



DIGITAL BANKING APPLICATIONS AND DEPOSIT MOBILIZATION OF BANKS IN NIGERIA

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ABSTRACT

This study used time series data from 2009 to 2023 to examine the effects of digitalization and bank deposit mobilization in Nigeria. Data on specific variables, including aggregate demand deposits (a dependent variable), ATM value, online banking transactions, point of sale, and mobile banking (an independent variable), were compiled from the CBN Bulletin. The collected data was analyzed using E Views version 9. Only ATMs have a major impact on aggregate demand deposits, according to empirical research. However, Nigerian banks' deposit mobilization is not significantly impacted by mobile banking, internet banking, or point of sale. We consequently draw the conclusion that digitization significantly affects banks' deposit mobilization based on this data. According to the report, banks should look at what would make digital banking channels more appealing to consumers. They should also note any drawbacks and work to fix them so that Nigerians may start to reap the full benefits of digitization, just like people in other countries. Additionally, deposit money banks should work harder to increase the number of digital channels they use for distribution and to improve their effectiveness and efficiency.

Keywords: Digitalization; Performance; Deposit Money Banks; ATM, Mobile Banking.

Introduction

Nigerian deposit money banks have been introducing digital technology solutions and receiving demands from their clientele to migrate to these services. As a result, digitalization has become crucial as businesses and organizations, such as deposit money banks, work to implement better and more efficient ways to provide their clients with services.

(Agboola, Awobajo, Oluwatobi, Akinbode, Fagbohun, Esse, Segun-Adeniran, Asaolu&Betek,2019) According to Abbasi and Weigand (2017), information and communication technologies have improved the financial sector, particularly the support of banking services, risk management, and productivity gains. As a result, financial institutions have increased their investments in the digitalization process. According to Ikueze, Ifurueze and Anichebe (2020) the explosion of technology is changing the banking industry forever, managing the delivery systems of banks to interact with their customers. According to Ghaziri (2021), banks gain vital competitive advantage by having a direct marketing and accounting customer service environment and new streamlined business processes.

In keeping up with the pace of digitalization, Nigerian banks have developed different digital platforms and channels which include mobile apps, Unstructured Supplementary Service Data (USSD), Point of Sale (POS), Automated Teller Machines (ATMs), Mobile Point of Sale (mPOS), Mobile-wallets, Quick Response codes payments, Virtual banks, BNAs etc. The evolving eco-system of payment in the country is proffering massive dynamics in the e-commerce industry enabling customers to pay for goods and services, receive money transfers as well as providing retailers with efficient and ease to integrate tools for accepting online, offline and NFC Payments (Apochi, 2019). This transition to electronic banking has several benefits and advantages.

Badru (2021) opines that electronic banking offers major opportunities in terms of competitive advantage especially in the area of customer confidence and retention. In addition to providing loans to finance investment and consumption projects, banks also act as a conduit for the implementation of monetary policy and as the means of payment for completed transactions. Innovations and investments in high tech IT applications and business models have no doubt improved banking service greatly and also provided for efficiency and safety in payment systems through innovative payment solutions such as web pay channels, Point of sale terminals, ATM etc. Nigerian banks, according to Babatunde and Salawudeen (2017), have undoubtedly made significant investments in technology and have extensively embraced electronic and communications networks in order to provide a wide range of value-added products and services. Digitalization is a paradigm shift that inevitably impacts even the most established companies and has an impact on society at large (Gimpel&Röglinger, 2015). It is crucial to note that digitalization has completely upended media, transportation, big enterprises, retail establishments, and more. This trend is presently affecting Nigerian deposit money institutions. Although the shift to digitization has been occurring for a while, its impact and rate of change seem to be unique in recent years. The banking industry's working conditions have changed as a result of digitalization. Although it is true that financial services have been automated for a considerable amount of time, most financial organizations have been attempting to preserve their traditional financial mode of services, which has caused a more drastic transition to be delayed (IFC, 2017).

Better methods for transactions have been made possible by the greater cooperation between deposit money institutions and their clients as a result of technology advancements and digitization. This rapid shift is seen in the banking industry, where digitalization has allowed banks to reach out to potential customers in more creative ways while also improving their services.

