users, as well as to governments (Gomber et al., 2017; Ozili, 2018). In the face of extensive cash transactions and MSMEs' lack of documentation, even if schemes may be well-funded, government agencies find it difficult to verify the work that SMEs carry out and their ongoing eligibility (Crawford et al., 2024). In light of this, MSMEs with greater digital payment penetration would be better poised to comply with verification and reporting requirements of the government granted schemes. H0₁: This hypothesis suggests that digital payment innovation does not have a significant relationship among the MSMEs of developing countries referring to availability of government grants.

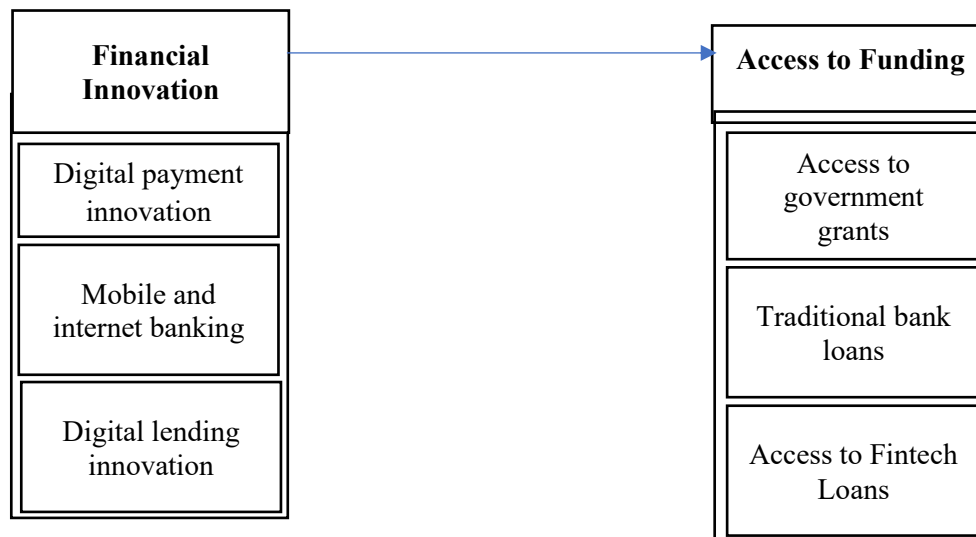
Digital Lending Innovation and Access to FinTech Loans

Therefore, digital lending innovation is the driving force, which includes the application of algorithmic credit scores and alternative information sources to help determine borrower risks, instead of the traditional method involving collateral and audited financial statements – these are the grounds that led to the development of FinTech loans as a distinct financing channel (Abbasi et al., 2021; Sanga & Aziakpono, 2024). Study findings from OECD nations confirmed that the introduction of P2P lending FinTechs had a positive impact on improving SMEs' access to financing, and the impact of digital inclusive finance was even larger when the institutional quality was high (Abbasi et al., 2021), while evidence from China revealed that digital inclusive finance had a clear impact on SMEs' financing difficulties, especially on high-tech enterprises and non-state owned enterprises (Gu et al., 2023). MSMEs will become smoother targets to be evaluated, approved, and provided funding through digital lending channels due to the essential data that they generate in the course of the transactions, which is the same kind of data that FinTech lenders are seeking. Based on this, it is hypothesized that: H0₂: There is no correlation between the practice of innovation in digital lending and availability of FinTech loans for the MSMEs present in developing countries.

Mobile & Internet Banking and Availability of Traditional Bank Loans

Mobile and internet banking systems enhance account ownership, transaction history, and day-to-day banking engagement among MSMEs who might not have broadened or any interaction with traditional banks, resulting in precisely the kind of documented financial record that traditional banks use to measure a potential borrower's loan application (Kumar et al., 2024; Ozili, 2018). For MSMEs, a greater interaction with mobile and internet banking increases the banks' chances of verifying their documented financial history and formal banking relations, which improves access to financing drawn from the bank (Beck & Demirgüç-Kunt, 2006). Expansion of financial access through digital platforms also shows digital financial access is an important determinant of financial outcomes for SMEs, especially formal bank credit access, which has not been explored in many developing-country contexts in depth (Kumar et al., 2024). Based on this, it is assumed that H0₃: There is no significant relationship between mobile and internet banking and availability of traditional bank loans for MSMEs in developing countries.

