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## Examining the Impact of Mobile Banking and Fintech Solutions on SME Growth in Nigeria

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### Abstract

*This study investigates the influence of mobile banking and fintech solutions on the growth of Small and Medium-scale Enterprises (SMEs) in Nigeria. A quantitative research design was employed to systematically analyse the relationship between digital financial services and SME performance. Data were gathered from a sample of 384 SME owners and managers situated in Lagos, Abuja, and Port Harcourt. Structured questionnaires were utilised to ensure consistency in responses and to capture data relevant to mobile banking adoption, fintech solution utilisation, and various SME growth indicators. The collected data were subjected to multiple regression analysis to determine the extent to which mobile banking adoption and fintech utilisation predict SME growth. The analysis focused on key growth measures, including revenue growth, operational efficiency, and market expansion. Findings from the analysis revealed that both mobile banking adoption ( $\beta = 0.412$ ,  $p < 0.001$ ) and fintech solutions utilisation ( $\beta = 0.387$ ,  $p < 0.001$ ) are significant predictors of SME growth in Nigeria. The model demonstrated that 67.3% of the variance in SME growth could be explained by the adoption of mobile banking and fintech solutions ( $R^2 = 0.673$ ). Further results indicated that transaction efficiency, improved access to credit, and reduced operational costs serve as mediating factors in the relationship between the use of digital financial services and SME performance. Based on these findings, the study recommends the implementation of policy interventions aimed at enhancing digital infrastructure and promoting financial literacy among SME operators. Such measures are expected to further support the adoption and effective utilisation of mobile banking and fintech solutions, thereby fostering sustainable SME growth in Nigeria.*

**Keywords:** Mobile banking, Fintech, SME growth, Nigeria, Digital financial services, financial inclusion

## **1. INTRODUCTION**

### **1.1 Background to the Study**

Small and Medium-scale Enterprises (SMEs) constitute the backbone of Nigeria's economy, contributing approximately 48% to the national GDP and accounting for 96% of businesses and 84% of employment (Adeniran & Johnston, 2012; SMEDAN, 2017). Despite their critical role, Nigerian SMEs face significant challenges such as limited access to finance, inadequate infrastructure, and operational inefficiencies that constrain their growth potential (Ayyagari et al., 2007; Beck, 2006).

The emergence of mobile banking and financial technology (fintech) solutions presents unprecedented opportunities for addressing traditional barriers to SME development in developing economies (Demirgüç-Kunt & Klapper, 2013; Mbiti & Weil, 2016). Nigeria, with its rapidly growing fintech ecosystem and mobile penetration rate exceeding 84% (Nigerian Communications Commission, 2020), represents a unique context for examining the transformative potential of digital financial services on enterprise growth.

Mobile banking refers to the provision of banking services through mobile devices, enabling users to conduct financial transactions without visiting physical bank branches (Shaikh & Karjaluoto, 2015). Fintech encompasses technological innovations in financial services, including digital payments, peer-to-peer lending, and blockchain-based solutions (Arner et al., 2015). For Nigerian SMEs, these technologies promise enhanced access to capital, reduced transaction costs, improved cash flow management, and expanded market reach (Ouma et al., 2017).

### **1.2 Statement of the Problem**

Despite the increasing adoption of mobile banking and fintech solutions in Nigeria, there is a noticeable lack of comprehensive empirical evidence detailing specific impact on the growth of Small and Medium-scale Enterprises (SMEs). Much of the existing research in this area is both limited and fragmented, with studies such as Ozili (2018) highlighting the need for more robust analysis. Most earlier investigations have primarily addressed the factors influencing adoption (Tobbin, 2012) or have focused on broader outcomes related to financial inclusion (Demirgüç-Kunt et al., 2018). These works have not systematically explored the direct relationship between the utilisation of digital financial services and measurable SME growth indicators.

Additionally, most available research examining the link between mobile banking and SME development in emerging markets has been centred on East African countries, notably the case of Kenya's M-Pesa mobile money service (Jack & Suri, 2014; Mbiti & Weil, 2016). This regional focus has resulted in a significant research gap regarding the effects of these technologies on SME performance within West African economies, such as Nigeria, which operate within distinct regulatory, infrastructural, and cultural environments.

### **1.3 Research Objectives**

The primary objective of this study is to examine the impact of mobile banking and fintech solutions on SME growth in Nigeria. Specific objectives include:

1. To assess the extent of mobile banking adoption among SMEs in Nigeria
2. To evaluate the utilization of fintech solutions by Nigerian SMEs
3. To determine the relationship between mobile banking adoption and SME growth indicators
4. To examine the impact of fintech solutions on SME operational efficiency and revenue growth

5. To identify challenges affecting the adoption and effective utilization of digital financial services by SMEs

#### **1.4 Research Hypotheses**

Based on the research objectives, the following hypotheses were formulated and tested:

**H<sub>1</sub>:** Mobile banking adoption has a significant positive impact on SME revenue growth in Nigeria

**H<sub>2</sub>:** Fintech solutions utilization significantly influences SME operational efficiency in Nigeria

**H<sub>3</sub>:** There is a significant positive relationship between digital financial service adoption and SME market expansion

**H<sub>4</sub>:** Transaction costs mediate the relationship between mobile banking adoption and SME profitability

#### **1.5 Significance of the Study**

This research makes several important contributions to the expanding literature on digital finance and entrepreneurship, particularly within the Nigerian context. Firstly, it delivers empirical evidence highlighting the specific mechanisms through which mobile banking and fintech solutions impact the performance of small and medium-sized enterprises (SMEs) in Nigeria. The study enhances understanding of how digital financial services can drive growth and operational improvements among SMEs by examining these mechanisms.

Secondly, the findings from this research carry practical implications for key stakeholders, such as policymakers, financial institutions, and organisations supporting SMEs. These insights can inform the development of strategies and policies aimed at promoting financial inclusion and fostering enterprise development, thereby supporting the broader economic advancement of the country.

Finally, this study extends the application of established theoretical frameworks, namely the Technology Acceptance Model (TAM) and the Resource-Based View (RBV), to the realm of digital financial services in developing economies. The research deepens theoretical understanding and offers a foundation for future studies investigating digital finance adoption in similar settings by situating these frameworks within the context of Nigeria's SME sector.

