

## TRADITIONAL LENDING IN NIGERIAN FINANCIAL SYSTEM AND THE EMERGENCE OF FINTECH

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### Abstract

*This study explores the evolving relationship between FinTechs and traditional banks in Nigeria, focusing on their impact on customer acquisition and lending volume. Using survey data and econometric analysis (Pool Ordinary Least Squares) regression, the study examines the influence of innovation, bank size, and bank model on customer acquisition and lending volume. Following the estimation of the models, the study finds that innovation attracts customers for both FinTechs and traditional banks. Moreover, FinTechs have a significant advantage in acquiring new customers due to perceived accessibility and convenience, while larger banks maintain dominance in average consumer lending per year. The relationship between FinTechs and banks is complex, exhibiting both complementary and substitution effects. In view of the above, the study recommends the need for continued innovation while ensuring consumer protection and financial stability. Other recommendations include creating a level playing field for all financial institutions, leveraging unique strengths, and effectively targeting specific customer segments. Additionally, further research on nuanced dynamics and long-term effects is suggested.*

**Keywords:** *FinTech, Traditional Banks, Customer Acquisition, Innovation, Market, Lending, Market Segmentation.*

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### 1. INTRODUCTION

Financial systems the world over have been through different changes. These changes are driven by technological advancements, reforms, and social media connectivity, transforming the fundamentals of how financial products and services are delivered. One of the most notable

changes in the sector across the globe in recent years is the entry of financial technology (fintech) firms and giant technology (bigtech) into the provision of credit and other financial services (Xie et al, 2018). As a concept, FinTech is seen as technology-enabled innovation in the provision of financial services (Financial Stability Board, 2017) and its emergence is driven by both supply side (technological developments) and demand side (changes in consumer expectations of service) factors (Carstens, 2018 and FSB, 2019). On the supply side, factors such as cloud computing, internet application programming interfaces (APIs), smartphones, blockchain technology, and digital currencies are among the key determinants (Carstens, 2018 and FSB, 2019). On the demand side, increasing customer expectations and unmet demand have led to increasing adoption of fintech financial services across the globe.

The entrance of FinTech and BigTech in credit lending among other financial services in developed society is widespread. For instance, in China, Alibaba Group (Ant Financial) and Tencent have continued to provide a broad range of financial services, including credit lending (Xie et al, 2018). In other Asian, Latin American, European, and African countries, evidence abounds that FinTech companies are active in financial service provision. Examples of such companies include Vodafone M-Pesa; Mercado Libre; Kakao Bank, KBank, and Samsung Pay in Korea, Line and NTT Docomo in Japan, Go-Jek and Grab in Indonesia, Malaysia, Singapore. In France and the USA, bigtech companies such as Orange, Amazon, Facebook, Apple, and Google have also broadened their activities to include credit provision and other financial services (Zetzsche et al., 2017).

Compared with developed countries, fintech has kept on moving forward at a high speed in Nigeria. This is evidenced by the rapidly growing base of FinTech companies that offer instant and unsecured loans in Nigeria. These companies as reported in the Nigeria Fintech Survey (2020) include Carbon, Aella Credit, Fairmoney, and Branch. These companies leverage payments data to create unique credit scoring models to enable credit lending and gained a significant share in credit lending and they account for about 23% of the flow of personal unsecured loans in Nigeria, particularly during the Covid-19 Pandemic (Adrian & Mancini-Griffoli, 2019; National Bureau of Statistics, 2020 and World Bank, 2021). The World Bank (2021) has estimated that Nigerian FinTech revenues will surpass \$543million by 2022.

Just as with the trend globally, growth in fintech companies in Nigeria has been attributed to advancement in technology, increasing smartphone penetration and large number of unbanked populations. In corroborating this view, Innovative Finance (2020) argued that poor customers

experience on traditional products/services and collateral requirements are driving factors for FinTech adoption especially among younger digital savvy demographics in Nigeria. The continuous growth of fintech lending in the country is expected to have several implications on traditional lending as it competes with banks' relationship lending (Kowalewski & Pisanyd, 2022). However, no empirical studies have investigated how fintech lending impacts on traditional lending in Nigeria. Therefore, this paper seeks to close this gap by providing empirical evidence on the impact of increased fintech lending on traditional lending in the Nigerian context. This paper seeks to provide answer to the central question, how has fintech lending impacted on traditional banks' consumer lending in Nigeria?

