

# Effect of Financial Innovation on the Performance of Deposit Money Banks in Nigeria

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## ABSTRACT

This study centres on financial innovation and performance of deposit money banks in Nigeria. The main objective is to ascertain the effect of financial innovation on the performance of deposit money banks in Nigeria. The specific objectives are to evaluate the effect of automated teller machine, point of sale, web internet transfer and mobility of payment on the performance of deposit money banks in Nigeria proxied by the value of commercial bank deposits in Nigeria. The data employed were secondary data obtained from the Central Bank of Nigeria Statistical Bulletin for the period 2009-2020. This study employed ordinary least square (OLS) method of estimation to establish the effect of the independent variables on the dependent variable. The (OLS) is the most efficient method because of the "Best Linear Unbiased Estimator" (BLUE) properties. The analysis revealed that point of sale, payment mobility, automated teller machine and web internet had positive effect on the performance of deposit money banks in Nigeria for the period under study. This depicts that financial innovation helps in increasing profitability and return on assets of deposit money banks in Nigeria. Therefore, the study recommends among others that the government should put in place proper monetary and fiscal policies in order to promote financial innovations in Nigeria as the investigations in this study have proved to engender performance of deposit money banks in Nigeria.

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## INTRODUCTION

The Nigerian financial sector has experienced tremendous dynamism over time. A great deal of changes have been embraced in the area that have prompted expansion of money related transactions, exercises and hierarchical structures that have enhanced and expanded the productivity of the monetary framework. Advances in innovation and changing financial conditions have necessitated this change. Gorton and Metrick (2019) outline reasons for growth in modern financial innovation and list them as; reduction in insolvency costs, imposed points of interest, diminishment in mortal danger, decreased administrative costs, straightforwardness and customization. Financial innovation offers cheaper and accessible services to financial system and it increases value of service and products in the long run. Technology contributes to the design and

pricing of new instruments and facilitates the identification, measurement, and monitoring of risks in portfolios containing complex instruments. Innovation research has shown that the increase in countries' innovation performance plays a key role in economic and social development, prosperity, and development. Financial innovation is the most important driving force for the transition to the information economy. Liberalized domestic regulations, escalated global competition, increase innovations in the new financial methods, and the volatile expansion in internet banking, and information technology accounted for the change in financial service delivery. Financial innovations have greatly impacted the financial market in relation to the establishment of new and big opportunities for the shareholders, thus developing new products and

services to improve new markets. In Africa, the technology-based applications such as mobile banking, internet banking, and Automated Teller Machine (ATM), Point of Sale Purchase (POS), and App store provides clients of financial institutions imperative edge in the conveyance of subsisting products. These innovations are accessible to every Nigerian financial institution's products and services with low-cost banking works for 24 hours to 7 days. The introduction of technology-based applications has greatly impacted the Nigeria financial sectors positively. It has caused financial institutions to be effective and transparent in rendering services. Financial institution can just gauge their services by checking how well a firm is making profit for the proprietors. Such estimation incorporates; benefit after expense, return on Assets (ROA), return on Equity (ROE), profit per share and any market value apportionment that is by and large acknowledged. The financial performance of banks and other monetary organizations for the most part has been measured using a blend of monetary ratio analysis, benchmarking, and measuring performance against spending plan or a blend of these techniques (Ahmad, Raza, Amjad, & Akram 2011).

Banking sector changed dramatically although the traditional functions as performed by the banks remained unchanged where there are significant increases in the alternative channels owned by the bank for delivery of financial services (Wachira, 2013). According to Sweeny and Morrison (2004), delivery of services and retail banking has been greatly changed by the innovations in the banking industry. are some Financial innovations associated with internet banking , use of ATMs, agency banking, debit cards and global banking industry which are overwhelmingly in the fast pace in the banking sector. Furthermore, as Otoo (2013) asserts, the banks have been able to take some necessary decisions which support financial innovations due to the stiff competition in the banking sector. According to European Commercial Bank (ECB, 2003), financial innovation is described as a factor which leads to cost reduction in a product and the organizations are mainly banks and other service sectors. Improved banking performance, market share, better customer response and wide range of products are some of the benefits associated with financial innovation which contribute greatly to profitability.

### **Statement of the Problem**

Financial innovation strategies in deposit money banks over the years have faced numerous challenges amongst which are, slow infrastructural development, lack of technical know-how, poverty and insecurity.