Figure 1: Conceptual Framework



Source: Adapted by Researcher

Methodology

Research Design

The design of this study was quantitative and cross-sectional survey research design with evidence drawn from the three selected states in Nigeria which are located in different geopolitical and economies of Nigeria. The cross sectional survey design was found to be suitable because it allows for the collection of standardized quantitative data from respondents at one single point in time and would enable an investigation of the interrelationships between variables without altering the study context/situation (Saunders et al. 2023).

This study was conducted in an empirical context which is Nigeria, one of the largest developing economies in Africa. There are several indices such as level of industrialization, income distribution, infrastructure development, financial inclusion indicators and socio economic indices which classifies Nigeria as a developing country, according to reports from various international development institutions like the World Bank, International Monetary Fund (IMF) and the United Nations Development Programme (UNDP); World Bank (2024), IMF (2024) and UNDP (2024).

Population, Sample Size and Sampling Technique of the Study

The study population consisted of all the registered micro, small and medium enterprises (MSMEs) in Abia State, Akwa Ibom and Kogi State in Nigeria. However, due to the lack of a complete sampling frame for all MSMEs that are registered in the various states, probability sampling techniques were deemed impractical. Therefore, a mix of purposive and quota sampling was used in this study.

Purposive sampling method was used to select the enterprises and include enterprises in the sample that meet the inclusion criteria. In particular, the companies involved had to:

- be registered & running;
- run (operate) for at least three years;
- Rule out any or more than one formal financial service; and
- own or manage an organization where the funding decision is made by the person involved; and
- indicate desire to participate in the study.

Then balanced geographical representation was achieved through use of quota sampling. There were equal quotas for each state in order to ensure that there would not be an imbalance between the different regions and that everyone was being represented alike on the selected geopolitical zones.

The total population of all selected MSMEs for the study was 750 MSMEs with 250 MSMEs from Abia State, 250 MSMEs from Akwa Ibom State and 250 MSMEs from Kogi State. All enterprises were represented by one owner/manager. One respondent per enterprise was selected since owners and managers are the

ones to have sufficient knowledge about financing decisions of their firm, financial innovations at the enterprise and its financing experiences.

The number of samples was deemed sufficient when the sample size is applied to the Partial Least Squares Structural Equation Modeling. According to Hair et al. (2022); PLS-SEM has high statistical power for studies with moderate and large sample sizes, especially those aimed at prediction and extension of theories. Similarly, Kock and Hadaya (2018) suggested to determine sample size based on statistical power in PLSSEM studies rather than on the arbitrary decision to have a minimum sample size. The sample selected thus offers sufficient statistical power for the estimation of the proposed structure model and allows for possible non-response and incomplete questionnaires.

The distribution of the sample is given below in Table 1.

Table 1: Distribution of Sample

State	Geopolitical Zone	Sample
Abia	South-East	250
Akwa Ibom	South-South	250
Kogi	North-Central	250
Total		750

Source: Field survey (2026)

Data and Instrumentalization

Primary data were collected from the owners and managers of the MSMEs, with the primary data being the key source of data for this study. Primary data was deemed suitable as it can bring the first-hand information regarding the various financial innovations practices and firms' experience in accessing external financing sources. The data were collected through the utilization of a structured questionnaire, formulated based on the scales used and validated in studies conducted on financial innovation, financial inclusion, SME financing in previous studies. The form of the questionnaire was divided into three parts. The data and information collected in Section A included demographic and business characteristics such as age of business, sector, ownership structure and years of operation. Section B was on financial innovation with digital payment innovation, digital lending innovation and mobile/internet banking. For Section C, it studied access to funds from the government grants, fintech loans and the traditional banking system. Four questions related to the student's responses were posed on a Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The content was evaluated for its validity, using the expert reviewing process. The questionnaire has been reviewed by experts on entrepreneurship, financial and banking and methodology of research, to determine the relevance, clarity and completeness of the measurement items. The final version of the instrument was developed after incorporating observations from the experts. The validity and reliability was conducted by convergent validity and discriminant validity and reliability based on the PLS-SEM analysis in the data analysis process. The indicator loadings, Average Variance Extracted (AVE), Fornell-Larcker criterion, the Heterotrait-Monotrait (HTMT) ratio, Cronbach alpha and composite reliability were used following well-known recommendations (Hair et al., 2022).