#### **1.6 Scope and Limitations**

This study focuses on formally registered SMEs operating in three major Nigerian cities: Lagos, Abuja, and Port Harcourt. The research examines mobile banking and fintech adoption between 2018 and 2021, covering the pre-pandemic and pandemic periods. Limitations include potential sampling bias toward urban SMEs with existing digital infrastructure access and reliance on self-reported performance data.

## **2. LITERATURE REVIEW**

### **2.1 Conceptual Framework**

#### **2.1.1 Small and Medium-scale Enterprises (SMEs)**

The definition of Small and Medium-sized Enterprises (SMEs) is not uniform, as it differs across jurisdictions and organisations. In the Nigerian context, the classification of SMEs is provided by the Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) and the National Bureau of Statistics (NBS). According to their criteria, SMEs are categorised based on the number of employees and the value of assets (SMEDAN, 2013). Specifically, small enterprises are defined as businesses employing between 10 and 49 workers, with asset values ranging from ₦5 million to ₦50 million, excluding land and

buildings. Medium enterprises, on the other hand, employ between 50 and 199 workers and possess assets valued between ₦50 million and ₦500 million, also excluding land and buildings.

SMEs are vital to economic development, serving multiple essential functions including job creation, fostering innovation, reducing poverty, and contributing significantly to gross domestic product (GDP) (Ayyagari et al., 2007; Beck et al., 2005). Despite their importance, SMEs in Nigeria encounter a range of constraints. These challenges include limited access to finance, insufficient managerial capabilities, inadequate infrastructure, and a complex regulatory environment (Abor & Quartey, 2010; Osano & Languitane, 2016).

### **2.1.2 Mobile Banking**

Mobile banking refers to the integration of banking services with mobile telecommunications, which enables customers to access a range of financial services using their mobile devices (Shaikh & Karjaluoto, 2015). The fundamental features of mobile banking include balance enquiries, fund transfers, bill payments, and transaction alerts, as noted by Donner and Tellez (2008). In addition to these core functionalities, mobile banking platforms have evolved to provide more advanced services, such as mobile credit, savings, and insurance products (Mas & Morawczynski, 2009).

The adoption of mobile banking is grounded in established theoretical frameworks. The Technology Acceptance Model (TAM), introduced by Davis (1989), posits that perceived usefulness and ease of use are primary factors influencing the acceptance and adoption of new technologies. Additionally, Rogers (2003) Diffusion of Innovation Theory identifies several attributes relative advantage, compatibility, complexity, trialability, and observability that affect the decision to adopt innovations such as mobile banking. Furthermore, the Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al. (2012) brings together various determinants of technology adoption, including performance expectancy, effort expectancy, social influence, and facilitating conditions.

### **2.1.3 Fintech Solutions**

Financial technology (fintech) refers to innovative technological advancements designed to enhance, optimise, or disintermediate financial services (Arner et al., 2015). Primary categories within fintech include digital payments, peer-to-peer lending, crowdfunding, robo-advisory, blockchain applications, and insurtech (Gomber et al., 2017).

Fintech solutions present numerous benefits for small and medium-sized enterprises (SMEs), such as lower transaction costs, expedited payment processing, improved financial management, greater access to alternative financing sources, and enhanced data-driven decision-making capabilities (Chen et al., 2019; Zavolokina et al., 2016). Alternative lending platforms leverage big data analytics and artificial intelligence to evaluate creditworthiness without relying solely on traditional collateral requirements, thereby potentially increasing credit availability for underserved SMEs (Jagtiani & Lemieux, 2019).

### **2.1.4 SME Growth**

SME growth is defined as a multidimensional concept, including both quantitative and qualitative indicators (Davidsson et al., 2010). Quantitative metrics cover revenue growth, increased profitability, employment growth, and asset accumulation (Delmar et al., 2003). Qualitative aspects consist of market expansion, product diversification, improvements in operational efficiency, and changes in competitive position (Achtenhagen et al., 2010).

Various theoretical perspectives address firm growth. Penrose (2009) Resource-Based View highlights internal resources and capabilities as factors related to growth, while Storey (1994) framework considers entrepreneur characteristics, firm characteristics, and strategic elements as potential influences. Financial resources are identified as significant constraints on SME growth, especially in developing economies with less-developed capital markets (Beck et al., 2008).

## **2.2 Theoretical Framework**

This study adopts an integrated theoretical framework combining the Resource-Based View (RBV) and the Technology-Organization-Environment (TOE) framework.

### **2.2.1 Resource-Based View (RBV)**

The Resource-Based View suggests firms gain an edge with valuable and unique resources (Barney, 1991). Mobile banking and fintech tools boost SMEs by improving financial management and efficiency. Adopting these digital services helps SMEs grow through better cash flow, lower costs, and easier access to financing (Wade & Hulland, 2004).

### **2.2.2 Technology-Organization-Environment (TOE) Framework**

Tornatzky and Fleischer (1990) TOE framework identifies three contexts influencing technology adoption: technological (availability, characteristics), organizational (size, resources, management support), and environmental (competition, regulatory environment, market conditions). This framework explains variance in mobile banking and fintech adoption across SMEs based on technological readiness, organizational capacity, and environmental pressures.

## **2.3 Empirical Literature Review**

### **2.3.1 Mobile Banking and Enterprise Performance**

Empirical research links mobile banking adoption to improved business outcomes in developing countries. In Kenya, studies found that mobile money services increased consumption, reduced poverty, lowered transaction costs, and promoted risk-sharing (Jack & Suri, 2014; Mbiti & Weil, 2016). For SMEs, mobile banking was associated with higher investment, better inventory management, and enhanced financial performance (Demombynes & Thegeya, 2012; Muiruri & Ngari, 2014). Among Ugandan farmers, mobile money use raised banana market participation by 30% (Kikulwe et al., 2014). In Nigeria, agricultural traders adopting mobile money saw reduced price dispersion and greater market involvement (Aker et al., 2016), but evidence on effects for non-agricultural SMEs is still limited.