Moreover, Financial Innovation is stirred by excessive competition among banks, overly risky loans and the stock market crash that caused the default on many bank loans. Performance of commercial banks has been influenced by some of the forces which include mainly innovations adoption. Goh (2011) observed that there are a number of things affecting innovation in developing nations like Nigeria. Lack of enough licensed innovation rights assurance (intellectual property rights) frequently cause impediments for banks to get engaged with advancements and improvements through innovative research and development, as the monetary turn offs related with their development endeavors diminish rapidly once made accessible to the general population. The banking industry in Nigeria has gone through phenomenal growth over the years and the same is notable as innovations in banking and financial sectors, these include; the emergence of Point of Sale (POS), Automated Teller Machine (ATM), Mobility of Payment (MOP), Retail Banking, free warning administrations, usage of standing directions of clients, installments of service charges, web keeping money, phone managing an account, portable saving money, and numerous value added activities (CBN report, 2013). The introduction of Information and communication technology (ICT) has largely affected the financial sector both negatively and positively. Aladwani (2011) observed that the greatest challenges and issues experienced in the financial institutions include; internet security and customer related issues. This brings about the importance of managing the costs and risks associated with financial innovation. Walker (2014) conducted comparative research in regard to the effects of issue of innovations as a whole and specifically the firm's performance in USA and indicated that particular item for consumption improvements is positively associated with the firm's growth. Aduda and Kingoo (2012), investigated the affiliation linking-banking and performance of Nigerian financial structure and found out that there has been an existence of a good financial rapport between electronic banking and organization's in the Nigerian financial industry. Makini (2010) studied the interactions between financial innovation and financial performance of commercial banks in Nigeria and found that financial innovations improved the operations, liquidity and asset quality of the commercial banks. Furthermore, Kihumba (2008) studied the determinants of financial innovations and their effects on banks performance in Nigerian. The result showed financial innovation as a significant plan. The center of these mixed conclusions created, brought out the importance of undertaking a study from a Nigerian perspective to

ascertain the influence of financial innovations on performance of commercial banks.

### Objectives of the Study

The broad objective of the study is to examine the effect of financial innovation on the performance of deposit money banks (proxied by the value of commercial bank deposits) in Nigeria. The specific objectives are to;

1. Evaluate the effect of automated teller machine on the value of commercial bank deposits in Nigeria.
2. Analyze the effect of point of sale on the value of commercial bank deposits in Nigeria
3. Investigate the effect of web internet transfer on the performance of deposit money banks in Nigeria
4. 4 Determine the effect of mobility of payment on the value of commercial bank deposits in Nigeria

### Review of Related Literature

**Financial innovation** is the improvement in the array of financial products and instruments that are stimulated by unexpected change in customer needs and preferences, tax policy, technology and regulatory impulses (Bhattacharyya & Nanda, 2000). Financial innovation is one of the most important competitive weapons and generally seen as a firm's core value capability. It is considered as an effective way to improve firm's productivity due to the resource constraint issues facing a firm (Ibekwe, 2021). Banking system has been growing with technological developments and innovative productions. Developing technology and changing macroeconomic guidelines improved the Nigeria financial system and many reforms have been set about in the system. Over the last years, banks have been trying to increase their portions of production, positively influencing profitability of credit cards, telephone banking, and online banking as a result of reduction in net interest incomes in Nigeria. Historically, financial innovations have been described as one of the bedrocks of our financial system and the life blood of efficient and responsive capital markets (Davis, 2017). The developments in the financial sector have not only led to the increase in the number of financial institutions, but also the development in level of sophistication with new payment systems and asset alternatives to holding money. This has resulted mainly from technological advancement and increase in competition as the number of institutions increase. Developments in payment systems have started to create close substitutes for physical currency, thus affecting a core part of banking in the area of physical collection and payment of notes and coins. Simiyu, Ndiang'ui &

Ngugi (2014) noted that financial innovation can be defined as an act of creating and then popularizing new financial instruments as well as new technologies, institutions and markets. For developed economies, it entails institutional, products and processes. Developing economies like Nigeria have however achieved financial innovation more in the area of processes or new ways of doing financial businesses like online banking, Automated teller machines, point of sale etc. This study therefore concentrates more on financial innovation from the process angle; Process innovation is new ways of operating business and implementing information technology, such as the Automated Teller Machine (ATM), mobile banking, and online banking, among others.

### Financial performance

Financial performance is the extent to which objectives of the firm and in this case financial objectives have been met (Yahaya & Lamidi, 2015). The company's financial performance is subject to how effectively a firm uses its assets from its principal role of conducting business and its subsequent generation of revenues. Financial performance can also refer to the general well-being of a firm as far as finance is concerned over a certain period of time. Financial performance focuses more on items that affect the financial statements or reports of a firm directly. Financial performance analysis deals with items such as dividend growth, sales turnover, capital employed, amongst others (Omondi & Muturi, 2013). The financial performance of different financial institutions can be measured by use of different ratios, measuring the performance against the provided budget, benchmarking among other methods (Avkiran, 2011). The financial statements of commercial banks contain a variety of financial ratios designed to give an indication of the bank's performance. Some of the ratios commonly used to measure performance of banks include Capital adequacy ratios, Asset Quality ratio, Earnings and Liquidity ratios. The most common financial ratios used to measure performance is the profitability ratios. Profitability ratios measure the total effectiveness of a bank's management in generating profits on interest income, assets, and owner's investment. Firm performance can be calculated in various ways. These may include but not limited to; increase in sales rate, market expansion, productivity and profitability (Ichniowski & Giovanna, 2011). Sales growth rate is a ratio that measures the rate of change in sales from time to time or a specified period of time. The utilization of historical growth rates is one of the methods of estimating future growth. Market share is the percentage of a market,

which may be defined in terms of either units or revenue, accounted for by a specific entity. Market share is a key indicator of market competitiveness, that is, how well a firm is doing against its competitors. Firm's financial performance is measured in monetary terms. A firm financial performance is reflected in the amount of success as regards to its output in terms of; return on investment, return on assets, value added among others. Profit is the main objective of commercial banks. Profitability of firms is measured in various ratios which majorly include; Return on Asset (ROA), Return on Equity (ROE) and Net Interest Margin (NIM) (Murthy & Mouritsen, 2011). ROE is a financial ratio that refers to how much profit a company earned compared to the total amount of shareholder equity invested or found on the balance sheet. ROE is what the shareholders look in return for their investment. ROA is a ratio of income to its total asset (Khravish, 2011). It measures the ability of the bank management to generate income by utilizing company assets at their disposal. Therefore, bank performance can be measured by the level of profit, volume of Credit, number of clients and Value of deposit. This study adopted value of deposit because deposit translates to credit in the process of intermediation and the mere number of client without deposit value is of no gain to the bank.