The questionnaires were administered by trained research assistants by the researcher in the three selected states. The participants were informed that participation was voluntarily and they were assured of anonymity and confidentiality. The retrieved questionnaires were checked as soon as they were retrieved so as to minimise missing data and to maximise quality of response. The valid copies of questionnaire for the study was finally determined at the end to be 726 copies.

Method of Data Analysis

Rewritten data was coded and analyzed with the help of the software named as SmartPLS Version 4.1. The data analysis was conducted according to a two-step procedure suggested in the Partial Least Squares Structural Equation Modeling (PLS-SEM). The assessment of the measurement model was carried out in the first phase and the assessment of the structural model was carried out in the second phase.

Results and Discussion

Demographic of Respondents

Table 2: Demographic Characteristics of Respondents

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	436	60.1
	Female	290	39.9
Age of Respondent	Below 30 years	102	14.0
	30–39 years	247	34.0
	40–49 years	221	30.4
	50 years and above	156	21.5
Educational Qualification	Secondary education	96	13.2
	Diploma/NCE	158	21.8
	Bachelor's degree/HND	315	43.4
	Postgraduate degree	157	21.6
Position in Enterprise	Owner	462	63.6
	Manager	264	36.4
Years of Business Operation	3–5 years	185	25.5
	6–10 years	276	38.0
	11–15 years	161	22.2
	Above 15 years	104	14.3
Business Sector	Manufacturing	164	22.6
	Trading/Commerce	238	32.8
	Services	177	24.4
	Agriculture/Agribusiness	72	9.9
	Hospitality/Transportation/Other	75	10.3
Enterprise Size Category	Micro enterprise	394	54.3
	Small enterprise	251	34.6
	Medium enterprise	81	11.2

Source: Field Survey Data (2026)

The gender distribution reveals that males accounted for 60.1% of respondents, and females, 39.9%, indicating that the MSME business ownership and management creates a predominantly male business environment, although there is still a good percentage of females.

Concerning age, majority of respondents were of age group 30 to 49 years (64.4%) indicating that most MSME operators had enough age to have enough years of experience in business which gives them adequate decision making power. Educational profile shows that majority of the respondents had attained tertiary education with 43.4 % having obtained Bachelor's degree and HND, while 21.6 % of the respondents had Postgraduate qualification. This indicates a satisfactory level of educational attainment that would allow respondents to understand different matters that were part of the financial innovation topics, digital financial services topics or business financing decision topics.

On enterprise leadership, the respondents were drawn from people running enterprises, with 63.6% representing business owners, and 36.4% representing managers, thus ensuring that most of the responses were from those who are directly involved in enterprise decision-making. Additionally, the distribution of years as a business reveals that the majority of the businesses were over 5 years old, meaning that the respondents had enough organizational experience to give honest responses on their access of funding. The sectoral distribution shows that trading/commerce was by far the largest among the sectors (32.8%) followed by services (24.4%) and manufacturing (22.6%). This actually mirrors the predominant types of business entrepreneurship activities in Nigeria which are commercial and services. In the last segment, the

size of the enterprise reveals that micro enterprises were the largest (54.3%) followed by small enterprises (34.6%) and medium enterprises (11.2%) which is reflective of the typical structure of MSMEs in developing economies where Micro enterprises form the bulk of the enterprises.

As a whole, the demography shows fairly good representative coverage of the various categories of enterprises and of the characteristics of the respondents, giving a sound basis for the analysis of how financial innovation is associated with access to funding among MSMEs in developing countries.

Analytical Model Evaluation

Data collected were analysed using the Partial Least Square-Structural Equation Modelling by SmartPLS Version 4.1. Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed for the analysis, which used the recommended process of two-stage SEM. The preliminary procedure of this research was assessing the measurement model. These involved convergent validity, discriminant validity and reliability. The convergent validity was evaluated using factor loading and Average Variance Extracted (AVE), the discriminant validity was evaluated by utilizing the Fornell-Larcker criterion and HTMT, the reliability check was carried out by Cronbach alpha coefficient and composite reliability (Hair et al., 2022). The second phase consisted of evaluating the structural model. Bootstrapping was used with 5,000 bootstrapped subsamples to evaluate hypothesized relationships. Path coefficients (β), t-values and p-values (Hair et al., 2022) were used to identify the structural model evaluation.