### **2.3.2 Fintech Solutions and SME Access to Finance**

Fintech innovations have been developed to address traditional credit market obstacles affecting SMEs. Beck et al. (2008) identified information asymmetries, high transaction costs, and collateral requirements as key barriers to SME financing. Fintech solutions that use alternative data and automated credit scoring may help mitigate these constraints (Jagtiani & Lemieux, 2019).

Empirical studies from developed economies indicate some effects. Berger and Udell (2006) reported that technology-based lending increased small business credit availability in the United States. Iyer et al. (2016) observed that peer-to-peer lending platforms broadened credit access for borrowers not served by traditional banks.

Research in developing economies presents comparable results. Gupta and Xia (2018) found that fintech credit was associated with increased consumption and entrepreneurial activity in China. Frost et al. (2019) noted that big tech credit platforms in Argentina and China provided services to SMEs by utilizing transaction data from e-commerce platforms.

There is limited research focused on Nigeria. Ozili (2018) reviewed fintech development and financial inclusion in Nigeria but did not include a quantitative impact assessment. Ogunlana (2019) analysed factors influencing fintech adoption among Nigerian SMEs without measuring performance outcomes.

### **2.3.3 Digital Financial Services and Operational Efficiency**

Digital financial services improve efficiency by reducing transaction time, costs, and administrative tasks, while enabling real-time payment notifications for better inventory and supplier management (Chen et al., 2019; Donner & Tellez, 2008; Mas & Morawczynski, 2009). Studies have shown these services lower search costs, enhanced market coordination, and increase productivity, such as improved input purchases among Tanzanian farmers (Aker & Mbiti., 2010; Murendo et al., 2018). In Kenya, M-Pesa reduced transaction costs from 30% to 10%, allowing more frequent, smaller transactions and improved working capital for small businesses (Jack & Suri, 2011).

### **2.3.4 Challenges to Digital Financial Service Adoption**

Despite potential benefits, several barriers constrain digital financial service adoption among SMEs in developing economies. Infrastructure challenges including unreliable electricity, poor internet connectivity, and limited agent networks impede access (Asongu & Nwachukwu, 2018). Low digital and financial literacy reduces effective utilization (Demirgüç-Kunt, 2018). Security concerns and fraud risks create hesitancy (Tobbin, 2012).

Regulatory uncertainties and compliance requirements may disproportionately affect smaller enterprises (Arner et al., 2015). High costs of smartphones and transaction fees create affordability barriers (Suri & Jack, 2016). Cultural preferences for cash transactions and trust deficits in digital systems present adoption obstacles (Donovan, 2012).

## **3. METHODOLOGY**

### **3.1 Research Design**

This study employed a quantitative research design utilizing a cross-sectional survey approach. Cross-sectional designs enable examination of relationships between variables at a specific time point and are appropriate for exploratory and explanatory research (Creswell, 2014). The quantitative approach facilitates statistical analysis of relationships between mobile banking adoption, fintech utilization, and SME growth indicators.

### **3.2 Population and Sample**

The target population comprised formally registered SMEs operating in Lagos, Abuja, and Port Harcourt; Nigeria's three largest commercial centres. According to SMEDAN (2017), Nigeria has approximately 37 million SMEs, with significant concentrations in these cities.

#### **3.2.1 Sample Size Determination**

Sample size was determined using Yamane (1967) formula for finite populations:

$$n = N / (1 + N(e)^2)$$

Where:

- $n$  = sample size
- $N$  = population size

- $e$  = margin of error (0.05)

Given the large population and practical constraints, a conservative population estimate of 10,000 SMEs in the three cities was used:

$$n = 10,000 / (1 + 10,000(0.05)^2) \quad n = 10,000 / (1 + 25) \quad n = 384.6 \approx 384$$

A sample size of 384 was determined adequate at 95% confidence level with 5% margin of error. To account for potential non-responses and incomplete questionnaires, 450 questionnaires were distributed.

### 3.3 Data Collection Procedure

Data collection occurred between March and May 2021. Research assistants were trained on questionnaire administration, ethical considerations, and data recording procedures. Of 450 distributed questionnaires, 398 were returned (88.4% response rate). After screening for completeness and validity, 384 questionnaires (85.3%) were deemed suitable for analysis.

### 3.4 Data Analysis Techniques

Data were analysed using Statistical Package for Social Sciences (SPSS) version 25. Pearson correlation coefficients examined relationships between independent and dependent variables, assessing multicollinearity concerns.

## 4. RESULTS AND DISCUSSION

### 4.1 Response Rate and Data Screening

Of 450 distributed questionnaires, 398 were returned (88.4% response rate). Data screening identified 14 questionnaires with missing data exceeding 10% and were excluded, yielding 384 usable responses (85.3% usable response rate). Missing data analysis revealed data were missing completely at random (Little's MCAR test:  $\chi^2 = 127.34$ ,  $p = 0.342$ ), and mean substitution was applied for remaining missing values (<3%).

Results indicate predominant male ownership (63.3%), consistent with Nigerian entrepreneurship patterns (Adisa et al., 2014). Most respondents possessed tertiary education (68%), suggesting relatively high human capital. Retail/trading dominated (37%), reflecting Nigeria's commercial structure. Majority were small enterprises (74.7%) aged 4-6 years (34.9%), indicating sample representativeness of young, growing SMEs.

### 4.4 Mobile Banking and Fintech Adoption Patterns

Findings reveal high adoption of basic mobile banking services (balance inquiry: 89.3%, airtime purchase: 91.4%) but lower utilization of advanced credit services (34.6%). Among fintech solutions, mobile wallets (72.1%) and digital payment platforms (68.5%) show strong adoption, while peer-to-peer lending (21.4%), crowdfunding (12.8%), and blockchain solutions (8.9%) remain underutilized. This pattern suggests SMEs primarily use digital financial services for transactional purposes rather than accessing alternative financing.

### 4.5 Correlation Analysis

Correlation analysis reveals significant positive relationships between mobile banking adoption and all SME growth dimensions: revenue growth ( $r = .584$ ,  $p < .01$ ), operational efficiency ( $r = .627$ ,  $p < .01$ ), and market expansion ( $r = .498$ ,  $p < .01$ ). Similarly, fintech utilization correlates significantly with revenue growth ( $r = .531$ ,  $p < .01$ ), operational efficiency ( $r = .549$ ,  $p < .01$ ), and market expansion ( $r = .512$ ,  $p < .01$ ).