## **2. REVIEW OF RELEVANT LITERATURE**

Fintechs, as technology-enabled entities, are reshaping the landscape of financial services, traditionally dominated by traditional banks. Fintechs' credit lending, exemplified by companies like Carbon and Fairmoney, introduces a departure from traditional deposit money banks (DMBs). The relationship between Fintech firms and traditional financial institutions (FIs) sparks debates regarding complementarity or competition (Jagtiani & Lambie-Hanson, 2021). While some argue for complementarity, citing Fintechs' focus on underserved borrowers and smaller loans (a strategy known as "bottom fishing"), others highlight the competitive edge of Fintechs, offering lower interest rates and fees (IMF, 2022). For instance, some argue that FinTechs complement FIs by targeting underserved borrowers and offering smaller loans, a strategy known as "bottom fishing" (Jagtiani and Lemieux, 2018; Beaumont et al., 2022). This can help to expand access to credit and financial services (de Roure et al., 2021). Additionally, FinTechs can partner with FIs to offer new and innovative products and services (Thakor, 2020).

However, FinTechs can also compete with FIs. For example, FinTechs can offer lower interest rates and fees than traditional banks, putting downward pressure on the profitability of FIs (IMF, 2022). Additionally, FinTechs can disrupt traditional business models, forcing FIs to adapt or risk losing market share (Navaretti et al., 2018). Overall, the relationship between FinTech and FIs is complex and multifaceted. Both complementarity and substitution can occur, depending on the specific context (Tang, 2019).

The theoretical underpinning of financial innovation, including Fintech, traces back to Joseph Schumpeter's Theory of Innovation (1942), emphasizing innovation as a catalyst for business expansion. This theory highlights various forms of innovation, from new products to

organizational structures, correlating increased innovation with stronger financial service penetration and system growth (Dabic et al., 2011). Theory posits that innovation in business is the major reason for increased investments and business expansion. In this regard, the author distinguished the following groups of innovations: new products, new methods of production, opening new markets, new sources of supply of raw materials, new organization forms and business structures and new methods of management (Dabic et al, 2011). In sum, the theory postulates that the more innovative a financial system, the stronger the penetration of financial services, and the faster the growth and development of the system.

In capital structure optimization, theories such as the Trade-Off Theory (Modigliani and Miller, 1958) propose that firms balance tax benefits against the risks of financial distress to achieve an optimal capital structure. This optimization revolves around minimizing the Weighted Average Cost of Capital (WACC) through rational assessment of the benefits and costs associated with debt financing. Empirical studies support the disruptive effects of Fintech and BigTech innovations on financial systems. The first empirical effort considered in this research is *Bhunja (2011)* who examined the impact of ICT on the growth of the Indian Stock Exchange. Stock data were obtained from Bombay Stock Exchange (BSE) and National Stock Exchange (NSE), the Multi Commodity Exchange (MCX) of India Limited, Securities and Exchange Commission and websites of World Development Indicators. The study utilises a modified version of the Gompertz technology diffusion model introduced by Chow (1983). The results disclose that growth in market capitalization is influenced by internet access, telephone, mobile and access to the websites of stockbrokers. Growth in the total value of shares traded is significantly affected by telephones. Growth in the volume of shares traded is related to mobile telephony.

Similarly, Wellen & Dijk (2018) evaluated how M-Pesa, a mobile payment technology has aided inclusive finance in Kenya. In particular, the study explored how the technology has dealt with customer care. The study employs descriptive tools to analyse data obtained. The study found that though M-Pesa helped people to become financially included, the low-income customers were not given adequate attention. The study recommends that more attention should be given low-end customers to understand their background and peculiar need.

Muthinja & Chipeta (2018) examined firm- and macro-level drivers of financial innovations in Kenya's commercial banks. The study focused on branchless banking innovations, namely: mobile banking, agency banking, internet banking and automated teller machines. A 10-year panel data from 42 out of 43 commercial banks in Kenya covering the years 2004-2013 were

obtained. The data were analysed using the Koyck distributed lag models. The models were estimated based on the dynamic panel estimation with System Generalized Method of Moments. Following the estimation, the study found branchless banking at the firm level, is driven by firm size, transaction cost, agency costs, technological developments. At the macro level, the key drivers of branchless banking were regulation, technological developments and incompleteness in financial markets and globalization.

