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IMPACT OF FINANCIAL TECHNOLOGIES ADOPTION ON THE PERFORMANCE OF DOMESTIC SYSTEMICALLY IMPORTANT BANKS IN NIGERIA

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Abstract. *The purpose of this study is to investigate the impact of financial technologies adoption on the performance of domestic systemically important banks in Nigeria from 2015-2019. Data was extracted from the audited annual financial statements of domestic systemically important banks in Nigeria. The author adopted the panel regression to analyse data collected from the audited annual financial statements of domestic systemically important banks in Nigeria from 2015-2019. Findings shows that Automated Teller Machine, Point of Sale and mobile transfer/web increased the performance of domestic systemically important banks in Nigeria from 2015-2019. Furthermore, investments in financial technologies possessed a positive impact on performance of domestic systemically important banks in Nigeria for the period under review. Policy options and limitations of the study are proffered in the main text.*

Key words: *financial technologies, domestic systemically important banks, return on assets, return on equity, return on capital employed, Nigeria.*

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Introduction

Information and Communication Technology (ICT) is generally accepted as the centrifugal force behind increase in organisational competitiveness in the modern day business environment. Drawing into specifics, ICT apart from its domineering influence on a multiplicity of human activities, it still wields a greater influence on the banking sector. Overtime, banks have been at the forefront of industrialisation as seen in the case of Germany and till date some countries operate a bank-based economy while others operate a market-based economy; the aforementioned reiterates the importance of banks to economic growth of certain sovereign nations. Globalisation has increased the level of competition amongst banks in the industry which indirectly increases their efficiency. In a bid to remain competitive, ability to adapt to the prevailing dynamics of the business environment in which they operate. In a sharp response to the change, banks put in place operational processes that ensure greater customer convenience, better delivery of and increased accessibility to financial services and products.

In the aftermath of cashlite policy, financial technologies has disrupted the payment system in several African countries changing how daily financial transactions are carried out owing to a proliferation of variants such as the Automated

Teller Machine (ATM), Point of Sales machines (POS) and the mobile transfer platforms (USSD, mobile app and internet banking). Before the advent of the aforementioned financial technologies in the Nigerian Banking system, the banking halls were besieged by eager bank customer for a variety of transactions ranging from deposits, local money transfer, passbook withdrawals, international money transfer, accounts complaints and cheques settlements. At this stage, banks depended on maximum manpower and possessed high operating costs due to the analogue system operated deemed tedious to all staff cadres with focus on employees in operations. Inter-bank settlements at clearing houses routinely serves as a practical example to describe the Nigerian deposit money banks prior to proliferation of the aforementioned financial technologies. The Nigerian banking industry has witnessed significant change and improvement in the structure of the banking industry via investment in ICT over the last decade (Adewale and Afolabi, 2013). Investments in ICT has seen the introduction of financial innovations replacing the traditional processes with multiplier effects pronounced in the ease and speed of financial services within the offering of deposit money banks to its clientele.

Several authors has investigated the impact of ICT on bank performance in Nigeria but there still exist a trailing controversy in empirical literature in the case of Nigeria. Okonkwo, et al. (2015) in their attempt to investigate the impact of investments in ICT on bank performance in Nigeria found that investments in ICT does not translate to improvement in bank performance in the case of Nigeria. Aggreh, et al. (2020) towed the same line as Okonkwo, et al. (2015) positing that ICT investment does not result in instantaneous positive effects on ROE in the immediate period rather expected in subsequent years. However, the study of Dabwor, Ezie & Anyatonwu (2017) objected to the stance taken by Okonkwo, et al. (2015) and Aggreh, et al. (2020) positing that the investment and adoption of ICT such as (Automated Teller Machine, Web based transactions, and Mobile payments) in the banking industry resulted in a proportionate increase in the profit level. Muhammed & Kebbi (2014) is in harmony with the findings by Okonkwo, et al. (2015) and Aggreh, et al. (2020) positing that the use of ICT, from random effects model, does not improve bank performance in the Nigerian commercial banks. Lebanese-based study conducted by Mahboub (2018) reiterated the stance of the majority stating that application of Automated Teller Machines, internet banking, telephone banking and point of sales terminals does not significantly affect banks performance in Lebanon. The purpose of this study is to investigate the impact of financial technologies adoption on the performance of domestic systemically important banks in Nigeria from 2015-2019.