The strongest correlation exists between mobile banking adoption and overall SME growth ( $r = .687$ ,  $p < .01$ ), followed by fintech utilization and SME growth ( $r = .623$ ,  $p < .01$ ).

Moderate correlation between mobile banking and fintech utilization ( $r = .612$ ,  $p < .01$ ) suggests complementary rather than redundant adoption patterns. All variance inflation factor (VIF) values were below 3.0, indicating absence of problematic multicollinearity (Hair et al., 2010).

#### **4.6 Regression Analysis**

##### **4.6.1 Hierarchical Multiple Regression for Overall SME Growth**

Hierarchical regression examined the incremental contribution of mobile banking and fintech variables beyond control variables.

Results demonstrate that control variables (Model 1) explain 18.9% of variance in SME growth ( $R^2 = .189$ ,  $F = 17.42$ ,  $p < .001$ ). Adding mobile banking adoption (Model 2) significantly increases explained variance to 52.1% ( $\Delta R^2 = .332$ ,  $p < .001$ ), with mobile banking showing strong positive effect ( $\beta = .524$ ,  $p < .001$ ).

The full model (Model 3) including both mobile banking and fintech utilization explains 67.3% of variance in SME growth ( $R^2 = .673$ ,  $F = 67.29$ ,  $p < .001$ ). Mobile banking adoption ( $\beta = .412$ ,  $p < .001$ ) and fintech utilization ( $\beta = .387$ ,  $p < .001$ ) both significantly predict SME growth, controlling for firm characteristics. The substantial  $R^2$  increase from Model 2 to Model 3 ( $\Delta R^2 = .152$ ,  $p < .001$ ) confirms fintech's unique contribution beyond mobile banking.

Firm size ( $\beta = .184$ ,  $p < .001$ ), firm age ( $\beta = .142$ ,  $p < .01$ ), and owner education ( $\beta = .115$ ,  $p < .05$ ) retain significance in the full model, indicating continued influence of organizational characteristics.

##### **4.6.2 Regression Results for Specific Growth Dimensions**

**Revenue Growth:** Mobile banking ( $\beta = .398$ ,  $p < .001$ ) and fintech utilization ( $\beta = .347$ ,  $p < .001$ ) explain 58.1% of variance ( $R^2 = .581$ ), with mobile banking showing slightly stronger effect.

**Operational Efficiency:** The model explains 62.3% of variance ( $R^2 = .623$ ), with mobile banking ( $\beta = .441$ ,  $p < .001$ ) demonstrating strongest impact. This suggests mobile banking's primary benefit lies in efficiency improvements through reduced transaction time and costs.

**Market Expansion:** Fintech utilization ( $\beta = .389$ ,  $p < .001$ ) slightly exceeds mobile banking's effect ( $\beta = .312$ ,  $p < .001$ ) in predicting market expansion ( $R^2 = .512$ ), indicating fintech's role in enabling geographic reach and customer acquisition through digital platforms.

#### 4.7 Hypothesis Testing

**Table 1: Summary of Hypothesis Testing Results**

| Hypothesis                                                                                                                             | Statistical Test                                              | Result                                  | Decision  |
|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-----------------------------------------|-----------|
| <b>H<sub>1</sub>:</b> Mobile banking adoption has a significant positive impact on SME revenue growth                                  | $\beta = .398, p < .001$                                      | Significant positive relationship       | Supported |
| <b>H<sub>2</sub>:</b> Fintech solutions utilization significantly influences SME operational efficiency                                | $\beta = .329, p < .001$                                      | Significant positive relationship       | Supported |
| <b>H<sub>3</sub>:</b> There is a significant positive relationship between digital financial service adoption and SME market expansion | MBA: $\beta = .312, p < .001$ ; FSU: $\beta = .389, p < .001$ | Both significant positive relationships | Supported |
| <b>H<sub>4</sub>:</b> Transaction costs mediate the relationship between mobile banking adoption and SME profitability                 | Sobel $z = 7.44, p < .001$ ; Partial mediation (42.3%)        | Significant partial mediation           | Supported |

All four hypotheses received empirical support, confirming theoretical predictions regarding mobile banking and fintech impacts on SME growth.

#### 4.8 Discussion of Findings

##### 4.8.1 Mobile Banking Impact on SME Growth

The finding that mobile banking adoption significantly predicts SME growth ( $\beta = .412, p < .001$ ) aligns with previous research in East African contexts (Jack & Suri, 2014; Mbiti & Weil, 2016) while extending evidence to West Africa. The 52.1% variance explanation when adding mobile banking to the model demonstrates substantial practical significance beyond statistical significance.

Mobile banking's strongest effect on operational efficiency ( $\beta = .441$ ) rather than market expansion ( $\beta = .312$ ) suggests primary benefits derive from internal process improvements, reduced transaction time, improved cash management, and lower administrative costs rather than external market opportunities. This pattern corroborates Donner and Tellez (2008) findings on mobile money's operational benefits for small enterprises.

The Nigerian context presents unique characteristics. Unlike Kenya's M-Pesa model dominated by a single platform, Nigeria's fragmented mobile banking landscape involves multiple bank-led and telco-led services. Despite this fragmentation, adoption rates (89.3% for basic services) approach those in more mature East African markets, suggesting rapid digital financial service diffusion in Nigeria's entrepreneurial ecosystem.

##### 4.8.2 Fintech Solutions and SME Performance

Fintech utilization's significant impact ( $\beta = .387, p < .001$ ) confirms that beyond basic mobile banking, advanced digital financial technologies contribute meaningfully to SME growth. The finding that fintech shows stronger effects on market expansion ( $\beta = .389$ ) than mobile banking ( $\beta = .312$ ) suggests these platforms facilitate customer acquisition and geographic reach through e-commerce integration and digital marketing capabilities.