### **Commercial Bank Deposit as a Measure of Performance**

The value of deposit mobilized by the commercial banks in Nigeria is used as a measure of the performance of Deposit money bank in Nigeria within the period of analysis. This is because deposits determine the value and volume of credit given out as loan. While credit determine the profit generated by the banking system. Commercial bank outputs (performances) are measured by the number of accounts or the number of transactions per account, which includes deposits mobilized through such accounts. Other financial institutions, such as stockbrokers, are also intermediaries between buyers and sellers of shares, but it is the taking of deposits and the granting of loans that singles out a bank, though many offer other financial services.

### **Point-of-Sales (POS)**

The Point of Sales (POS) system is usually a computer device that is linked to a barcode scanner and printer device, where on the computer has been installed special software for POS. For examples such as transaction cashier or payment points in mini markets, super markets, hotels, restaurants, and much more (Plomp, Rijn, van & Batenburg, 2020). POS systems can be made stand-alone (not connected to

other POS systems) and can be designed to connected to other POS systems as required, over the Internet as well as on local networks. The traditional POS (TPOS) is not easy to be moved, which means more difficult to apply for movable merchants (Saravanan & Arunkumar, 2019). A point-of-sale (POS) terminal is a computerized replacement for a cash register. Much more complex than the cash registers of even just a few years ago, the POS system can include the ability to record and track customer orders, process credit and debit cards, connect to other systems in a network, and manage inventory. Generally, a POS terminal has as its core a personal computer, which is provided with application-specific programs and I/O devices for the particular environment in which it will serve. A POS system for a restaurant, for example, is likely to have all menu items stored in a database that can be queried for information in a number of ways. POS terminals are used in most industries that have a point of sale such as a service desk, including restaurants, lodging, entertainment, and museums. wikipedia.org (2017). Okuma, Nwoko & Obialor (2019) in their study on causal relationship between technologies of cashless policy and agricultural sector output in Nigeria found that POS as a variable of cashless policy impacted significantly on agricultural sector output.

### **Mobility of Payment**

Mobile banking (m-banking) is an application of mobile commerce that enables customers to bank virtually at any convenient time and place (Suoranta, 2003). It is the provision of banking and related financial services such as savings, funds transfer, and stock market transactions among others on mobile devices (Tiwari and Buse, 2007). In Africa, mobile phones are the most widely used form of communication technology (ITU, 2007). This has enabled the mobile market industry in Africa to be the fastest growing in the world when compared with other continents. (ITU, 2007). The adoption of mobile technology does not follow a single universal pattern. It can be ascribed to differences in mobile telecommunication infrastructure, types of services on offer, marketing strategies and the culture of the consumers (Harris et al., 2005).

### **Automated Teller Machine (ATM)**

ATMs are the most commonly used bank innovation in recent times. Almost all the universal banks in Nigeria have this facility available for their customers. On most contemporary ATM, the clients is identified after inserting a plastic ATM card with a magnetic stripe or a plastic smart card with a chip, that contains a unique card number and some security data, such as cessation date and personal

identification number (PIN) (Joseph, 2019). Join computer terminals accounting records and the cash vault in one unit, allowing clients to go into the bank's record keeping system with a plastic card containing a personal identification number (PIN) or by punching a special code number into the computer terminal linked to the bank's computerized records 24 hours a day (Jude, 2019). Once entrance is attained, it grants a lot of retail banking services to clients. ATMs are generally situated outside of the banks halls, and could also be located at filling stations, airports mall, supermarkets and places far from the branches of a bank. They were established initially to work as cash generating or dispensing devices. However, because of advancement in technology ATMs are capable of offering a variety of banking services, for example withdrawing cash, cash transfers from one account to another and bill payments, checking account balances, making deposit and printing account statement. Banks use the ATM as well as other innovative products to achieve competitive advantage, because it has the effect of cost reduction and depicts an image of a strong bank (Lasisi, & Abubakar, 2020).

### Web Internet Banking

Banking involves the conduct of conventional banking activities on the Internet, that is, the global network of computer which does not depend on any "brick and mortar" office building; it offers financial services that are accessed through the Internet's World Wide Web (W.W.W.). By reducing the overhead expenses of traditional banks, Internet banks in theory can offer clients better interest rates on deposits than that of traditional banking average rate (Asidok, & Michael, 2018). Banks often rely on the Internet to convey information about financial products to the general public, replace business conducted at the branch offices, which do away with the need to put up new branches, and to serve clients more efficiently. Internet banking sites present the prospect of more suitable means to manage customer finances, and such activities as paying bills on-line, searching for mortgage or auto loans, applying for credit cards. (Peter, & Emenike, 2020).

This study is anchored on the Location Innovation Theory of Desai & Low (1987), as innovations has brought banking services to the doorsteps of clients that are hitherto unbanked in Nigeria. Thus, the gap between financial service providers, product and those that need these services and products is closed by innovation(s) and increased the ability of banks in Nigeria to mobilize more deposits.