Internet and mobile banking have emerged as the most effective means of engaging consumers and enabling them to do their banking tasks independently as a result of the banking industry's digitization (Deutsche Bundes Bank, 2016). The number of people using internet and mobile banking services to pay their bills, which dominates the ordinary person's banking activities, is surely linked to the effects of digitalization on Nigeria's financial institutions. Compared to traditional methods, the innovative approaches to client outreach are becoming less costly and demanding (Magatef & Tomalieh, 2015; Wright, 2017)

Literature Review

Digitalization in Banks

According to Satyendra (2016), digitization is a step-by-step process that follows a pattern similar to that of archiving, access, and administration. Today, digital banking is more important than ever in managing your finances. Digital banking simply means managing all your banking transactions either on your mobile phone, your ipad or your computer. Digital banking can also be described as the digitalization of all traditional banking activities that were historically available to customers when physically inside of a bank branch. This includes activities like money deposits, withdrawals, and transfers, checking/saving account management, loan management, bills payment and account services (Don, 2016).

From the practitioner's point of view, digital banking is the providing of banking/financial services through self-service channels with very limited or no branch support. Interest and mobile banking services are the most crucial elements of digital banking. Similarly, Digital Banking is the automation of traditional banking services. Digital banking enables a bank's customers to access banking products and services via an electronic/online platform. Digital banking means to digitize all of the banking operations and substitute the bank's physical presence with an everlasting online presence, eliminating a consumer's need to visit a branch (Iwedi, Kocha&Wike, 2022).

As businesses and organizations, including commercial banks, work to implement better and more efficient ways of providing services to their clients and regular customers, digitization has become crucial, according to Agboola et al. (2019). It is important to remember that certain financial institutions still view the entire digitalization process as challenging and troublesome, despite the clear transition to digitalized ways of service delivery and provision (Carbo-Valverde, 2017). Abbasi and Weigand (2017) observed that information and communication technologies has brought about a boost in the financial sector specifically the support of banking services, risk management and increase in productivity and these factors have encouraged financial institutions to increase investments in the process of digitalization. A study carried out by Gareth et al. (2006) as quoted by Abbasi and Weigand (2017) revealed that 'banks in North America, Europe, Asia-Pacific and Latin America spent a total of \$241billion on information technologies in the year 2016 and an overall increase of almost 4% when compared with the year 2015.' They also reiterated that the practice of digitalizing services carried out by financial institutions gives a new turn to service provision and make for better customer satisfaction as a result of diversity in service provision. Technology has changed businesses and within-business connections. This has empowered reconfiguration of design, marketing, production, delivery and services through supply chains, independent structure, outsourced manufacturing and contract warehousing and delivery. The advent of technology has prompted advanced digital transformation, which is not simply restricted to tech- savvy businesses, also high-tech major established organizations have embarked on digital transformation venture too (Idiegbeyan-Ose, Ilo and Isiakpona, 2015; Weill and Woerner, 2018; Agboola, Asokomeh, Akinbode, Peter, and Deborah, 2017).

Theoretical Review

Mises Regression Theorem

This study was theoretically underpinned by Mises Regression Theorem propounded by Ludwig Von Mises in his 1912 book titled, *Theory of Money and Credit*. The theory holds that the value of money can be traced back (regressed) to its value as a commodity. The regression theorem assumes that all money must ultimately derive their purchasing power from a historical tie to a commodity that was valued in a state of barter. The objective exchange value of money can only be traced by the theory of money's worth up to the point at which it simply becomes the value of a commodity rather than the value of money (Jeffrey, 2014). In this manner, it is possible to go back more and more until one reaches a point when the objective exchange value of money, which derives from valuations based on the role of money as a medium of exchange, no longer contains any components. The value of money is now nothing more than the worth of an item that serves a purpose other than money. Mises used the regression theorem to resolve this circularity. According to Mises, people's expectations of future purchasing power are influenced by their past and present purchasing power (Ahannaya, Oshinowo, Sanni, Arogundade & Ogunwale, 2021).

Theory of Planned Behavior

According to Fishbein and Ajzen (2015), the theory of reason action (TRA) is the primary focus of early research. Subjective norm and attitude are the foundational variables of TRA. It is seen that both factors positively impact people's behavioral intentions, which in turn positively influence people's actual conduct. An individual's favorable or negative assessment of their own performance of a specific behavior is known as their attitude. The idea is the extent to which a behavior's performance is valued favorably or unfavorably. A subjective norm is a person's opinion about a specific behavior that is impacted by the opinions of important people, such as parents, spouses, friends, instructors, and so on. Behavioral intention is thought to be an immediate antecedent of behavior and serves as a gauge of a person's readiness to carry out a certain behavior. The Technology Acceptance Theory (TAT), on the other hand, is a conceptual paradigm that explains users' intention or level of acceptance toward information systems or new technology, according to Davis, Bagozzi, and Warshaw (2019).