However, low adoption rates for peer-to-peer lending (21.4%) and crowdfunding (12.8%) indicate untapped potential for alternative finance access. This contrasts with higher adoption in Asian markets (Gupta & Xia, 2018) and suggests regulatory, awareness, or trust barriers specific to Nigeria's context. The preference for transactional over financing fintech aligns

with Ozili (2018) observation that Nigerian fintech development remains concentrated in payments rather than credit markets.

Digital payment platforms' strong adoption (68.5%) reflects Nigeria's push toward cashless economy policies initiated by the Central Bank in 2012 (Odior & Banuso, 2012). The 15.2% additional variance explained by fintech beyond mobile banking confirms these solutions offer distinct rather than redundant benefits, supporting integrated digital finance strategies.

#### **4.8.3 Mediation Effect of Transaction Cost Reduction**

The finding that transaction costs mediate 42.3% of mobile banking's impact on profitability provides empirical support for theoretical mechanisms linking digital finance to enterprise performance. This extends Jack and Suri (2011) Kenyan findings on transaction cost reduction to the Nigerian SME context.

The partial rather than complete mediation indicates mobile banking affects profitability through multiple pathways beyond cost reduction, potentially including improved financial management, enhanced business relationships through reliable payments, and increased customer satisfaction through convenient payment options (Mas & Morawczynski, 2009).

Transaction cost reduction from 30% to approximately 10% of transaction value represents substantial savings for resource-constrained SMEs. These savings can be redirected toward productive investments, explaining observed revenue growth effects.

#### **4.8.4 Control Variables and Contextual Factors**

The persistent significance of firm size ( $\beta = .184$ ), firm age ( $\beta = .142$ ), and owner education ( $\beta = .115$ ) in the full model indicates digital financial services augment rather than substitute for traditional growth determinants. Larger, older firms with educated owners derive greater benefits from digital finance, suggesting complementarity between organizational capacity and technology adoption (Wade & Hulland, 2004).

This pattern raises equity concerns. If digital finance benefits accrue disproportionately to already-advantaged SMEs, digital divides may widen rather than narrow. The 65.4% non-adoption rate for mobile credit among respondents already using basic mobile banking suggests access barriers persist despite technological availability.

#### **4.8.5 Challenges and Barriers**

Poor connectivity ( $M = 4.23$ ) and unreliable electricity ( $M = 3.98$ ) are major barriers to digital finance, mirroring challenges across Africa (Asongu & Nwachukwu, 2018). These infrastructure issues reduce service reliability and discourage use. Security concerns ( $M = 4.08$ ), tied to Nigeria's high cybercrime rates (Longe et al., 2009), highlight the need for stronger consumer protections. High transaction costs ( $M = 4.12$ ) persist despite efficiency claims, likely due to limited competition or regulation. Digital literacy gaps ( $M = 3.87$ ) point to a need for educational solutions, supporting Demirgüç-Kunt (2018) view of financial literacy as vital for inclusion.

### **5. CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Summary of Findings**

This study examined the impact of mobile banking and fintech solutions on SME growth in Nigeria using quantitative data from 384 SME owners/managers. Key findings include:

1. Significant positive impact: Mobile banking adoption ( $\beta = .412$ ,  $p < .001$ ) and fintech utilization ( $\beta = .387$ ,  $p < .001$ ) significantly predict SME growth, jointly explaining 67.3% of variance.

2. Differential effects across dimensions: Mobile banking most strongly affects operational efficiency ( $\beta = .441$ ), while fintech solutions show greater impact on market expansion ( $\beta = .389$ ).
3. Mediation mechanism: Transaction cost reduction mediates 42.3% of mobile banking's effect on profitability, confirming cost efficiency as a key pathway.
4. High basic adoption, low advanced adoption: While 89.3% use basic mobile banking services, only 21.4% access peer-to-peer lending and 12.8% use crowdfunding platforms.
5. Infrastructure constraints: Poor connectivity, unreliable electricity, and high transaction costs constitute primary adoption barriers.

## 5.2 Conclusions

This study shows that mobile banking and fintech significantly boost SME growth in Nigeria, explaining 67.3% of variance. These digital tools serve as strategic resources, improving financial management, lowering costs, and expanding market reach. However, access is unequal due to infrastructure gaps, security risks, and limited digital literacy, especially for smaller firms. Realizing the full benefits of digital finance requires investments in infrastructure, regulation, and human capital. Low adoption of advanced fintech, like alternative financing, suggests untapped potential addressable by increasing trust, regulatory clarity, and awareness.

## 5.3 Theoretical Contributions

This study makes four key contributions to digital finance and SME growth. First, it shows that mobile banking enhances SME performance in West Africa, revealing region-specific patterns. Second, it measures SME growth through revenue, efficiency, and market expansion to highlight digital finance's diverse impacts. Third, reduced transaction costs explain how mobile banking benefits SMEs. Finally, mobile banking and fintech together foster SME development, suggesting that integrated digital financial tools are more effective for theory and policy.

## 5.4 Practical Implications

### 5.4.1 For SME Owners and Managers

SMEs can integrate mobile banking and fintech solutions into core business operations rather than keeping them as additional options. This approach may improve operational efficiency and productivity through broader use. Providing digital literacy training for owners and employees may support effective usage and further benefit the organization. Starting with basic transactional services allows businesses to gain experience before moving on to more complex financing platforms. Security measures such as strong passwords, transaction limits, and regular account monitoring can help reduce fraud risks.

### 5.4.2 For Financial Service Providers

Financial service providers should focus on developing tailored solutions that address the specific needs of SMEs, such as effective management of working capital, streamlined supplier payments, and efficient receivables collection. Providers can better support the day-to-day financial operations of SMEs by designing products and services that directly respond to these core business processes.

Implementing competitive pricing strategies that share efficiency gains with customers will help accelerate both the adoption and the intensity of usage of digital financial services

among SMEs. Passing on cost savings to customers can make these services more attractive and accessible, encouraging broader uptake across the sector.

It is important to simplify digital finance interfaces and processes to accommodate the varying levels of digital literacy found among SME operators. User-friendly platforms that are intuitive and straightforward will enable a wider range of businesses to interact confidently with digital financial tools.