## METHODOLOGY

### Research design

The study adopted ex-post facto research design. This implies that the events that were being observed had taken place already and the researchers had no control on the variables. This design was suitable for the study since the events had already occurred and the data from it were duly documented in official records of well acclaimed institutions like the Central Bank of Nigeria.

### Nature and Sources of Data

Data for the study were obtained from secondary sources notably from publications of the Central Bank of Nigeria (CBN), Quarterly Statistical Bulletin, between 2009 and 2020. The following data were sourced: value of commercial bank deposit, values of point of sales transactions, values of automated teller machine transactions, values of mobile payment transactions and web transactions in Nigeria.

### Model Specification

In line with objectives of this study, the effect of financial innovation on the performance of deposit money banks is represented in equations below. The functional model indicates that the performance of deposit money banks in Nigeria is a function of the explanatory variables of the study. This postulation was adapted from the models as used in previous studies such as in (Mbah & Obiezekwem (2019) who studied the Electronic Banking and Performance of deposit money banks in Nigeria.

The functional model for this study is expressed as follows

Model:

$$CBD = f(\text{ATM, POS, WEP, MOP}) \dots \dots \dots \text{model 1}$$

Where:

CBD = value of commercial bank deposit

ATM= Value of Automated Teller Machine transactions

POS = Value of Point of Sales transactions

MOP= Value of Mobil Pay transactions

WEP= Value of Web Pay transactions

f = Functional Notation

For estimation purpose, equation 1 is restated as

$$CBD = \beta_0 + \beta_1 \text{ATM} + \beta_2 \text{POS} + \beta_3 \text{WEP} + \beta_4 \text{MOP} + \mu \dots \dots \dots \text{equation 1}$$

Where

$\beta_0$  = Autonomous or intercept

$\beta_1$  = Coefficient of regression for POS

$\beta_2$  = Coefficient of regression for MOP

$\beta_3$  = Coefficient of regression for ATM

$\beta_4$  = Coefficient of regression for WINT

$\mu$  = Stochastic variable or error term

### Method of Data Analysis

The study employed ordinary least square (OLS) method of estimation to establish the effect of the independent variables on the dependent variable. The (OLS) is the most efficient method because of the "Best Linear Unbiased Estimator" (BLUE) properties. The model equation will be estimated using a variety of analytical tools, including the unit root test, co integration test and diagnostic Statistics

such as normality test, stability test and serial correlation.

The null hypothesis is that the variable is normally distributed.

### Decision Rule

Decision rule is to reject when p. value is less than 0.05 level of significance

### Results and Discussion

**Table 1 Descriptive Statistics**

	DMB	POS	ATM	MOP	WEBT
Mean	1048123.	2141.215	93639.77	1216.861	4174.528
Median	982097.5	1425.000	75460.00	720.0000	2293.015
Maximum	1824707.	9430.100	205046.6	8085.620	20570.00
Minimum	581846.3	38.57000	18480.00	20.00000	880.0000
Std. Dev.	281539.1	1883.571	58400.07	1541.895	4217.690
Skewness	0.488661	1.906263	0.267015	2.632644	2.187051
Kurtosis	2.593787	6.850736	1.510003	11.07141	7.748351
Jarque-Bera	2.240337	58.72705	5.010555	185.7420	83.35921
Probability	0.326225	0.000000	0.081653	0.000000	0.000000
Sum	50309910	102778.3	4494709.	58409.33	200377.4
Sum Sq. Dev.	3.73E+12	1.67E+08	1.60E+11	1.12E+08	8.36E+08
Observations	48	48	48	48	48

Source: Computation using E-view version 9.0

The summary of the statistics shows that the average mean of performance of deposit money bank is about 104823. The average mean for point of sales is 2141.2, while averages mean of automated teller machine, mobility of payment and web internet transfer rate were 93639.77, 1216.861 and 4174.528 respectively. The standard deviations of performance of deposit money bank point of sales, automated teller machine, mobility of payment, web internet are 2815391.1, 1883.571, 58400.07, 1541.895 and 4217.690. The values of the standard deviations indicate that there is wide spread of financial innovation in Nigeria. This is also evident in the wide gap between the maximum and minimum values. For example, the maximum value of performance of deposit money is 1824707 while the minimum is 581846.3, with difference of 124. Similarly, the maximum of point of sales is 9430.100 while the minimum is 38.57000. These performance variations are rather at the high side. Even in the case of automated teller machine is 205046.6 and the minimum is 18480.00. It is equally observed that mobility of varied widely over time. MOP For instance, is 8085.620 while its minimum value is 20.000. The wide variation over time indicates high level of fluctuation of financial Innovation which affects real gross domestic product in Nigeria.

### Unit Root Test

The first stage of co-integration and Error Correction Model is to test for unit root. The whole analysis then proceeds from it. It becomes necessary to analyze whether the series are stationary or not whenever time series data are involved. The presence of unit root implies that the time series under investigation is non-stationary, the absence of a unit roots shows thatstochastic process is stationary. The Augmented Dickey-Fuller (ADF) test is employed in this test.