Measurement Model Assessment

Convergent validity

Table 3: Convergent Validity - Factor Loadings and Average Variance Extracted

	Access to FinTech Loans	Access to Government Grants	Access to Traditional Bank Loans	Digital Lending Innovation	Digital Payment Innovation	Mobile and Internet Banking	AVE
AFL1	0.836						
AFL2	0.778						0.660
AFL3	0.861						
AFL4	0.771						
AGG1		0.852					
AGG2		0.790					0.622
AGG3		0.791					
AGG4		0.716					
ATBL1			0.807				
ATBL2			0.842				0.730
ATBL3			0.876				
ATBL4			0.891				
DLI1				0.740			
DLI2				0.779			0.609
DLI3				0.802			
DLI4				0.799			
DPI1					0.859		
DPI2					0.870		0.677
DPI3					0.819		
DPI4					0.737		
MIB1						0.778	
MIB2						0.766	0.632
MIB3						0.822	
MIB4						0.813	

The results obtained by conducting the convergent validity test for the measurement model are shown in Table 3. Table 3 shows the results of convergent validity test of the measurement model by indicator factor loading and Average Variance Extracted (AVE). For converging validity, tests are the intensity of

correlation amongst the indicators of a similar construct along with the extent to which the indicators correspond to the underlying latent variable. Hair et al (2022) suggested that indicator loadings may be preferred to be 0.708 or even higher, and AVE values of each construct may be at 0.50 or over, which means that the variance of its indicators is more than 50%.

The results indicated that factor loadings for all measurement items were good for the constructs they were associated with (0.716 – 0.891). In particular, the loadings of the indicators for Access to FinTech Loans were between 0.771 and 0.861, with the indicators for Access to Government Grants ranging from 0.716 to 0.852. Likewise, each item of the indicator for Traditional Bank Loans had high loadings from 0.807 to 0.891, reflecting good coverage of the indicator. The factor loadings of Digital Lending Innovation are 0.740 to 0.802, Digital Payment Innovation is 0.737 to 0.870 and Mobile and Internet Banking is 0.766 to 0.822. Each value is above the 0.70 minimum requirement for the measure of its hypothesized latent construct, supporting the argument that all these indicators make significant contributions to the measures of their hypothesized latent constructs.

In addition, all of the constructs had AVE values greater than the desired threshold of 0.50. In particular, Access to FinTech Loans had an AVE of 0.660, Access to Government Grants 0.622, Access to Traditional Bank Loans 0.730, Digital Lending Innovation 0.609, Digital Payment Innovation 0.677 and Mobile and Internet Banking 0.632. These values suggest between 60.9% to 73.0% of the variations in indicators are explained by each construct, which is well above the acceptable minimum.

In sum, the results indicate good measurement model convergent validity. That is because that the measurement items have good standard factor loadings and AVE values, so the items in the measurement are very much convergent with the constructs that they measure. As such, the constructs are appropriate for subsequent analysis of the structural model and testing of the hypotheses with SmartPLS, yielding good internal consistency.

Discriminant validity

Table 4: Discriminant Validity – Fornell–Larcker Criterion

	Access to FinTech Loans	Access to Government Grants	Access to Traditional Bank Loans	Digital Lending Innovation	Digital Payment Innovation	Mobile and Internet Banking
Access to FinTech Loans	0.813					
Access to Government Grants	0.633	0.789				
Access to Traditional Bank Loans	0.515	0.612	0.855			
Digital Lending Innovation	0.471	0.587	0.611	0.780		
Digital Payment Innovation	0.322	0.377	0.381	0.514	0.823	
Mobile and Internet Banking	0.437	0.653	0.677	0.691	0.397	0.795

The Fornell–Larcker criterion was used to check the discriminant validity, which reveals in Table 4. Fornell and Larcker (1981) and Hair et al. (2022) suggested that the square root of the AVE on the diagonal is higher than the correlations on the off-diagonal representing the relationship between the construct and the rest of the constructs.

