

EFFECT OF ELECTRONIC BANKING ON PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

Kayode David KOLAWOLE, PhD

Department of Financial Intelligence,
College of Accounting Sciences, University of South Africa
kolawolekayodedavid@gmail.com 0000-0002-6704-2673

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Abstract

This research looks on the performance of deposit money banks in Nigeria. This analysis used secondary data acquired from financial reports of the selected banks. The research used descriptive statistical techniques and a panel data estimation approach to examine the data gathered. The research disclosed that ATM has significant impact on banks profitability at a 5% significant level, POS has an advantageous benefit to bank profitability and is also statistically noteworthy, similarly, mobile banking has a beneficial influence on the profitability of the banks at a 5% significant level. The research shows that electronic banking has a major impact on the functioning of Nigerian deposit money institutions. The research consequently suggests that banks offer multiple offerings and services through Point of Sale (POS) and Mobile Banking (MB) in an effective, profitable, and economically feasible manner in order to further enhance their financial performance.

1.0 Introduction

There is pressure to create and use alternate delivery channels as a result of the increasingly competitive environment in financial services industry. Banking via the internet is extremely contemporary delivery method to be implemented in the banking sector. Everyone can easily access banking operations thanks to electronic banking systems, which encourages financial inclusion. Electronic money transfers, account balance retrieval, and account history retrieval are a few examples of these banking operations. Because of the convenience and services, it offers, electronic banking, or "e-banking," has steadily grown to be an essential component of contemporary financial services. Notwithstanding the indisputable advantages of using electronic banking, there has been severe and uncontrollable public and banker sorrow. Electronic banking was introduced because the old monetary system was usually plagued by bottlenecks and lags in the supply of services related to finance. Customers, however, were dissatisfied with the implementation of the e-banking system, which was intended to increase service delivery productivity and efficacy, reduce wait times, and simplify cash management.

A large percentage of customers complain about the quantity of time that they invest at banks, mostly owing to long queues and network disruptions caused by insufficient connectivity from the main server and the retail locations. Customers remain to handle large quantities of cash, and little is spoken about the internet-based banking services and products that banks offer. As stated by Agbaje and Ayanbadejo (2013), Worries about danger, literacy, inefficient technology, and network (communication links between banks and e-payment infrastructure) difficulties are the main obstacles that customers have while making electronic payments.

The bank also loses money that could have been earned by the bank as charges from such transactions, and the government also loses money from transactions that would have been collected as taxes. Furthermore, another issue with electronic banking is its inaccessibility to rural residents; this can be attributed to the restricted availability of electronic services in Nigeria's rural areas.

For the fact that Nigerian banks are not situated near rural areas, they are unable to access electronic banking, which has an impact on both the government's and banks' operational efficiency and encourages people to participate in a wide range of illicit economic activities. Additionally, the public has been discouraged by the banks' unregulated and ongoing fees, It

hinders their ability to navigate all of the outlets spontaneously. Government income and financial performance for banks have declined as a consequence.

However, the banking industry now faces significant risk exposure concerns in line to the prevalence of electronic banking, or e-banking. The difficulties that Nigerian e-banking faces can be divided into three categories: operational, technical, and human limitations. Physical impairment, poor vision, illiteracy, and ageing are examples of human limitations. Among the operational limitations include fraud, channel standardisation, and the insecurity of monies moved. Lack of interconnectedness, erratic electricity supply, and data encryption, among other enabling infrastructures for short messaging system (SMS) messages, are the main technical limitations (Agbada, 2008). Furthermore, upgrading ATMs and EFT/POS terminals to consent smart cards requires a significant financial investment, and a further roadblock to the widespread use of smart card development is probably the addition of smart card technology for mobile phones and PCs (Ovia, 2015). Alongside these issues is a scenario in which a bank issues a personal debit card linked to an investment account with an available term of credit and functions as a form of debit card for ATMs, enabling a range of transactions for the holder of the card.