**Table 2 Unit Root Test**

variable	ADF	Integration	Significant
PDMB	-12.01882	1(1)	1%
POS	-8.550198	1(1)	1%
ATM	-47.674567	1(1)	1%
MOP	-6.006397	1(1)	1%
WEBT	-7.486602	1(1)	1%

Source: Author's computation using E-view 9.1

Finally, the ADF test was conducted on financial innovation on the performance of deposit money banks and the results presented in table 2 show that null hypothesis of unit roots was rejected after differencing once. Hence, the variable is clearly integrated of order one and at 1% level of significant respectively.

### Co-Integration test

Given that all the variables are integrated of order one, co-integration test was carried out to establish whether the variable though individually non-stationary could be co-integrated as a group and also to establish the existence of a long-run relationship among them. The Johansen procedure is used to achieve this. Both trace statistic and maximum eigenvalue test are used to determine the number of co-integrating vectors. The test statistic rejects the null hypothesis in favour of three co-integrating relationship at 5% significant level. But the maximum eigenvalue test indicates also two co-integrating relation at the 5% level. The long run coefficients emanating from the co-integration relationship normalization on the economy is presented in the table below.

**Table 3. Johansen Co-integration Test**

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	Critical Value 0.05	Prob.**
None *	0.549983	65.95597	60.06141	0.0146
At most 1 *	0.273656	30.02485	40.17493	0.3531
At most 2 *	0.168192	15.63691	24.27596	0.4064
At most 3	0.138532	7.350008	12.32090	0.2916
At most 4 *	0.014116	0.639750	4.129906	0.4843
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level *denotes rejection of the hypothesis at the 0.05 level **Mackinnon-Haug-Michelis (1999) p-values				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
None *	0.549983	35.93111	30.43961	0.0093
At most 1 *	0.273656	14.38795	24.15921	0.5647
At most 2 *	0.168192	8.286900	17.79730	0.6744
At most 3	0.138532	6.710257	11.22480	0.2758
At most 4 *	0.014116	0.639750	4.129906	0.4843
Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level *denotes rejection of the hypothesis at the 0.05 level **Mackinnon-Haug-Michelis (1999) p-values				

**Source: Author's Compilation Using E-views 9 Output**

The result of Johansen co-integration test is shown in table above. The result shows that there exist one (1) co-integrating equations at 5% level of significance. This is because the trace statistic is greater than critical values at 5%. This shows that there exists a long run relationship between government spending and all the explanatory variables. The result indicates that in the long run, the dependent variables can be efficiently anticipated using the specified independent variables and, thus, we proceeded to estimate the Error Correction Model (ECM) so as to reconcile the short-run dynamics with long-run disequilibrium of the variables. The Error Correction Model results are presented in table below.

### Regression Result

**Table 4. Error Correction Model Result**

Variable	Coefficient	Std.error	T-test	Prob
C	0.117895	0.281231	42.23917	0.0000
LPOS	0.029339	0.022410	1.309183	0.1978
LATM	0.169120	0.026789	6.313153	0.0000
LMOP	0.120201	0.015421	7.794819	0.0000
LWEBT	0.061789	0.018899	3.269525	0.0022
ECM(-1)	-0.210541	0.150773	-1.396408	0.1701
R-Squared: 0.879036; Adjusted R-squared: 0.864284; F-statistic: 59.58867; Prob(F-statistic): 0.000000; Durbin-Watson Stat: 1.949070				

**Source: Author's Compilation Using E-views 9 Output**

The results presented above will be analyzed using three criteria; economic a priori criteria, statistical criteria and econometric criteria.

The  $R^2$  which is the coefficient of determination or the measure of goodness of fit shows the degree of variation in the dependent variables. The closer  $R^2$  is to 100%, the better the fit of the model. From the regression result,  $R^2$  is 0.87%. This implies that the independent variable can explain about 87% of the variations in the dependent variable, leaving the remaining 23% which would be accounted for by other variables outside the model as captured by the error term. The adjusted  $R^2$  is 86% meaning that even with an adjustment in the dependent variables, they can still explain about 86% of the change in the dependent variable. The F-statistics measures the overall significance of the explanatory parameter. From the result in table 4 above, our computed value F-statistics is 59.58867 while the probability is 0.0000, since the probability of the F-statistics in the computed output is less than the desired 0.05 level of significance, we accept and state that there is a significant relationship between the variance of the estimate and that of the dependent variable.

The specific objectives are addressed using the coefficient of regression and its corresponding t-statistics were used to test the hypothesis of the study. The result is as shown on the equation below:

$$PDMB = 0.117895 + 0.029339POS + 0.169120ATM + 0.120201MOP - 0.0617897WEBT$$

#### **Effect of point of sale and performance of deposit money banks (PDMB),**

The coefficient of regression (0.029339POS) indicates that point of sales (POS) has positive effect on deposit money banks. This indicates that a unit increase in point of sales will lead to about 2 percent increase in the deposit money banks. The t-statistics 1.309183 with P.value of 0.1978. Since the P.value is greater than 0.05 level, we reject the alternative hypothesis and accept null hypotheses which indicates that “point of sales has no significant effect on deposit money banks”. Therefore that study posited that point of sales has not significantly improved the performance of deposit money banks in Nigeria.