Based on these results, it can be concluded that all constructs meet this criterion. For instance, Access to FinTech Loans recorded a square root of AVE of 0.813, which is higher than its correlations with the other constructs (0.322–0.633). The same applies to the diagonal values of Access to Government Grants (0.789), Access to Traditional Bank Loans (0.855), Mobile and Internet Banking (0.795), Digital Payment Innovation (0.823) and Digital Lending Innovation (0.780) which are above their respective between construct correlations.

The results confirm good discriminant validity for each construct from its others. So the measurement model is valid and can be used for hypothesis testing and assessment of a structure model.

Table 5: Discriminant validity – Heterotrait–Monotrait (HTMT) ratio

	Access to FinTech Loans	Access to Government Grants	Access to Traditional Bank Loans	Digital Lending Innovation	Digital Payment Innovation	Mobile and Internet Banking
Access to _FinTech Loans						
Access to _Government Grants	0.716					
Access to Traditional Bank Loans	0.600	0.646				
Digital Lending Innovation	0.581	0.721	0.715			
Digital Payment Innovation	0.406	0.422	0.424	0.621		
Mobile and Internet Banking	0.531	0.826	0.800	0.807	0.507	

Table 5 shows the results of the discriminant validity test performed by Heterotrait–Monotrait (HTMT) ratio. Hair et al. (2022) recommend that the values for the former trait must be less than 0.90 to validate proper discriminant between constructs.

The result reveals that all HTMT values obtained lie between 0.406 to 0.826, which is below the recommended value of 0.90. Access to Government Grants and Mobile and Internet Banking had the highest value of HTMT (0.826), whereas the lowest value was seen for the relationship between the two factors: Access to FinTech Loans and Digital Payment Innovation (0.406).

The findings confirm that all the HTMT values are within the acceptable limits and hence the constructs are empirically different from each other. As a result, the measurement model can be considered having an acceptable discriminant validity and it can be used for the evaluation and testing of the structural model.

Reliability

Table 6: Reliability – Cronbach alpha and Composite reliability

	Cronbach's alpha	Composite reliability (rho_c)
Access to _FinTech Loans	0.828	0.886
Access to _Government Grants	0.813	0.868
Access to _Traditional_Bank Loans	0.882	0.915
Digital_Lending Innovation	0.791	0.862
Digital_Payment Innovation	0.854	0.893
Mobile and _Internet Banking	0.807	0.873

The reliability analysis of the Measurement Model is shown in Table 6. Cronbach's alpha and Composite Reliability (CR) were analyzed to determine the reliability of the measurement model. Reliability analysis of the Measurement Model was conducted using Cronbach's alpha and Composite Reliability (CR) as seen in Table 6. Hair et al. (2022) set the threshold for acceptable measurement of internal consistency reliability at 0.70 for both measures.

Based on the results, all constructs were greater than recommended. The Cronbach's alpha for the scale for Digital Lending Innovation was 0.791, and the scale for Access to Traditional Bank Loans had a Cronbach's alpha of 0.882 and Composite Reliability values ranged between 0.862 and 0.915. In detail, the Cronbach's alphas of the scales for the measures of Access to FinTech Loans (AFL), Access to Government Grants (AGG), Access to Traditional Bank Loans (ATBL), Digital Lending Innovation (DLI), Digital Payment Innovation (DPI), and Mobile and Internet Banking (MIB) were 0.828, 0.813, 0.882, 0.791, 0.854 and

0.807, respectively, and their Composite Reliabilities were 0.886, 0.868, 0.915, 0.862, 0.893 and 0.873, respectively.

The internal consistency reliability for all of the constructs are satisfactory as indicated in the results of the study, thus the items used to measure the latent constructs in each construct are able to measure the latent constructs consistently. Thus, reliability of the measurement model has been met.

Common Method Bias and Multicollinearity Analysis

To minimize the potential effects of common method bias (CMB) and multicollinearity, a series of procedural, and statistical measures were used prior to data analysis. In the development of the questionnaire, the items of the measurement were adapted from existing validated questionnaires, worded clearly, followed the constructs each item in the scale and anonymity and confidentiality was ensured to respondents, so as to prevent ambiguity in the items of the measurement, to facilitate free response from the respondents and to minimize common method variance (Podsakoff et al, 2003). After that, the level of common method bias was evaluated using the Full Collinearity Variance Inflation Factor (Full Collinearity VIF) in which a value lower than 3.3 signifies that common method bias is not considered to be a problem (Kock, 2015). In addition, the multicollinearity was checked for the predictor constructs by employing the Inner Variance Inflation Factor (Inner VIF) of the structural model which was generated by SmartPLS. The authors of Hair et al. (2022) suggest that the problematic and influential multicollinearity should be considered absent when the values of the inner-VIF are not greater than 5.0 (and preferably less than 3.3). These procedures resulted in a consistent and coherent data for structural model estimation and testing of hypotheses.