2.0 Theoretical and Empirical Review

Technology Acceptance Model (TAM)

Fred Davis and Richard Bagozzi created the theoretical framework known as the technical acceptance model (Davis, 1989; Bagozzi, Davis & Warshaw, 1992). Theoretically, there is a connection between people's opinions of a breakthrough technology's practicality and simplicity of use and their adoption of it. The decision of the time and place to use any new technology is influenced by several aspects, related to the TAM approach. Perceived usefulness (PU), or the height of what defines a person anticipates that utilizing a precise technology would increase the effectiveness of their task output, is one of these issues.

The second problem that has been found is perceived ease of use (PEOU), which measures how much people think using a certain technology is easy (Davis 1989). It describes how people accept and use technology in an organisational setting. The purpose of this model was to forecast how users would embrace and use IT in an organisational context. According to Monyoncho (2015), the Technology Acceptance Model focusses on consumers as the main factors influencing how, where, and at what time they intend to utilize technology, based more on impressions than actual utilization. This concept is adaptable to modifications for increased efficiency and cost savings.

Therefore, the length of time to which an individual believes that a certain approach would result in better employee performance is dependent on that conviction, we call this perceived utility. According to perceived ease of use, staff members' perceptions of the potential benefits of utilising a certain technology determine how productive they are. Adoption comes after acceptance in the context of technology use. Acceptance shapes consumers' attitudes and beliefs, which in turn influence usage, which in turn impacts profitability. When consumers believe that online banking offers clear advantages, they are more inclined to use it. Customers will use online banking more frequently, which is advantageous to them, hence this study is based on this assumption. The more they use this variable, the more money the bank makes in the form of profit. The Technology Acceptance Model states that new technologies' perceived utility and usability are both reliable indicators of attitudes towards adopting them. This has a direct impact on how the system is actually utilised, which in turn has an impact on operations and, ultimately, performance.

Empirical Review

Abaenewe, et al., (2013) looked at how profitable Nigerian banks were once they fully implemented electronic banking. Four Nigerian banks' worth of data were used to use the judgmental sampling approach. Since 1997, these four banks are the only ones in Nigeria that have continuously preserved their distinctive identities and continued to be listed on the Nigerian Exchange. Returns on equity (ROE) and returns on assets (ROA) were used to assess these banks' profitability performance.

Tunay, Tunay, and Akhisar (2015) used panel causality tests to investigate the relationship between online banking and bank performance. Between 2005 and 2013, banking data from 30 European nations was subjected to the Demitrescu-Hurlin panel causality test. Bank performance is evaluated using the ROA and ROE ratios. According to the findings, there exists a substantial correlation between internet banking and financial institutions in the Euro Area countries, but not in any of the other nations. However, when looking at the entire sample, there is also a high correlation between online banking and the bank's efficiency.

In the context of this research, "Dynamics of Financial Innovation and Performance of Banking Firms: Context of an Emerging Banking Industry," Mabrouk and Mamoghli (2016) assessed how the performance of banks was affected by two categories of financial innovation implementation: process innovation (likethe use of electronic payment terminals, automated teller machines, and magnetic strip cards, and debit and credit cards), and product innovation (such as SMS banking and telephone banking). While process initiatives have a good They found that the initial mover actions in product innovation had a positive influence on efficiency and profitability. First movers are more profitable and efficient than imitative banks.

In Kapsabet, Kenya, Kipprop, Ayuma, and Kembo (2016) studied how The introduction of mobile banking had an effect on commercial banks' financial performance. Points of sale (POS), automated teller machines (ATMs), and smartphones are among the factors in this study, which is being conducted utilizing a descriptive research technique, questionnaires, and interviews.It has been observed that mobile banking enhances banks' financial performance.

Using Granger causality testing and error correction models, David and Kaulihowa (2018) investigated the effect of e-banking on Namibian commercial banks' performance from 2012 to 2015. The results show that, with a monthly adjustment of 32%, interbank settlement systems, electronic financial transfers, and checks are the main drivers of return on investment. A unidirectional causal relationship between return on investment, the interbank settlement system, and checks is revealed by the direction of causality test. This suggests that innovations and development are likely to be boosted by the return on investment has increased. The research also found a reciprocal causal association involving return on investment and the amount of electronic payments.