We therefore intend to add to the body of knowledge through the following states of action; a) employing three measures of bank performance to increase reliability of expected findings different from other empirical studies in the case of Nigeria on the above topic b) investigating the impact of financial technologies on bank performance in its post-integration stage which no author has attempted in the case of Nigeria.

Literature review

Theoretical Review

ICT is a combination of information technology and communication technology. It merges computing with high speed communication link carrying data, sound and video. It deals with the collection, storage, manipulation and transfer of information using electronic means. Communication technology refers to the physical devices and software that link various computer hardware components and transfer data from one physical location to another (Laudon, 2001). The relationship between ICT and performance has attracted the attention of researchers in recent times. Several studies have been conducted to investigate this relationship. It is however worthy of note that there has never been a consensus on whether ICT contribute to organizational performance or not. Different theoretical approaches have been adopted by researchers to investigate the nature of the relationship between ICT and firm performance over the years. Transaction cost theory, Value chain analysis and Resource-based view which is a more recent theory that is widely embraced by many such as Ordanini and Rubera (2010), Fahy and Hooley (2011); Rashidirad, Syed and Soltani (2012) and Onyeiwu, Muoneke & Abayomi (2021). The resource-based view (RBV) of the firm posits that firms compete on the basis of "unique" corporate resources that are considered to be valuable, rare, difficult to either imitate or substituted by other resources. The theory stemmed from the area of strategic management research and widely attracts attention as a suitable tool to examine the value delivered by IT resources (Melville, 2004; Wade & Holland, 2004). The resource-based theory rationalizes firm's superior performance to organizational resources and capabilities. Extant literature reveals that firms do compete on the basis of unique corporate resources that are valuable, rare, difficult to imitate, and non-substitutable by other resources (Barney, 1991; Corner, 1991; Schulze, 1992). RBV operates under the assumptions that the resources needed to conceive, choose and implement strategies are heterogeneously distributed across firms whose differences remain stable over time (Barney, 1991). Resources can be broadly defined to include: assets, knowledge, capabilities, and organizational processes (Bharadwaj, 2000). Grant (1991) however distinguishes between resources and capabilities and further classifies resources into tangible, intangible and personnel-based resources. The tangible resources include: financial capital and physical assets of the firm such as plant, equipment, and stocks of raw materials whereas, intangible resources include reputation, brand image, and product quality while personnel-based resources include technical know-how, and other knowledge assets including dimensions such as organizational culture, employee training, loyalty, etc. The ability of a firm to create competitive advantage depends on its capability, which is the extent to which the organization can assemble, integrate, and deploy valued resources to create or sustain competitive advantage in the industry to which it belongs (Russo and Fouts, 1997). The resource-based view of the firm links the performance of organizations to resources and skills that are firm specific, rare and difficult to imitate or substitute (Barney, 1991). Hence, it is a theory that is mostly preferred by researchers in this area of study. This paper consequently is based on this theory.

Empirical Review

Mohammad (2011) in their study on the impact of ICT investment on profitability in Pakistani banks shows ICT channels has increased competition among banks, absence of long queue, reduction in manual banking, increase in banks profit though it has borne considerable cost of implementation. Sadr (2013) investigated the relationship between ICT investment and profitability in selected Asian countries, the results suggesting that there is a short run steady-state relationship between this variable for a cross-section of countries and vice versa. Two common measures of bank profitability was used, namely; the return on assets and return on equity. The findings show that ICT has a positive effect on profitability. Oyewole, Abba, El-Maude, and Gambo (2013) assessing investment in ICT and bank performance: evidence in Nigeria. The study examines the impact of e-banking on ROA, ROE and NIM from a period of 2000-2010, Panel data comprised of audited financial of eight banks that has adopted e-banking. The research reveals that investment ICT begins to contribute positively to bank performance in terms of return on assets (ROA) and net interest margin (NIM) with a time lag of two years, while a negative was witnessed in the first year of adoption. Dabwor, et al. (2017) examined how the adoption of Information and Communication Technology (ICT) affects the competitive performance of banking sector using independent sample t-test. Findings from the study revealed that a positive relationship exists between ICT and banks performance in Nigeria. This implies that a marginal change in the level of the investment and adoption of ICT such as (Automated Teller Machine, Web based transactions, and Mobile payments) in the banking industry resulted in a proportionate increase in the profit level. Makinde (2014) examined correlation between IT investment and corporate performance in the Nigerian banking sector. The study made use of secondary data sourced from the Central Bank of Nigeria statistical bulletin, the National Bureau of Statistics and archives of the four (4) selected banks (using their websites) for the variables between 1986 and 2011. Using the Pooled regression techniques; our study revealed that there is a strong positive relationship between the banks' net income and the annual investment in ICT by the selected banks. That is, ICT has greatly impacted positively and significantly on bank operations in Nigeria given the period of study. Nguyen (2021) investigated the impact of ICT on bank performance in Vietnam. By using data from 20 Vietnamese commercial banks in the 2007-2019 period and the ICT index set of indicators for commercial banks, we see that readiness for IT development and application has had a significant impact on bank performance, among other factors such as the size of the bank, the ratio of equity to total assets and the ratio of deposits to loans. Adebola (2018) examined the impact of Information Communication Technology on Bank Performance of selected banks in Ondo State. The findings reveal that technology innovation has influenced Nigerian banking industry performance. The introduction of information technology communication has influenced customer satisfactions. Thus the followings are drawn. The implication of information communication technology had really enhanced the profitability of banks. Also it reduces management costs of banks. Also, it was concluded that information communication technology has contributed to the effectiveness of staff thereby aiding accuracy and speed. This study found out that the