#### **Effect of Payment Mobility and Performance Deposit Money Banks (PDMB),**

The coefficient of regression (0.120201MOP) indicates that Payment Mobility (MOP) has positive effect on the performance of deposit money bank (PDMB). This indicates that a unit increase in Payment Mobility will lead to about 1.2 percent raise in the performance of deposit money banks (PDMB). The t-statistics 7.794819 with P.value of 0.0000. Since the P.value is less than 0.05 level, we reject the null hypothesis that “Payment Mobility does not have significant effect on Performance Deposit Money Banks”. Therefore the study maintains that Payment Mobility has significant effect on the performance of deposit money banks.

#### **Effect of Automated Teller Machine (ATM) and deposit money banks (PDMB),**

The coefficient of regression for Automated Teller Machine (ATM) is 0.169120ATM. This indicated that credit to Automated Teller Machine has positive impact on deposit money banks. This implies that an increase in ATM will lead to about a 16 percent increase in performance of deposit money banks. However, the t-statistics (6.313158) has a P.value of 0.6860. Since the P.value is less than 0.05, the study rejects the null hypothesis that “Automated Teller Machine has no significant effect on the performance of deposit money banks” and accept alternative hypotheses which indicates that ATM has significant effect on performance of deposit money banks in Nigeria.

#### **Effect of Web Internet (WINT) and Performance Deposit Money Banks (PDMB),**

Web internet has positive effect given its value as 0.0617897WEBT, this implies that increase in web internet increased the performance of deposit money banks, however, the t-statistics which measured the individual significant of the variable shows that web internet is 3.269525 and its probability as (0.0121) implies its significant effect on performance of deposit money bank. This led us to acceptance of alternative hypothesis which maintain that web internet has significant effect on the performance of deposit money banks.

#### **Normality Test**

The normality test adopted is the Jargue – Bera (JB) test of normality. The JB test of normality is an asymptotic or large sample, and if is based on the OLS residuals. This test computes the skewness and kurtosis measures of the OLS residuals and it follows the chi square distribution.

#### **Hypothesis**

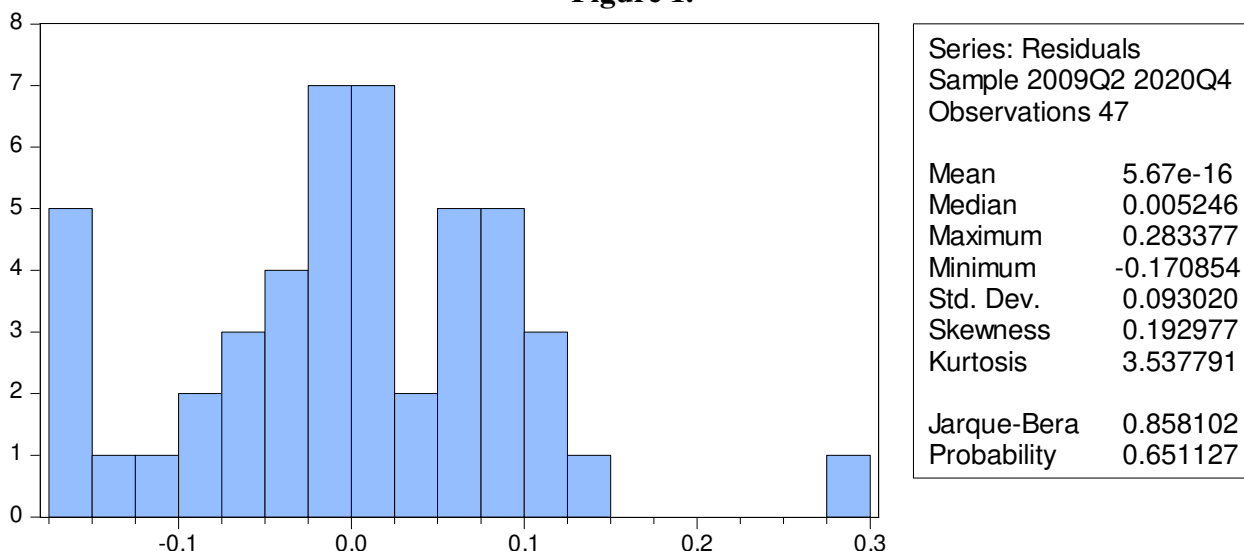
Ho:  $B_1 = 0$  (The error term follows a normal distribution).

Hi:  $B_1 \neq 0$  (The error term does not follow a normal distribution).

The normality test follows chi-square distribution with two degree of freedom (df) at 5% level of significance.



**Figure 1.**



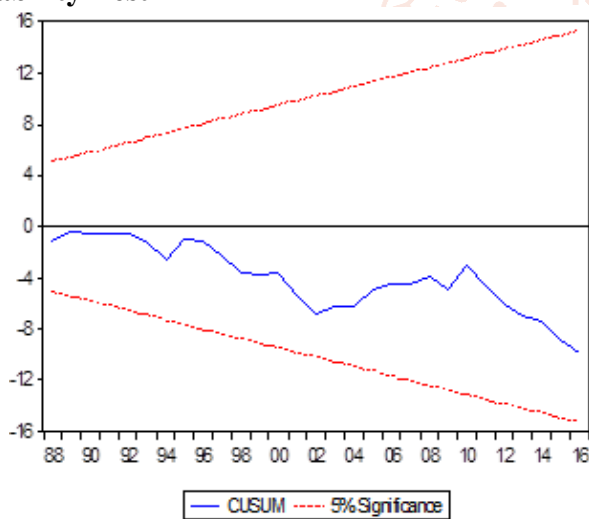
It can be seen that the reported probabilities are greater than at 5% significance level and therefore, the null hypothesis is accepted. This means that the residuals are normally distributed.