3.0 Methodology

The study is secondary in nature thereby obtaining data from financial statement of six chosen banks in Nigerian from 2015 to 2023: United Bank of Africa, Guaranty Bank, Ecobank, Zenith Bank, Access Bank, Plc, and First Bank Plc. Since these banks have the highest capitalization in Nigeria, they've been selected. To evaluate the collected data, the research used the static panel data approach (random and fixed effect regression).

Model Specification

The following is a specification for the model:

$$ROA_{it} = \alpha + \beta_1 MB_{it} + \beta_2 ATM_{it} + \beta_3 POS_{it} + \epsilon \dots \dots \dots (1)$$

Where:
 ROA = Return on Asset
 MB = Mobile banking
 ATM= Automated teller machine
 POS = Point of sale
 α = Intercept of the model.
 $\beta_1, \beta_2, \beta_3$ = Coefficients
 ϵ = Error term capturing unobserved factors

4.0 Result and Discussion

Table 1:
Summary Statistics of Variables

	ROA	ATM	MB	POS
Mean	2.909215	2099.700	282	16056.64
Maximum	6.558230	7352.000	72000	100931.0
Minimum	0.999260	779.0000	1.80888.0000	
Std. Dev	1.539668	1071.570	3.27	20176.27
Jacque-Bera	5.954094	256.3914	272.4428	165.4248
Probability	0.050943	0.000000	0.000000	0.000000

Source: Author’s computation, 2025.

The variable's summary statistics are shown in Table 1 as the mean, standard deviation, lowest, and peak. The table also presents the Jacque-Bera statistics to examine the normality of each variable. Average value of return on asset of 2.91 percent with standard deviation of about 1.54 percent, minimum of about 0.99 percent, and maximum of about 6.55 percent. The average of ATM is about 2100 with a standard deviation of 1072, slightest of 779 ATMs and extreme of about 7352 ATMs. Mobile banking has an average value of 282, with a standard deviation of 3.27, minimum of about 180, and maximum of about 72000. POS has an average of 16056.64 with a standard deviation of 20176.27, minimum, of about 888 POS, and maximum of about 100931 POS.

The Jacque-Bera statistics shows that of all variables, only return on assets is normally distributed with Mobile banking (MB), point of sale (POS), and automated teller machines (ATM) are not often available. Their p-values make this clear. Although the p-values of the other variables are significantly below 0.05, showing rejection of the null hypothesis that they are regularly distributed, the p-values of return on assets are more than 0.05, suggesting willingness to accept the null hypothesis.

Table 2:
Result of Variance Inflation Factor (VIF)

Variable	VIF	1/VIF
ATM	1.08	3.51416
POS	2.92	3.72987
MB	2.26	1.76663
Average VIF	1.08	

Source: Author’s computation, 2025.

The Variance Inflation Factor (VIF) test for the model's independent variable is shown in Table 2. The table showed that every variable had a VIF value that was its inverse (1/VIF), commonly known as the tolerance value. As a general rule, a variable is considered very collinear if its VIF

is greater than 10 but not collinear if it is less than 10. The VIFs for every exogenous variables in Table 4.2 are less than 10, indicating that they are not collinear. The degree of multicollinearity increases as the IIVIF value approaches zero, and vice versa (Gujarati, 2009).

Table 3:
Result of Hausman Test

Test Summary	Chi-Sq.Statistic	Prob. Value
Cross-section random	5.140551	0.1618

Source: Author's computation, 2025.

The null hypothesis indicating that the Random-effects model is acceptable is accepted since the test's probability value is higher than the 5% significance level. Consequently, the research uses the random-effect outcome.

Table 4:
Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.298635	Prob. F(3,56)	0.8262
Obs*R-squared	0.944783	Prob. Chi-Square(3)	0.8146
Scaled explained SS	0.661624	Prob. Chi-Square(3)	0.8822

Source: Author's computation, 2025.

The findings from table 4 which is for the test of heteroskedasticity shows that the study does not suffer from heteroskedasticity problem.

Table 5:
Model Estimation Result

Explanatory Variable	Random Effect
ATM	0.4232 (0.000257)**
POS	0.0423 (0.0000334)**
MB	0.0266 (0.00000000142)**
Cons	2.503956 (0.02147)***
Model Stat.	
R ² Within	0.288040
Wald X ²	1.801340
F. Stat.	(0.015301)

Source: Author's computation, 2025.