Structural Model Assessment

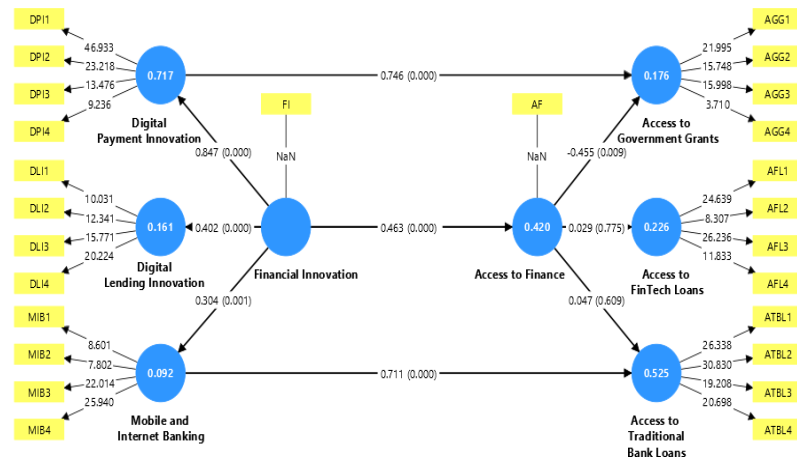


Figure 1: Structural Model Output

Table 7: Structural Model Output

		Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (O/STDEV)	P values
Digital Payment Innovation -> Access to _Government Grants	H1	0.746	0.756	0.164	4.563	0.000
Digital Lending Innovation -> Access to _FinTech Loans	H2	0.463	0.480	0.093	5.005	0.000
Mobile and _Internet Banking -> Access to _Traditional Bank Loans	H3	0.711	0.712	0.067	10.574	0.000

The details of the results obtained from the structural model are presented in Table 7 below. It shows the relationship between financial innovations in size and sources of funding by MSMEs. The results suggest that all three assumed relationships are positively oriented and statistically significant.

The result of Digital Payment Innovation and Access to Government Grants ($\beta = 0.746$, $t = 4.563$, p value = 0.000) indicates that there is a positive and significant relationship between Digital Payment Innovation and Access to Government Grants (H1). This means that the innovation of digital payments is positively linked to greater access to the opportunities of grants from the government for MSMEs.

Similarly, Access to FinTech Loans ($\beta = 0.463$, $t = 5.005$, $p = 0.000$) is supported by Digital Lending Innovation with a positive trend. This means that digital lending platforms are enabling the ability to avail loans using FinTech platforms for MSMEs by making the digital credit services more accessible and efficient.

Also, the correlation between Mobile and Internet Banking and Access to Traditional Bank Loans ($\beta = 0.711$, $t = 10.574$, $p = 0.000$) was positive and significant, which provides support to H3. This indicates that the increased adoption of mobile/internet banking services facilitates MSMEs' access to traditional bank lending, which could be achieved by the enhanced visibility of transactions, financial records and interactions between MSMEs and formal financial organizations.

Discussion

Enabling access to government grants and payment innovation via digital channels. The strongest coefficient among the three relationships was between digital payment innovation and access to government grants, suggesting that for every 1-unit increase in a MSME's digital payment engagement, a substantial increase in government grants is present. Therefore, the null hypothesis $H0_1$ is rejected and it is concluded that there exists a positive relation between payment innovation and access to government grants of MSMEs in the south-East zone. The result is very supportive of the arguments of Ozili (2018) and Gomber et al. (2017) that digital finance provides verifiable and traceable evidence of financial transactions, which reduces information asymmetry faced by public agencies when assessing their grant applications. It also supports Crawford et al. (2024) who postulated that it is 'a particularly designed method of government-backed financial facilitation for enterprises whose financial activity can be independently verified'. Meanwhile, this pathway is partially counterintuitive to Crawford, et al. (2024), who noted that the uptake and awareness of government finance schemes among enterprises eligible to access them is generally low, meaning that small businesses using digital payments could be close to the threshold for documentation to access such schemes, but the magnitude of the coefficient may vary somewhat between different types of MSMEs.