Chenac, You & Chang (2021) investigated how FinTech products (FTPs) have impacted on commercial bank's performance in China. The study relied solely on primary data collected with a quantitative approach. The gathered data were examined using the structural equation modeling technique. The results of the study indicate that customers' perceptions regarding the usefulness of FTPs have positive and significant impacts on customer satisfaction, bank's service quality, low expectation of bank employee assistance, and employee work efficiency. In contrast, negative perceptions of FTPs have negative and significant impacts on customer satisfaction and low expectation of assistance.

In a more related study, Zhaoa, Li, Yu, Chen, & Lee (2022) examined how financial technology innovation has impacted on Chinese banks' performance. The study employed both patent data and FinTech development index on a cross section of banks in China. A generalized method of moments (GMM) model was employed to address issue of endogeneity. Following the estimation of the model, the study found that FinTech innovation reduces profitability and asset quality of Chinese banks and this negative impact is more severe in for large state-owned commercial banks. However, the practice tends to improve capital adequacy/management efficiency of banks in the country. The study recommended the need for commercial banks to focus more on the rising capabilities of FinTech technology, process reengineering and innovation by actively cooperating with FinTech companies. Other studies with similar findings include Zhaoa, Li, Yu, Chen, & Lee (2022), Kowalewski & Pisanyd (2022), Adejola (2011), Dandago & Farouk (2012), and Hassan (2013).

From the above review, it can be noted that research on the impact of innovative practices in consumer lending markets, particularly in Nigeria, remains limited. This study bridges this gap by triangulating primary and secondary data to evaluate how Fintech affects traditional banking practices in Nigeria, particularly its impact on lending by Deposit Money Banks (DMBs). The findings aim to guide policymakers, regulators, and commercial banks in enhancing collaboration between technology-based lending firms and traditional banks.

### **3. METHODOLOGY**

This study draws upon two well-established theories to understand the disruptive impact of FinTech and BigTech innovations on financial systems:

1. **Schumpeter's Theory of Innovation:** This theory emphasizes the dynamic nature of competition, where established firms face challenges from innovative newcomers.
2. **Trade-Off Theory:** This theory posits that firms face trade-offs in resource allocation, balancing investments in new technologies with maintaining core competencies.

These theories provide a lens through which to analyze the interplay between FinTech and DMBs in consumer lending within the Nigerian context.

This study employs a **mixed-methods research design** to gain a comprehensive understanding of the research question.

- i. **Quantitative Analysis:** This component investigates the relationship between FinTech and DMB consumer lending activity through a balanced panel data analysis. It utilizes secondary data from the Central Bank of Nigeria and annual financial reports of five FinTech firms and five commercial banks covering the period 2010-2021. The analysis employs two dependent variables: number of active customers/accounts (firm growth) and total consumer lending. Independent variables include financial innovation practices (measured by ICT investment), firm size, and bank model (FinTech vs. traditional DMB). The study utilizes two models to address potential endogeneity concerns. Pooled ordinary least squares (POLS) regression was used to analyze data from multiple groups.
- ii. **Qualitative Analysis:** This component explores the perceptions and experiences of key stakeholders through a field survey targeting top management of the sampled firms and borrowers. A structured questionnaire gathers data from 45 participants, providing insights into the economic forces driving lending trends and potential strategies for improved FinTech-DMB collaboration.

**The models** are specified explicitly as follow:

$$CB_{i,t} = \beta_0 + \beta_1 Inn_{i,t} + \beta_2 FSize_{i,t} + \beta_3 BM_{i,t} + \mu \dots \dots (1)$$

$$CL_{i,t} = \beta_0 + \beta_1 Inn_{i,t} + \beta_2 FSize_{i,t} + \beta_3 BM_{i,t} + \mu \dots \dots (3)$$

Where:

- CB = number of active customers
- CL = Average consumer lending
- FSIZE = Bank size measured using total assets
- BM = Bank model (whether fintech (Carbon, Branch, Fairmony, Opay, and Palmpay) or traditional DMB (Access, Zenith, GTB, First Bank, and UBA)). This is measured using dummy variable (1 assigns if fintech, 0 if traditional DMB).
- $\mu$  = Stochastic random term
- i = firm i (Access, Carbon, Branch, Fairmony and so on)
- t = time t (2019, 2020 and 2021)

Descriptive statistics will summarize key features of the panel data. Econometric analysis will utilize 2SLS regressions to control for endogeneity, while Thematic analysis will identify recurring themes and patterns within the interview responses. Software like NVivo was used to facilitate analysis. The mixed-methods approach allows for triangulation of findings, enhancing the overall understanding of the research question. Quantitative analysis provides robust statistical evidence for generalizable patterns, while qualitative insights enrich the understanding of specific mechanisms and stakeholder perspectives.