**Stability Test**

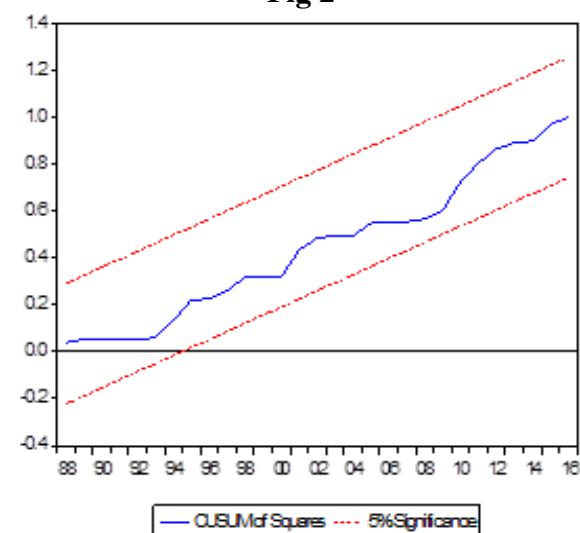
The stability test enables us to predict the dependent variables in a regression with a reasonable level of precision given the independent variables used in the analysis.

Therefore, the test is carried out using the cumulative sum and cumulative sum of squares. The result shows that our model is dynamically stable because the fitted lines fall within the dotted lines for critical value of 5%.

**Stability Test**



**Fig 2**



**Fig 3**

**Breusch-Godfrey Serial Correlation Lm Test**

This serial correlation test was used to check for the serial relationship between the variables. The null hypothesis stated absence of serial correlation but the alternative hypothesis states the presence of serial correlation. The prob.chi square if less than 5% level of significance signifies the acceptance of the alternative and rejection of null hypothesis while the prob chi square greater than 5% level of significance signifies the acceptance of the null hypothesis and rejection of the alternative hypothesis.

**Table 5. Serial Correlation Test Table**

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	0.138059	Prob. F(2,39)	0.8715
Obs*R-squared	0.330419	Prob. Chi-Square(2)	0.8477

Sources: Authors Computation from E-view 10

The results above showed the prob. (chi-square) having a value of 0.8, which is greater than the 5% level of significance therefore we accepted the null hypothesis which stated that there is no serial correlation.

**Conclusion**

It was discovered that financial innovation is inevitable in improving the performance of deposit money banks. Drawing an inference from the finding, it is glaring that financial innovation helps in increasing profitability and return on assets of deposit money banks and subsequently strengthens the economy. A growing body of empirical analysis

including product analysis, firm level studies and industry level studies demonstrate strong positive link between the functioning of the financial innovations and in the long run, deposit money banks.

In the light of the above, the researcher concludes that this study is needed at this time as its finding have revealed a lot of insightful information necessary for serious consideration to Nigerian government and banking sector who would consider this work a companion for economic growth.

### Recommendations

This study therefore recommends as follows:

1. Increase in the number of outlets offering point of sale (POS) devices to support their economic activities. The number currently in circulation is limited and banks should deploy more POS devices to strategic places like shops, churches, schools, hospitals, institutions and fuel stations for easy access to financial transactions.
2. Aggressive spread of Automated teller machines especially in the unbanked rural areas to ensure their financial access is guaranteed.
3. Technological aspect of mobile banking should be encouraged to ensure awareness is created to enlist more users.
4. iv. The regulatory authorities should commit more funds in the area of public awareness, enlightenments and sensitizations in order to increase the use of e-payment channels.
5. v. The government should put in place proper monetary and fiscal policies in order to promote financial innovations in Nigeria as the investigations in this study have proved to engender performance of deposit money banks in Nigeria.

### References

- [1] Aduda J. also, Kingoo N, (2012): The relationship between electronic banking and financial performance among commercial banks in Kenya. *Journal of Accounting and Taxation* 6 (7) 56-77
- [2] Ahmed, H. K., Raza, A., Amjad, W., & Akram, M. (2011). Financial performance of Finance companies in Pakistan. *Interdisciplinary Journal of Contemporary Research in Business*, 2(12), 732- 744
- [3] Aladwani, A. M. (2001). Online banking: a field study of drivers, development challenges and expectations. *International Journal of Information and Management*, 2 (1), 213-225
- [4] Anandarajan, M., Igbaria, M. and Anakwe, U. P. (2002) IT acceptance in less developed country: A Motivational Factor Perspective,

*International Journal of Information Management*, 2, 2, 47-65.