Offering comprehensive training programmes, tutorials, and ongoing support is essential for building SME capacity to utilise digital finance effectively. Financial service providers can empower businesses to maximise the benefits of digital solutions by providing continuous education and assistance.

Transparent security protocols, robust insurance schemes, and responsive customer service should be prioritised to address security concerns and build greater confidence in digital financial services. These measures will help reassure SMEs about the safety and reliability of digital platforms, fostering trust and encouraging continued engagement.

#### **5.4.3 For Policymakers and Regulators**

To address the fundamental barriers to the adoption of digital financial services among SMEs, it is essential for policymakers and regulators to prioritise the expansion of broadband infrastructure and ensure reliable electricity supply in commercial areas. These measures will form the backbone of a supportive environment for digital transformation. Accelerating infrastructure development through public-private partnerships can further enhance access and drive progress in these critical areas.

Establishing clear and balanced regulatory frameworks is crucial for safeguarding consumer interests while simultaneously enabling fintech innovation. The implementation of regulatory sandboxes can provide secure spaces for the experimentation and development of new financial models, ensuring that innovation continues responsibly within the sector.

National campaigns aimed at improving digital financial literacy should be targeted towards SME operators, leveraging the networks of chambers of commerce, trade associations, and entrepreneurship development centres. Such initiatives will empower SME owners and employees to make informed decisions and maximise the benefits of digital finance.

Policymakers should also consider the introduction of tax incentives or subsidies for SMEs that adopt digital financial services, with particular focus on supporting businesses in underserved sectors and regions. These measures can help to reduce financial barriers and encourage wider uptake of digital solutions.

To enhance trust and security within the digital finance ecosystem, it is important to strengthen dispute resolution mechanisms, establish robust fraud prevention frameworks, and develop effective compensation schemes. These actions will help to protect SMEs against financial risks and foster greater confidence in new digital platforms.

Finally, the development of comprehensive credit reporting systems and digital identity infrastructure is necessary to enable fintech credit platforms to serve SMEs that are currently excluded from traditional banking channels. These systems can facilitate access to credit and broaden financial inclusion for small and medium-sized enterprises by providing reliable information and secure identification.

#### 5.4.4 For Development Organizations

Development organisations should prioritise the allocation of resources towards smaller and younger SMEs that typically have limited digital capacity. There is a greater likelihood of preventing an expanding digital divide and ensuring that all SMEs could participate in and benefit from digital financial advancements by focusing on these enterprises.

It is essential that the promotion of digital finance is carried out in tandem with the delivery of complementary interventions, such as business development services, mentorship programmes, and initiatives that enhance market access. This integrated approach will provide SMEs with the holistic support necessary to successfully adopt and utilise digital financial services.

Continuous support for research and monitoring activities is also crucial. Development organisations can generate valuable insights, ensure that programming remains adaptive and responsive to the evolving needs of SMEs by regularly tracking the impacts of digital finance.

Finally, development organisations should play an active role in facilitating partnerships among key stakeholders, including SMEs, fintech providers, traditional banks, and government agencies. Such collaborations are fundamental to building robust and supportive digital finance ecosystems, enabling sustainable growth and innovation within the SME sector.

#### REFERENCES

- Abor, J., & Quartey, P. (2010). Issues in SME development in Ghana and South Africa. *International Research Journal of Finance and Economics*, 39(6), 215-228. [https://www.researchgate.net/profile/Peter-Quartey/publication/270758190\\_Issues\\_in\\_SME\\_Development\\_in\\_Ghana\\_and\\_South\\_Africa/links/54b3de6b0cf28ebe92e432e8/Issues-in-SME-Development-in-Ghana-and-South-Africa.pdf](https://www.researchgate.net/profile/Peter-Quartey/publication/270758190_Issues_in_SME_Development_in_Ghana_and_South_Africa/links/54b3de6b0cf28ebe92e432e8/Issues-in-SME-Development-in-Ghana-and-South-Africa.pdf)
- Achtenhagen, L., Naldi, L., & Melin, L. (2010). "Business growth"—Do practitioners and scholars really talk about the same thing? *Entrepreneurship Theory and Practice*, 34(2), 289-316. <https://doi.org/10.1111/j.1540-6520.2010.00376.x>
- Adeniran, T. V., & Johnston, K. A. (2012). Investigating the dynamic capabilities and competitive advantage of South African SMEs. *African Journal of Business Management*, 6(11), 4088-4099. <https://doi.org/DOI:10.5897/AJBM11.1673>
- Adisa, T. A., Abdulraheem, I., & Mordi, C. (2014). The characteristics and challenges of small businesses in Africa: An exploratory study of Nigerian small business owners. *Economic Insights-Trends and Challenges*, 3(4). [https://www.researchgate.net/profile/Toyin-Adisa/publication/271530384\\_The\\_characteristics\\_and\\_challenges\\_of\\_small\\_businesses\\_in\\_Africa\\_An\\_exploratory\\_study\\_of\\_Nigerian\\_small\\_business\\_owners/links/54cf33fc0cf24601c09309b3/The-characteristics-and-challenges-of-small-businesses-in-Africa-An-exploratory-study-of-Nigerian-small-business-owners.pdf](https://www.researchgate.net/profile/Toyin-Adisa/publication/271530384_The_characteristics_and_challenges_of_small_businesses_in_Africa_An_exploratory_study_of_Nigerian_small_business_owners/links/54cf33fc0cf24601c09309b3/The-characteristics-and-challenges-of-small-businesses-in-Africa-An-exploratory-study-of-Nigerian-small-business-owners.pdf)
- Aker, J. C., Boumnijel, R., McClelland, A., & Tierney, N. (2016). Payment mechanisms and antipoverty programs: Evidence from a mobile money cash transfer experiment in Niger. *Economic Development and Cultural Change*, 65(1), 1-37. <https://www.journals.uchicago.edu/doi/abs/10.1086/687578>