#### 4. RESULTS AND DISCUSSION

In this section, we present the empirical findings derived from descriptive statistics and econometrics techniques (POLS regression).

##### 4.1 Participant Demographics and Survey Findings

This study explores the preferences and usage patterns of financial technology (FinTech) and traditional deposit money banks (DMBs) in Nigeria. Data was collected through a survey of 39 individuals, including policymakers and academics. The findings reveal a notable gender disparity in financial service usage, with males constituting 67% of respondents. The majority of respondents (69.2%) expressed a preference for conventional financial services, primarily due to data protection concerns surrounding FinTech transactions. Survey results indicate a shift towards FinTechs for lending purposes, with a significant portion of respondents having used them multiple times. This trend contrasts with DMB usage, where many respondents

reported never using them or using them only once. The increased accessibility and convenience offered by FinTech mobile applications are seen as potential drivers of this shift. DMBs are perceived to target employees of corporate organizations due to their typically stricter lending criteria, while FinTechs cater to self-employed individuals.

The descriptive analysis further illuminates distinct market segments targeted by Deposit Money Banks (DMBs) and FinTechs, as well as the key factors influencing customer loan choices. In terms of Market Segmentation, the study reveals that DMBs primarily serve corporate and government organizations owing to their robust financial capacity and perceived reliability. This trend corresponds with the stricter lending criteria and larger loan demands typical of these clients. Conversely, FinTechs cater to self-employed individuals and small business owners by offering less stringent criteria and leveraging alternative data for assessment.

The key Differentiating Factors include:

- i. Accessibility: FinTechs' online and mobile apps provide broader reach compared to physical DMB branches.
- ii. Speed: Automated processes in FinTechs facilitate faster loan applications and approvals.
- iii. Flexibility: FinTechs often offer adjustable repayment plans for borrowers.
- iv. Drivers of Lending Demand for DMBs include competitive interest rates. However, complex application processes and requirements act as deterrents, reducing the demand for their services.

On the other hand, FinTechs are driven by:

- i. Faster loan processing times due to technology adoption.
- ii. High unemployment rates creating demand for business startups and covering living expenses.
- iii. Poverty necessitating loans for basic needs and income generation.

## **4.2 Analysis of the Estimated POLS Models:**

### **4.2.1 Fintech and Traditional Bank Lending (number of active customers (CB) as the dependent variable)**

$$CB = 4.144372 + 0.317187 INN + 0.026245 FSize + 0.057560 BM$$



This model examines the factors influencing the number of active customers (CB) for both traditional banks and FinTechs in Nigeria, focusing on innovation, bank size, and bank model. As shown in the model, Investment in ICT (INN) is positively and significantly associated with CB ( $p < 0.05$ ). This aligns with extant literature highlighting the role of technology adoption in enhancing accessibility and convenience, attracting customers to both FinTechs and traditional banks. Bank size (FSize) has a positive but insignificant relationship with CB ( $p > 0.05$ ). This finding contradicts some studies suggesting larger banks attract more customers. Further investigation into banks and market dynamics might be needed. The study also found that being a FinTech (BM=1) compared to a traditional DMB (BM=0) is associated with a positive and significant increase in CB ( $p < 0.05$ ). This indicates that, in this context, FinTechs have a comparative advantage in attracting customers, potentially due to their perceived accessibility, speed, and innovative offerings. The FinTech advantage finds support in research on disruptive innovation and changing consumer preferences for personalized and convenient financial services (Jagtiani and Lemieux, 2018; Beaumont et al., 2022).

Overall, the model provides valuable insights into the Nigerian financial landscape. It showed that 65.08% of the variations in CB are primarily driven by INN, BM among other variables.

#### 4.2.2 Fintech and Traditional Bank Lending (Average consumer lending per annum (CL)) as the dependent variable)

$$CL = 8.834533 + 0.682793 \text{ INN} + 1.641885 \text{ FSize} + 0.123938 \text{ BM}$$

This model explores the determinants of **average consumer lending per annum (CL)** for both FinTechs and traditional banks in Nigeria, focusing on **innovation (INN)**, **bank size (FSize)**, and **bank model (BM)**. Key findings from the model estimation show that:

- i. **Innovation (INN):** Investment in ICT has a **positive but statistically insignificant** impact on CL ( $p > 0.05$ ). This contradicts some studies highlighting the role of technology in boosting lending activity. Further investigation into the type and effectiveness of innovation adopted by FinTechs and traditional banks might be needed.
- ii. **Bank Size (FSize):** Larger banks (measured by total assets) show a **positive and statistically significant** association with CL ( $p < 0.05$ ). This aligns with traditional banking literature emphasizing economies of scale and potentially higher lending capacity.