Statistical significance is shown by the symbols ** and *** at 1% and 5%, correspondingly. Furthermore, the p-value is shown in brackets, and the standard errors are shown in parentheses.

Using static panel regression analysis, Table 5 presents predicts for the linear association between Nigerian deposit money institutions' performance and electronic banking. The fixed effect is chosen using the Hausman test, which is then applied when interpreting it. The table showed that every variable, including ATMs, POS, and mobile banking, had significance and sign are positive aligning with the a priori expectation. The implication of this is showing return on assets (bank performance), as well as the independent factors of point-of-sale and mobile banking, and automated teller machines are positively correlated. Consequently, they have a

major impact on return on assets, yet automated teller machines have a p-value of 0.3828, meaning it is higher than the 5% significance limit and does not affect return on asset. Hence, Automated Teller Machine (ATM) is not statistically significant. With respect to the magnitude of the coefficients, the table result showed that Point-of-sale (POS) increases of one unit will result in a 0.0423 rise in return on assets. It could also be seen that a percentage boost in wireless banking will result in a spike of around 0.0266 in deposit money banks' return on asset. Also, the result should that an additional ATM will induce 0.4232 increase in return on assets.

The f-statistic result is 1.80 with a p-value of 0.0153, which indicates that the fixed effect model has overall significance at 5% percent significance level. Return on assets was positively and significantly impacted by Point of Sale (POS), which is accordance with the findings of Ngango (2015) and Eze and Egoro (2016) who also opined that e-banking will grow to be an important factor affecting the performance of deposit money banks depending on their operations but contradicts the negative outcome reported by Ugwueze and Nwezeaku (2018). The positive outcome gotten from result implies that the spread of POS across the country to businesses and outlet increases financial transaction, making it possible for deposit money in generate more revenue charges on every transaction. Hence, improving deposit money bank performance in Nigeria. Accordingly, it aligns with technology acceptance model that states that adoption of innovation gives an organization a relative advantage in terms of its operation. The arrival of POS has increased Deposit money banks' performance not only in the Aspect of revenue generation, but reducing the workload that might need to be attended to manually in the banking hall. Mobile banking also has a major impact on Nigerian deposit money banks' returns on assets, which conform to the a priori expectation and the result of Ugwueze and Nwezeaku (2018) and Cheruiyot (2016) mobile banking with a positive and significant coefficient implies that as more citizens embrace the mobile technology to banking, it tends to increase the performance of deposit money banks. What this implies is that, bank customers have easy and quick access to financial services irrespective of their location and the time of the day. Unending access to banking services through mobile phones increase the performance of deposit money bank, as people can send and receive money without going to the banks. This reduces the complexity involved in the service delivery of deposit money banks, thereby, increasing their performance from every angle. The finding of this study also aligns according to the bank-focused idea, banks provide their clients with services using typical low-cost delivery methods that are not customary. The outcome demonstrated that the paradigm described in this study had general importance. Thus, it can be said that e-banking services such as point-of-sale (POS) and mobile banking, significantly affect the performance of Nigerian banks.

5.0 Conclusions and Recommendations

The results of this research led to the conclusion that the performance of Nigerian banks and ATMs are significantly correlated. It also came to the conclusion that POS and bank performance are significantly correlated. The research additionally discovered a connection between mobile banking and bank performance. In the end, the study concluded that electronic banking had an effect on the performance of Nigerian banks. Therefore, the research recommends that banks use Point of Sale (POS) and Mobile Banking (MB) to offer a variety of items and offerings in an efficient, cost-effective, and competitive manner with the aim to improve their financial health. Compliance with regulations and technological developments should coexist in harmony. Banks need to be on the lookout for data privacy, Know Your Customer (KYC), and anti-money laundering (AML) concerns to ensure that FinTech growth does not lead to regulatory or reputational risks. Management should ensure that digital transformation is aligned with organizational strategy, employee training, and customer experience goals. Technological

investment without proper integration into the bank's operational model may fail to yield the expected profitability benefits.

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