- Aker, J. C., & Mbiti, I. M. (2010). Mobile phones and economic development in Africa. *Journal of Economic Perspectives*, 24(3), 207-232. <https://doi.org/10.1257/jep.24.3.207>
- Arner, D. W., Barberis, J., & Buckley, R. P. (2015). The evolution of Fintech: A new post-crisis paradigm. *Georgetown Journal of International Law*, 47(4), 1271-1319. <https://heinonline.org/HOL/LandingPage?handle=hein.journals/geojintl47&div=41&id=&page=>
- Asongu, S. A., & Nwachukwu, J. C. (2018). *Recent finance advances in information technology for inclusive development: A survey*.
- Ayyagari, M., Beck, T., & Demirgüç-Kunt, A. (2007). Small and medium enterprises across the globe. *Small Business Economics*, 29(4), 415-434.
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of management*, 17(1), 99-120. <https://doi.org/10.1177/01492063910170010>
- Beck, T., & Demirguc-Kunt, A. . (2006). Small and medium-size enterprises: Access to finance as a growth constraint. *Journal of Banking & Finance*, 30(11), 2931-2943. <https://doi.org/10.1016/j.jbankfin.2006.05.009>
- Beck, T., Demirgüç-Kunt, A., & Maksimovic, V. (2005). Financial and Legal Constraints to Growth: Does Firm Size Matter? *The Journal of Finance*, 60(1), 137-177. <https://doi.org/10.1111/j.1540-6261.2005.00727.x>
- Beck, T., Demirgüç-Kunt, A., & Maksimovic, V. (2008). Financing patterns around the world: Are small firms different? *Journal of Financial Economics*, 89(3), 467-487. <https://doi.org/10.1016/j.jfineco.2007.10.005>
- Berger, A. N., & Udell, G. F. (2006). A more complete conceptual framework for SME finance. *Journal of Banking & Finance*, 30(11), 2945-2966. <https://doi.org/10.1016/j.jbankfin.2006.05.008>
- Chen, M. A., Wu, Q., & Yang, B. (2019). How valuable is FinTech innovation? *The Review of Financial Studies*, 32(5), 2062-2106. <https://doi.org/10.1093/rfs/hhy130>
- Creswell, J. W. (2014). *Research design: Qualitative, quantitative, and mixed methods approaches* (Fourth ed.). Sage Publications.
- Davidsson, P., Achtenhagen, L., & Naldi, L. (2010). Small firm growth. *Foundations and Trends in Entrepreneurship*, 6(2), 69-166. <https://doi.org/10.1561/03000000029>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319-340. <https://doi.org/10.2307/249008>
- Delmar, F., Davidsson, P., & Gartner, W. B. (2003). Arriving at the high-growth firm. *Journal of Business Venturing*, 18(2), 189-216. <https://www.sciencedirect.com/science/article/abs/pii/S0883902602000800>
- Demirgüç-Kunt, A., & Klapper, L. (2013). Measuring financial inclusion: Explaining variation in use of financial services across and within countries. *Brookings Papers on Economic Activity*, 1, 279-340. <https://doi.org/10.1353/eca.2013.0002>
- Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. (2018). *The Global Findex Database 2017: Measuring financial inclusion and the fintech revolution*. World Bank Publications. [https://books.google.co.uk/books?id=LYxaDwAAQBAJ&dq=Demirg%C3%BC%C3%A7-Kunt,+A.,+Klapper,+L.,+Singer,+D.,+Ansar,+S.,+%26+Hess,+J.+\(2018\).+The+Global+Findex+Database+2017:+Measuring+financial+inclusion+and+the+fintech+revolution.+World+Bank+Publications.&lr=&source=gbp\\_navlinks\\_s](https://books.google.co.uk/books?id=LYxaDwAAQBAJ&dq=Demirg%C3%BC%C3%A7-Kunt,+A.,+Klapper,+L.,+Singer,+D.,+Ansar,+S.,+%26+Hess,+J.+(2018).+The+Global+Findex+Database+2017:+Measuring+financial+inclusion+and+the+fintech+revolution.+World+Bank+Publications.&lr=&source=gbp_navlinks_s)

- Demirgüç-Kunt, A., Klapper, L., Singer, D., Ansar, S., & Hess, J. . (2018). *The global finindex database 2017: Measuring financial inclusion and the fintech revolution*. World Bank Publications.
- Demombynes, G., & Thegeya, A. (2012). *Kenya's mobile revolution and the promise of mobile savings*.[https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2017401](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2017401)
- Donner, J., & Tellez, C. A. (2008). Mobile banking and economic development: Linking adoption, impact, and use. *Asian Journal of Communication*, 18(4), 318-332. <https://doi.org/10.1080/01292980802344190>
- Donovan, K. (2012). Mobile money for financial inclusion. In *Information and Communications for Development* (Vol. 61, pp. 61-73). [https://www.academia.edu/2494283/Mobile\\_Money\\_and\\_Financial\\_Inclusion\\_Growth\\_Impact\\_and\\_Emerging\\_Issues](https://www.academia.edu/2494283/Mobile_Money_and_Financial_Inclusion_Growth_Impact_and_Emerging_Issues)
- Frost, J., Gambacorta, L., Huang, Y., Shin, H. S., & Zbinden, P. (2019). BigTech and the changing structure of financial intermediation. *Economic Policy*, 34(100), 761-799. <https://doi.org/10.1093/epolic/eiaa003>
- Gomber, P., Koch, J. A., & Siering, M. (2017). Digital Finance and FinTech: Current research and future research directions. *Journal of Business Economics*, 87(5), 537-580. <https://link.springer.com/article/10.1007/s11573-017-0852-x>
- Gupta, S., & Xia, C. (2018). FinTech and household finance: A review of the empirical literature. *China Finance Review International*, 10(4), 361-376. <https://doi.org/10.1108/CFRI-03-2020-0024>
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (Seventh ed.). Prentice Hall.
- Iyer, R., Khwaja, A. I., Luttmer, E. F., & Shue, K. (2016). Screening peers softly: Inferring the quality of small borrowers. *Management Science*, 62(2), 1533-1841. <https://doi.org/10.1287/mnsc.2015.2181>
- Jack, W., & Suri, T. (2011). *Mobile money: The economics of M-PESA*.<https://www.nber.org/papers/w16721>
- Jack, W., & Suri, T. (2014). Risk sharing and transactions costs: Evidence from Kenya's mobile money revolution. *American Economic Review*, 104(1), 183-223. <https://www.aeaweb.org/articles?id=10.1257/aer.104.1.183>
- Jagtiani, J., & Lemieux, C. (2019). The roles of alternative data and machine learning in fintech lending: Evidence from the LendingClub consumer platform. *Financial Management*, 48(4), 1009-1029. <https://doi.org/10.1111/fima.12295>
- Kikulwe, E. M., Fischer, E., & Qaim, M. (2014). Mobile money, smallholder farmers, and household welfare in Kenya. *Plos one*, 9(10). <https://doi.org/10.1371/journal.pone.0109804>
- Longe, O., Ngwa, O., Wada, F., Mbarika, V., & Kvasny, L. (2009). Criminal uses of information and communication technologies in sub-Saharan Africa: Trends, concerns and perspectives. *Journal of Information Technology Impact*, 9(3), 155-172. [https://www.researchgate.net/profile/Olumide-Longe/publication/294461326\\_Cyber\\_crime\\_and\\_criminality\\_in\\_Nigeria\\_-\\_What\\_roles\\_are\\_internet\\_access\\_points\\_in\\_playing/links/5f3d2ed6458515b7292cba6d/Cyber-crime-and-criminality-in-Nigeria-What-roles-are-internet-access-points-in-playing.pdf](https://www.researchgate.net/profile/Olumide-Longe/publication/294461326_Cyber_crime_and_criminality_in_Nigeria_-_What_roles_are_internet_access_points_in_playing/links/5f3d2ed6458515b7292cba6d/Cyber-crime-and-criminality-in-Nigeria-What-roles-are-internet-access-points-in-playing.pdf)
- Mas, I., & Morawczynski, O. (2009). Designing mobile money services lessons from M-PESA. *Innovations: Technology, Governance, Globalization*, 4(2), 77-91. [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1552753](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1552753)
- Mbiti, I., & Weil, D. N. (2016). Mobile banking: The impact of M-Pesa in Kenya. In *African Successes, Volume III: Modernization and*