Digital Lending Innovation + Access to FinTech loans. The digital lending innovation to access to FinTech loans, which is still very important, but gives the weakest relationship among the three. It is therefore concluded that there is a significant relationship between the digital lending innovation and access to FinTech loans, with $H0_2$ being rejected. This is consistent with the findings of Abbasi et al., (2021), Gu et al., (2023), and Sanga and Aziakpono, (2024), which respectively discovered that digital/FinTech credit giving methods purposefully influence SME financing outcomes. The effect of peer to peer lending FinTechs on access to finance for SMEs, however, is relatively small, compared to the impact of H1 and H3, and is strongly grounded in the findings of Abbasi et al. (2021), which showed how the impact of P2P lending FinTechs on access to finance for SMEs is strongly influenced by institutional quality. Unlike the OECD economies studied by Abbasi et al. (2021), Nigeria's FinTech lending regulatory system is not quite as developed, resulting in a comparatively lower, albeit strong and significant, coefficient, which largely confirms that weaker regulatory environments of FinTech innovation do not prevent but rather lessen the funding advantages of digital lending.

Mobile and Internet Banking, Traditional Bank Loans. The coefficient for this path was also strong and had the highest t-statistic and lowest standard deviation amongst the 3 paths, suggesting that this path had the highest significance and was most precisely estimated of the 3 paths in the model. $H0_3$ is therefore accepted indicating that mobile and internet banking have a proper relationship with traditional bank loan availability with MSMEs in the zone. This result supports the findings of Beck and Demirgüç-Kunt (2006) that it is the history of documented transactions which is crucial for bank credit-screening decisions and Kumar et al. (2024) who emphasized the importance of digital financial access for influencing the outcome of financing decisions for SMEs. The precision of this estimate (even by small standard deviation) indicates

the causal link between a sustained pattern of digital banking use and that of conventional bank credit is the most robust from the three innovationfunding pairings tested, plausibly because digital banking activity results in a type of transaction history that is the highest order of predictability and measurability that Beck and Demirgüç-Kunt (2006) identified as the key ingredient in bank lending decisions.

Conclusion and Recommendations

Conclusion

The study sought insights into the link between financial innovation and access to finance in a developing economy through evidence in selected states in Nigeria among MSMEs. The research concluded that digital payment innovation can significantly make government grants more accessible to the population, digital lending innovation can make FinTech loans more accessible to the population, while mobile and Internet banking can strengthen the access to traditional bank loans. Overall, the study finds financial innovation to be an important means to promote better financing outcomes for MSMEs through its ability in lowering financial obstacles, improving financial inclusion and making financing more accessible. This means, increased market penetration and support for innovative financial instruments is of crucial importance to overcome some of the longstanding funding constraints of MSMEs in developing economies.

Recommendations

Based on the findings, the study recommends that:

1. MSME owners and managers should adopt digital payment innovations such as electronic payment platforms and digital transaction systems to improve their financial visibility and strengthen their eligibility for government grant opportunities.
2. MSME owners and managers should utilize digital lending platforms as alternative financing channels to overcome limitations associated with traditional borrowing processes and improve access to FinTech-based loans.
3. MSME owners and managers should actively integrate mobile and internet banking into their business operations to enhance financial record keeping, improve relationships with formal financial institutions, and increase their chances of accessing traditional bank loans.

Suggestions for Further Studies

Future work could build on the findings of this study, analyze other aspects of financial innovation (including open banking, crowdsourcing, artificial intelligence, credit assessment, blockchain-based finance), and apply these data to a broader understanding of the impact emerging financial technologies has on MSME financing. Future studies can also take into account the moderating role of other factors such as financial literacy, digital capability, regulatory framework, or institutional backing in the link between financial innovations and access to finance. Furthermore, cross-referencing similar research in other parts of Nigeria and other developing economies can further improve the cross-versality of findings and give a comparative perspective on how financial innovation is impacting on the financing of MSMEs in Nigeria.

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