Review of Related Empirical Studies

This section examines pertinent empirical research. Numerous research on the topic have been conducted both internationally and specifically in Nigeria. Nwakwo and Agbo (2021), for instance, look at how Nigerian commercial banks' performance is affected by electronic banking. It specifically aimed to ascertain how Nigerian commercial banks' performance was impacted by transactions made through automated teller machines, point-of-sale terminals, and mobile banking. The study covers the years 2013–2017 and used an ex post facto research design. The obtained data was analyzed using the E-views statistical tool. According to the study's findings, transactions made through automated teller machines significantly and favorably impact the performance of Nigerian commercial banks, whereas transactions made through mobile banking and point-of-sale terminals have an adverse and slight impact. According to the survey, bank management should use operational innovations that would increase their profitability.

Ebhote and Nwanna (2020) looked at how digitization affected the profitability of a few Nigerian commercial banks. The numerous digital self-service channels that banks provide their consumers for adoption, together with other related studies on the happiness of customers with digitization, served as the impetus for the study. This study examined the digital revenue generated by four of Nigeria's largest banks during a 13-year period, from 2006 to 2018, using secondary data gathered from publicly available information on the banks' yearly financial results as reported on the Nigeria Stock Exchange floor. The study's specific goal is to investigate if income received through digital

channels significantly affects return on equity and how it affects the individual banks' overall profit after tax (PAT). The study used a regression analysis model to examine and assess how digital income affected the banks' overall profit after taxes. The banks were chosen from among the nation's 22 commercial banks. Through an analysis of each bank's results, the research discovered that digitalization had a considerable impact on each bank's overall profit after taxes. However, it demonstrated that digitalization had no discernible impact on commercial banks' return on equity and suggested that banks make sure their channels are highly operational in order to boost revenue.

Methodology

Secondary data was used in this study. The information is gathered from the Central Bank of Nigeria's (CBN) and banks' annual financial reports submitted to the Nigeria Stock Exchange (NSE).

The functional relationship between the dependent and independent variables is stated as:

$$ADD = f(ATM, POS, IBK, MBK)$$

The multiple regression equation is explicitly specified as follows:

$$ADD = \beta_0 + \beta_1 ATM_1 + \beta_2 POS_2 + \beta_3 IBK_3 + \beta_4 MBK_4 + \mu$$

Where,

ADD = Aggregate Demand Deposit

ATM = Automated Teller Machine

POS = Point of Sale

IBK = Internet Banking

MBK = Mobile Banking

$\beta_1 - \beta_4$ = Coefficient of independent variables

μ = Error term

The researcher employed descriptive statistics for the demographic data and basic frequency percentage as analysis methods. The hypotheses were tested at the 0.05 level of significance using regression analysis and Pearson's Product Moment Correlation.

Results and discussion

Presentation and interpretation of result

Table 1: Descriptive Statistics

	ADD	ATM	POS	IBK	MBK
Mean	5970.192	4427.155	5875.524	276.4410	2187.873
Median	6201.690	4988.133	758.9965	132.3603	756.8975
Maximum	7689.740	6965.320	40253.56	675.9167	5986.540
Minimum	3386.530	399.7100	11.03000	25.05000	1.270000
Std. Dev.	1343.931	2440.808	11255.41	253.5008	2555.125
Skewness	-0.415965	-0.454864	2.212952	0.414225	0.609219
Kurtosis	2.182034	1.664577	6.928270	1.350505	1.507532
Jarque-Bera	0.850736	1.631849	21.88746	2.129476	2.320034
Probability	0.653529	0.442230	0.000018	0.344818	0.313481

Sum	89552.88	66407.33	88132.87	4146.614	32818.10
Sum Sq. Dev.	25286114	83405622	1.77E+09	899677.2	91401260
Observations	15	15	15	15	15

Source: Authors computation E view 9

Table 1 reveal the salient attributes of the data series. From the statistics, the series shows considerate level of consistency as the mean and median falls between the range of the minimum and maximum values. For instance, the mean of aggregate demand deposit 5970.192, median 6201.690, maximum 7689.740, minimum 3386.530. The standard deviation measures the degree of fluctuations of the variable. From the result, IBK (internet banking) is the least volatile variable which is 253.5008 and the most volatile variable is POS (point of sales) which is 11255.41. Skewness is a measure of the asymmetry of the probability distribution of the variables. The ADD (aggregate demand deposit) and ATM (automated teller machine) and IBK (internet banking) are moderate skewed while POS (point of sale), and MBK (mobile banking) are highly skewed. Furthermore, A goodness-of-fit test called the Jarque-Bera test establishes whether or not the sample data exhibits skewness and kurtosis consistent with a normal distribution. The study concluded that all variables are normally distributed because their probability value exceed 5% significance level.