use of information communication technology had reduced stress in banks operations, despite all the implications of information communication technology had brought to the stakeholders, it was concluded that the business environment in Nigeria hinders the smooth operations of internet banking in the country. Syed (2018) explored the relationship between Information Technology (IT) investment and banks' performance. This study is conducted on Dhaka Stock Exchange (DSE) listed banks and especially five commercial banks are selected for this research. Based on secondary data, this research is quantitative and longitudinal in nature. The correlation and regression models have been used to measure the relationship between Information Technology (IT) investment and banks' performance. Bank's performance has been measured by Return on Investment (ROI), Net Profit Margin (NPM), Return on Equity (ROE) and Return on Asset (ROA). The findings of this study reveal that a positive relationship exists between IT Investment and banks performance.

Chibueze, Maxwell and Osundu (2013) examined the effect of ICT investment and bank performance in Nigeria from a judgmental sample of four banks being quoted on the Nigerian stock exchange. The study aimed at looking at the effect on return on equity and return on assets. The research employs the use multiple regression ant t-test in data analysis of data from books of account of the four banks. The finding from data obtain on the activities of these bank reveals that the ICT has positively and significantly improved the return on equity (ROE) of Nigerian bank. Adesola, et al. (2013) examined the impact of information and communication technology on the Nigerian banks operations in term of speed of banking operations, and efficient service delivery, workers' performance and bank's profit level, using United Bank for Africa (UBA) Plc. as a case study. The result showed the usage of ICT contributed significantly to the speed of banking operations, and efficient service delivery, workers' performance and bank's profit level. On the contrary, it has not significantly improved return on assets (ROA). Willy and Obinne (2013) assessed the impact of IT investment on bank returns for a sample of four banks in Nigeria. By depending greatly on historic data that were extracted from annual financial reports of the sampled banks for a seven year period from 2005 to 2011.The findings suggested that IT expenditure has a negative relation with bank profitability demonstrating that IT expenditures of all the studied banks do not increase bank profitability, but rather declines it insignificantly. Wasilwa & Omwenga (2016) investigated ICT strategies in the area of automated teller machines, internet banking and mobile banking. These strategies were studied in relation to their effect on commercial banks' performance indicators namely: profit before tax, customer deposits and effectiveness. Data was collected using Likert's scale questionnaires which were self-administered. Secondary data was obtained from financial statements of Equity group records. Correlation analysis was used to give an insight into the relationship between ICT strategies and performance. The findings reveal that ICT strategies had statistically significant influence on income, profitability and customer deposits of commercial banks in Kenya and tests for significance also showed that the influence was statistically significant. The findings also revealed that mobile phones had a higher effect than Internet services on the ICT strategies when influencing

performance of commercial banks in Kenya. Based on the findings of the study, it can be concluded that ICT strategies influence performance of commercial banks in Kenya positively.