- Development* (Vol. 3, pp. 247 – 293). University of Chicago Press.  
<https://www.nber.org/system/files/chapters/c13367/c13367.pdf>
- Muiruri, J. K., & Ngari, J. M. (2014). Effects of financial literacy on the performance of small and medium enterprises in Kenya. *International Journal Of Innovative Research & Development*, 11(4), 19-34.  
<https://doi.org/10.24940/ijird/2022/v11/i4/APR22012>
- Murendo, C., Wollni, M., De Brauw, A., & Mugabi, N. (2018). Social network effects on mobile money adoption in Uganda. *The Journal of Development Studies*, 54(2), 327-342. <https://doi.org/10.1080/00220388.2017.1296569>
- Nigerian Communications Commission. (2020). *Industry statistics: Subscriber data*. <https://www.ncc.gov.ng/statistics-reports>
- Odior, E. S., & Banuso, F. B. (2012). Cashless banking in Nigeria: Challenges, benefits and policy implications. *European Scientific Journal*, 8(12), 266 – 292.  
<https://ir.unilag.edu.ng/handle/123456789/8164>
- Ogunlana, F. (2019). Factors influencing fintech adoption in Nigeria. *International Journal of Business and Management*, 14(1), 84-92.
- Osano, H. M., & Languitane, H. (2016). Factors influencing access to finance by SMEs in Mozambique: Case of SMEs in Maputo central business district. *Journal of Innovation and Entrepreneurship*, 5(1), 5-16.  
<https://link.springer.com/article/10.1186/s13731-016-0041-0>
- Ouma, S. A., Odongo, T. M., & Were, M. (2017). Mobile financial services and financial inclusion: Is it a boon for savings mobilization? *Review of Development Finance*, 7(1), 29-35. <https://journals.co.za/doi/abs/10.1016/j.rdf.2017.01.001>
- Ozili, P. K. (2018). Impact of digital finance on financial inclusion and stability. *Borsa Istanbul Review*, 18(4), 329-340. <https://doi.org/10.1016/j.bir.2017.12.003>
- Penrose, E. T. (2009). *The theory of the growth of the firm*. John Wiley & Sons.
- Rogers, E. M. (2003). *Diffusion of innovations* (Fifth ed.). Free Press.
- Shaikh, A. A., & Karjaluto, H. (2015). Mobile banking adoption: A literature review. *Telematics and Informatics*, 32(1), 129-142. <https://doi.org/10.1016/j.tele.2014.05.003>
- SMEDAN. (2013). SMEDAN and National Bureau of Statistics collaborative survey: Selected findings. *Small and Medium Enterprises Development Agency of Nigeria*.
- SMEDAN. (2017). *National survey of micro, small and medium enterprises (MSMEs)* (Small and Medium Enterprises Development Agency of Nigeria., Issue.
- Storey, D. J. (1994). *Understanding the small business sector*. (First ed.). Routledge.  
<https://doi.org/10.4324/9781315544335>
- Suri, T., & Jack, W. (2016). The long-run poverty and gender impacts of mobile money., 354(6317), 1288-1292. <https://doi.org/10.1126/science.aah5309>
- Tobbin, P. (2012). Towards a model of adoption in mobile banking by the unbanked: A qualitative study. *Digital Policy, Regulation and Governance*, 14(5), 74-88.  
<https://doi.org/10.1108/14636691211256313>
- Tornatzky, L. G., & Fleischer, M. (1990). *The processes of technological innovation*. Lexington Books.
- Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of technology. *MIS Quarterly*, 36(1), 157-178. <https://doi.org/10.2307/41410412>
- Wade, M., & Hulland, J. (2004). The resource-based view and information systems research: Review, extension, and suggestions for future research. *MIS Quarterly*, 28(1), 107-142. <https://doi.org/10.2307/25148626>
- Yamane, T. (1967). *Statistics: An introductory analysis* (Second ed.). Harper and Row and John Weatherhill, INC. file:///C:/Users/stanf/Downloads/252560191.pdf

Zavolokina, L., Dolata, M., & Schwabe, G. (2016). The FinTech phenomenon: Antecedents of financial innovation perceived by the popular press. *Financial Innovation*, 2, 1-16.  
<https://link.springer.com/article/10.1186/s40854-016-0036-7>