- [5] Asidok, N. O. & Michael, A. A. (2018). Mobile banking transactions and bank profitability in Nigeria: *International Journal of Economics, Commerce and Management United Kingdom* 6(6) 5-9
- [6] Avkiran, N. K. 2011. Developing an instrument to measure customer service quality in branch banking. *International Journal of Banks Marketing*. 12(6):10 -18.
- [7] Bhattacharyya, S. and Nanda, V. K. (2000). Customer circumspection, exchanging costs and financial advancement. *Review of Financial Studies*, 13, 1101-1127.
- [8] Davis, F. D. Bagozzi, R. P. Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, 35 (8), 982-1003.
- [9] European Commercial Bank (ECB, 2003), Financial innovation and monetary policy. [www.http:ecb.http.org](http://www.ecb.org). retrieve June 2020
- [10] Goh, S. C., Elliott, C., & Quon, T. (2011). The relationship between learning capability and Organizational performance: Meta-analytic examination. *The Learning Organization*, 19(2), 92-108
- [11] Gorton, G., & Metrick, A. (2010). Securitized banking and the run on repo. Yale school of management, *Working Paper*
- [12] Harris, P., Rettie, R. and Kwan, C. C. (2005) Adoption and usage of m-commerce: A Cross-Cultural comparison of Hong Kong and the United Kingdom, *Journal of Electronic Commerce Research*, 6, 3, 210-224.
- [13] Ibekwe, A. O. (2021). Financial innovation and performance of deposit money banks in Nigeria. *International Journal of Business & Law Research* 9(1):162-173
- [14] Ichniowski, K. S., Giovanna P. (2011). The Effects of human resource management practices on productivity: A Study of Steel Finishing Lines. *The American Economic Review*, 87, (3)
- [15] ITU (2007) Measuring information and Communication technology availability in villages and rural areas. Retrive from [www.itu.net](http://www.itu.net) on june 2020
- [16] Kihumba C. W. (2008). Determinants of financial innovation and its effects on banks performance in Kenya. Unpublished Master of

- Business Administration Project, University of Nairobi
- [17] Jingqin Z. Ying G., Kaodui L, Osei-Assibey M. B. (2019) impacts of financial innovations on financial performance evidence of electronic banking in Africa. *International Journal of Scientific Engineering and Science*, 3, (7), 56-60,
- [18] Joseph, M. V. (2019). Impact of electronic banking on the profitability of commercial banks in Kenya: *Journal of Technology and Systems* 1(18) 18 – 39
- [19] Jude, C. N. (2019). Internet banking in terms of profitability: the case of northern Cyprus banks: *International Journal of Retail & distribution Management*, 29(6)21-83
- [20] Khrawish, H. A. (2011) Determinants of commercial banks performance: evidence from Jordan. *International Research Journal of Finance and Economics*. Zarqa University, 5(5), 19-45
- [21] Lasisi, M. A. R. & Abubakar, S. J. (2020). An empirical study of automated teller machine (ATM) and user satisfaction in Nigeria: A study of united bank for Africa in sokoto metropolis: *International Journal of Management Technology* 2, (3)1- 11,
- [22] Makini F. (2010): Relationship between financial innovations and performance of commercial banks. Unpublished MBA project University of Nairobi.
- [23] Mbah, S., & Obizekwem, J. (2019). Electronic banking and performance of small and medium scale enterprises in Anambra State, Nigeria. *International Journal of Business and Management*, 14(6), 173–180.
- [24] Murthy, V., & Mouritsen, J. (2011). The performance of intellectual capital: mobilizing relationships between intellectual and financial capital in a firm. *Accounting, Auditing & Accountability Journal*, 24(5), 622-646.
- [25] Okuma, N. C, Nwoko, C. N. J, & Obialor C. B. M. (2019). Causal relationship between technologies of cashless policy and agricultural sector output in Nigeria. *International Journal of Advanced Educational Research*. Vol. 4, Issue 4, pg 30-38.
- [26] Omondi, M. M., & Muturi, W. (2013). Factors affecting the financial performance of listed companies at the Nairobi securities exchange in Kenya. *Research Journal of Finance and Accounting*, 4(15), 99-105.
- [27] Peter, I. A. & Emenike, K. O. (2020). Impact of automated teller machine on banking services delivery in Nigeria: A Stakeholder Analysis: *International Journal of Accounting Research*, 1(6), 14-21
- [28] Plomp M G A, Rijn G van and Batenburg R S 2020 Chain digitization support by point-of-sale systems: an analysis of the Dutch product software market. *International Journal of Information Technology and Management* 11 (3) 257-260
- [29] Saravanan S and Arunkumar D A 2015 Conceptual Model Of Logistics Information System Effectiveness On Retail Outlets Towards Customer Service Quality In Tiruchirappalli *International Journal of Management and Commerce Innovations* 3 7 p 1058-1060
- [30] Simiyu, R. S., Ndiang'ui, P. N., & Ngugi, C. C. (2014). Effect of financial innovations and operationalization on market size in commercial banks: A Case Study of Equity Bank, Eldoret Branch. *International Journal of Business and Social Science*, 5(8).
- [31] Suoranta, M. (2003). Thesis: Adoption of mobile banking in Finland. Ph. D. Jyväskylä University Printing House, Jyväskylä and ERPaino, Lievestuore. 66.
- [32] Sweeney, A., & Morrison, M. (2004). Clicks vs. bricks: internet-facilitated relationships in financial services. *International Journal of Internet Marketing and Advertising*, 1(4), 350-370.
- [33] Tiwari, R. and Buse, S. (2007). The mobile commerce prospects: A strategic analysis of opportunities in the banking sector. Hamburg, Germany: *Hamburg University Press*
- [34] Wachira, E. W. (2013). *The effect of technological innovation on the financial performance of commercial banks in Kenya* (Doctoral dissertation, School of Business, University of Nairobi).
- [35] Yahaya, O. A. & Lamidi, Y. (2015). Empirical examination of the financial performance of islamic banking in Nigeria: a case study approach. *International Journal of Accounting* 2 (7) 45-55