Binuyo and Aregbeshola (2014) evaluated the effect of ICT on the performance of four biggest banks in South African using bank annual data over the period 1990–2012 using the orthogonal transformation approach. The results indicated that the usage of ICT increases return on capital employed (ROC) as well as ROA of the South African banking industry. The study realizes that more of the contribution to performance emanates from ICT cost efficiency contrasted to investment in ICT. Victor, et al. (2015) investigated the effect of ICT and financial innovation on the performance of selected eleven commercial banks in Nigeria over the period 2001 to 2013 based on a data collected from the banks' annual reports and CBN fact-books. The results revealed that an increase in banks' profitability performance increases commercial banks' ROE. However, investments in e- banking services and ATMs do not certainly enhance banks' performance. Aggreh, et al. (2020) investigated the longitudinal nature, extent and magnitude of the return on ICT investment in the banking industry in Nigeria. The findings of the study reveal that ICT investment does not always result in instantaneous positive effects on financial performance in the immediate period. However, the result shows evidence of a dynamic pattern in the response as positive effects of ICT investment is observed to begin from the following year (ICT +1) and significant at 10% and is even stronger the year after (ICT +2) and significant at 5%. Mahboub (2018) contributed to the ongoing debate regarding the contribution of ICT to BP by looking at the impact of ICT investments on the performance of a sample of 50 Lebanese banks for the period 2009-2016. Using multivariate OLS model, the results demonstrate that the application ATM, IB, TB and POS terminals does not significantly affect banks performance. However, the application of MB and offering BC to customers significantly and directly affects performance of banks in Lebanon. Muhammed & Birnin-Kebbi (2014) investigated the relationship between Information and Communication Technology (ICT) on bank performance and economic growth in Nigeria. The ordinary least squares (OLS), among the commonly used models in analysing panel data were used. Results of the study reveals that the use of ICT, from random effects model, does not improve bank performance in the Nigerian commercial banks. Al-Busaidi & Al-Muharrami (2016) assessed the impact of ICT on bank performance in Oman from 2001-2015. This study found that ICT asset value is positively correlated with financial indicators such as operating income, profit before tax, and yearly profit; whereas it is negatively correlated with financial ratios such as return on average assets, return on average equity, and return on investment.

Methods

Justification of the Study Sample

The sampling technique adopted by this research is the purposive sampling technique. This research selects domestic systemically important banks (D-SIBs) due to its huge asset base and relative regulatory importance. Including them in the

research sample enhances the meaningfulness and usability of proposed research findings. The sample size for this research will include banks in the D-SIBs category identified by the Nigeria Deposit Insurance Corporation in their 2018 Annual Report, popularly referred to as FUGAZ; First Bank of Nigeria Plc, United Bank for Africa Plc, Guaranty Trust Bank, Access Bank Plc, Zenith Bank Plc with the inclusion of another D-SIB, Fidelity Bank Plc.

Data Sources and Collection Instrument

This research is dependent on secondary data, and data employed emanates from commercial banks' audited annual financial statements in the D-SIBs category. The study period's choice correlates with the availability of financial information released for public consumption by banks in the D-SIBs category from 2015-2019.

Model Specification

This study adopts a research model in perfect alignment with the research questions and hypotheses raised in the introductory part of this research. The research model emanates from the researcher's quest to assess the effect of financial technologies adoption on D-SIBs' performance for the period under review.

The classical regression model; more focused on two or more independent variables, for this study and the nature of data warrants a specification of a multiple panel regression model and follows the form as specified below:

$$Y_{it} = \alpha_0 + \beta X_{it} + \mu_{it} \quad (1)$$

A detailed description of equation (1) shows that Y_{it} represents the dependent variable, *i* signifies the number of cross-sections, and *t* represents the periods covered i.e., annually, quarterly, or thereabout. X_{it} represents a vector of the independent variables; α signifies the model's intercept, and μ_{it} represents the error term.