Table 2: Regression Analysis

Dependent Variable: ADD

Method: Least Squares

Date: 10/14/24 Time: 10:17

Sample: 2009 2023

Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3801.246	223.3530	17.01900	0.0000
ATM	0.455632	0.075075	6.069007	0.0001
POS	0.008242	0.012800	0.643935	0.5341
IBK	-0.691798	0.939333	-0.736479	0.4784
MBK	0.134653	0.099989	1.346669	0.2078
R-squared	0.947222	Mean dependent var	5970.192	
Adjusted R-squared	0.926111	S.D. dependent var	1343.931	
S.E. of regression	365.3135	Akaike info criterion	14.90059	
Sum squared resid	1334539.	Schwarz criterion	15.13661	
Log likelihood	-106.7544	Hannan-Quinn criter.	14.89808	
F-statistic	44.86862	Durbin-Watson stat	1.784469	
Prob(F-statistic)	0.000002			

Source: Authors computation E view 9

The analysis's intercept (3801.246) indicates that, when all other factors are held constant, the aggregate demand deposit will have a value of 3801.246. While online banking has a negative correlation with aggregate demand deposits, automated teller machines, point of sale, and mobile banking have favorable correlations with them. This suggests that the aggregate demand deposit

will rise by 0.455632, 0.008242, and 0.134653 for every unit increase in automated teller machines, point of sale, and mobile banking, respectively. However, there will be a 0.691798 drop in aggregate demand deposits for every unit rise in internet banking.

T-statistic: When assessing each independent variable's connection to the dependent variable, the t-test is employed. The t-test's probability value might be used to verify this. The alternative hypothesis can be accepted and the null hypothesis rejected if the t-statistic p-value is less than 5% (0.05). If not, we take the opposite action. The automated teller machine's T-test value is 6.069007, and its probability value is 0.0001. This demonstrates that there is a statistically significant positive correlation between automated teller machines and aggregate demand deposits. Internet banking's t-test results are -0.736479 and 0.4784. This shows that internet banking has negative relationship with aggregate demand deposit and statistically insignificant. The T-test value of point of sales is 0.643935 with a probability value of 0.5341. This shows that point of has a positive relationship with aggregate demand deposit and is statistically insignificant. However, the t-test value of mobile banking is 1.346669 with a probability value of 0.2078 which implies that point of sale has a positive relationship with aggregate demand deposit and is statistically insignificant.

F-statistic: This is employed to quantify the joint relationship between the independent and dependent variables. The F-test can be used to verify this. We can reject the null hypothesis and accept the alternative hypothesis if the p-value of the F statistic is less than 5% (0.05). We can do the opposite if not. Since the probability value is less than the 5% level of significance, we can readily conclude that the combination of the variables significantly contributes to the performance of the deposit money bank. The regression line's f-test indicates 44.86862 with a probability value of 0.000002.

Discussion of Findings

Using the ordinary least square regression method, this study looks at how digitization has affected deposit mobilization at Nigerian deposit money institutions over a 15-year period (2009–2023). According to the study's statistical analysis, automated teller machines have a beneficial effect on DMBs' ability to mobilize demand deposits, whereas point of sale, internet, and mobile banking have a detrimental effect. Because its p-value is less than five percent, the study also shows that automated teller machines are statistically significant and, as a result, have a considerable impact on the demand deposit mobilization by DMBs. Because their p-value is greater than the level of significance, point of sale, online banking, and mobile banking have no effect on DMBs' mobilization of demand deposits. Because the p-value is smaller than the level of significance, indicating that the model is significant, the model performs rather well overall.

Conclusion

This study uses time series data from 2009 to 2023 to examine the digitalization and deposit mobilization of Nigerian banks. The information was taken from the 2023 Central Bank of Nigeria Statistical Bulletin. Multiple regression analysis was performed to determine the impact of each variable used in the model, and the unit root test was used to assess the data's stationarity. During the course of the research, we observed that digitalization has not gained full potential as it were in other developed countries. Many people still have not gotten enough confidence in practicing the modern way of transacting banking business. However, the urban centres have used more of the system to reduce their troubles of staying more than 5 hours in the banking to perform a simple transaction. The study recommends the following:

- i. Deposit money banks should intensify effort to deploy more digital channels delivery points and also make them more effective and efficient.

- ii. Banks should endeavour to reactive all moribund channels like ATMs, POS terminals, mPOS etc in order to ease the tension experienced by customers in trying to get their services; and also to reap the benefit in terms of cost reduction.
- iii. Banks should investigate factors that would make digital banking channels more attractive to customers, noting the setbacks with a view to addressing them, so that, Nigerians will begin to get the full benefits of digitization as in other climes.
- iv. The regulatory authorities should also collaborate with the banks to put in place an enabling operating environment and regulatory framework to bring out optimal deployment of these services to customers. This is especially with respect to addressing the issue of failed transactions.

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