- iii. **Bank Model (BM):** Being a FinTech (BM=1) compared to a traditional DMB (BM=0) is associated with a **positive and statistically significant** increase in CL ( $p < 0.05$ ). This finding contrasts with the previous model (focusing on customer acquisition) and requires further examination.

Over 70% of the variations in customer lending (CL) are explained by the identified measures, as shown by the model. A comparison of the two models reveals contrasting effects of innovation:

- **Model 1:** Positive and significant link between innovation and customer acquisition (CB), suggesting innovation attracts customers.
- **Model 2:** Positive but insignificant impact of innovation on CL, indicating it doesn't directly translate to higher lending volume.

This implies that while innovation attracts customers, it may not directly lead to higher lending volume. More research is needed to understand this connection across different innovation types and loan segments.

Interestingly, both models show the same effect for FinTechs (BM=1) compared to traditional banks (DMB, BM=0):

- **Model 1:** FinTechs have a significant advantage in attracting customers.
- **Model 2:** FinTechs exhibit a positive and significant association with higher average lending.

This analysis validates the complex and evolving relationship between FinTechs and traditional banks in Nigeria, showcasing potential complementary and substitution effects:

**Model 1:** Innovation and being a FinTech are linked to more active customers (CB). This suggests FinTechs, through their innovation and accessibility, attract customers not traditionally reached by banks. This indicates a complementary effect where both cater to different market segments. Descriptive analysis and findings on bank size support this idea: DMBs focus on larger, corporate clients with stricter criteria, while FinTechs cater to smaller businesses and individuals with more flexibility. This segmentation further demonstrates a complementary relationship serving different needs and risk profiles.

**Model 2:** While FinTechs have more customers, there's no significant difference in average consumer lending per year (CL) compared to banks. This might indicate some substitution, where FinTechs attract more customers with smaller loan sizes, perhaps due to segment focus or specific needs like basic living expenses.

**Other Findings:**

- Both FinTechs and traditional banks benefit from innovation to attract customers.
- FinTechs seem to attract a wider range of customers due to perceived accessibility and convenience.
- DMBs maintain their strength in larger loan segments due to economies of scale and risk management.
- Further investigation is needed to understand the overall impact on lending volume considering potential differences in loan size distribution and market segmentation.

**5. CONCLUSION AND POLICY RECOMMENDATIONS**

Based on the findings presented in this study, we can draw the following conclusions:

- Innovation plays a crucial role in customer acquisition for both FinTechs and traditional banks. However, its impact on actual lending volume remains unclear, requiring further investigation into different innovation types and loan segments.
- FinTechs hold a significant advantage in attracting new customers compared to traditional banks. This advantage likely stems from their perceived accessibility, speed, and innovative offerings.
- Larger banks remain dominant in terms of average consumer lending per annum. This aligns with traditional banking principles of economies of scale and potentially higher lending capacity.
- The relationship between FinTechs and traditional banks appears to be complex and multifaceted. They exhibit both complementary and substitution effects, catering to different market segments and customer needs.

In view of the above, the following policy recommendations are suggested:

- i. Policymakers should encourage continued innovation in the financial sector to enhance financial inclusion and customer satisfaction. This can involve supporting research and

- development initiatives, fostering an environment conducive to digital transformation, and promoting responsible innovation practices.
- ii. Regulators should create a level playing field for both FinTechs and traditional banks while ensuring consumer protection and financial stability. This can involve adopting technology-neutral regulations, streamlining application processes, and implementing robust safeguards against financial risks.
  - iii. Financial institutions, both FinTechs and traditional banks, should leverage their unique strengths and target specific customer segments effectively. This includes tailoring product offerings, utilizing appropriate marketing strategies, and investing in customer education and awareness.
  - iv. Further research is needed to understand the nuanced dynamics of the financial landscape in Nigeria, particularly regarding the impact of different innovation types, the evolution of market segmentation, and the long-term effects of FinTech disruption. This can inform future policy decisions and ensure the sustainable development of a diverse and inclusive financial system.

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