Furthermore, the researcher states the model in its mathematical and functional form is seen below:

$$ROA_{it} = f(ATM_{it}) \quad (2)$$

$$ROE_{it} = f(POS_{it}) \quad (3)$$

$$ROCE_{it} = f(MTW_{it}) \quad (4)$$

After stating the mathematical form of the proposed model, we can proceed to state the model in its econometric form.

$$ROA_{it} = \beta_0 + \beta_1 ATM_{it} + \mu_{it} \quad (5)$$

$$ROE_{it} = \beta_0 + \beta_1 POS_{it} + \mu_{it} \quad (6)$$

$$ROCE_{it} = \beta_0 + \beta_1 MTW_{it} + \mu_{it} \quad (7)$$

Components of equation (5, 6 and 7) is labelled thus:

The "*i*" represents the six cross-sections in our sample, while the "*t*" represents periods from 2010-2019. The dependent variable, bank performance, is ably proxied

by the return on asset (ROA), a requisite indicator showing banks' profitability relative to its total assets. The independent variables chosen by the researcher include; ATM; Automated Teller Machines, POS; Point of Sale machines, and MTW; Mobile transfer/web. The coefficients in the model (2) are β_1, β_0 is the intercept, and the error term is represented by μ_{it}.

Results

This section presents a detailed econometric analysis cum findings on the topic ICT and financial performance of deposit money banks. The data was obtained from audited financial reports of five selected commercial banks with ROA (Return on Assets), ROE (Return on Equity) and ROCE (Return on Capital Employed) as dependent variables while ATM (Automated Teller Machine), POS (Point of Sale) and MTW (Mobile Transfer/Web) as independent variables in order to ascertain the effect of information communication technology on the financial performance of domestic systemically important banks from 2015-2019. E-views version 12 was employed to analyze data collected from the financial statements of D-SIBs from 2015-2019.

Descriptive Statistics

Table 1. Descriptive statistics for ROA, ROE, ROCE, POS, ATM and MTW

Variables	Observations	Mean	Std. Dev.	Minimum	Maximum
ROA	25	2.11	1.5	0.36	5.62
ROE	25	14.71	8.3	2.62	32.08
ROCE	25	6.9	5.61	1.41	21.27
ATM	25	37445.96	69582.15	720	196272
POS	25	26025.68	34091.1	2970	156931
MTW	25	113474.3	132472.6	11040	604730

Source: Authors Computation

Table 2. Correlation Matrix

Variables	ROA	ROE	ROCE	ATM	POS	MTW
ROA	1	0.94	0.97	0.93	0.73	0.19
ROE	0.94	1	0.92	0.81	0.7	0.11
ROCE	0.97	0.92	1	0.91	0.74	0.14
ATM	0.93	0.81	0.91	1	0.7	0.23
POS	0.73	0.7	0.74	0.7	1	0.16
MTW	0.19	0.11	0.14	0.23	0.16	1

Source: Authors Computation

Evident from the correlation matrix in Table 2 presented above, there is a strong and positive correlation amongst ROA, ROE, ROCE, ATM and POS, however, with the exception of Mobile Transfer/Web which showed a positive but weak correlation with ROA, ROE and ROCE.

Empirical Analysis

Test of Hypothesis One (Ho1)

Research Objective 1: To determine the effect of ATM transactions on return on asset of domestic systemically important banks.

Research Question 1: What is the effect of ATM transactions on the return on asset of domestic systemically important banks in Nigeria?

Research Hypothesis 1: There is no significant relationship between ATM transactions and the return on asset in domestic systemically important banks in Nigeria.

Table 3. Pooled OLS E-views Output for Hypothesis One

Model Estimates	ROA
ATM	0.0000201 0.0000016 (0.0000)
Constant	1.361717 0.126119 (0.0000)
Adjusted R^2	0.86
R^2	0.87
F-statistic	153.8630*** (0.0000)
Jarque-Bera	0.070449 (0.9653)
Breusch-Pagan LM	18.50294*** (0.0470)
Pesaran CD Test	-1.21216 (0.2255)
Durbin-Watson Stat	0.38

Source: Authors Computation (2021)

Evident from Table 3, the F-statistic provides justification for joint significance of ATM in determining variations in the dependent variable ROA. Model adequacy is further buttressed by the F-statistic and normal distribution is established by the Jarque-Bera stat in the table above. However despite having a favourable R^2, the estimated model is plagued with the issues of serial correlation and heteroskedasticity. Pesaran CD stat shows the absence of cross-section dependence in the model estimated in Table 3, in light of the aforementioned problems, there is extant need to re-estimate the model above to solve problems of serial correlation and heteroskedasticity.

Indeed after re-estimation using lag 2 of the ATM variable, the problem of serial correlation and heteroskedasticity is resolved evident by Breusch-Pagan LM stat with a p-value greater than 5% stating that all error variances are equal (homoscedastic) and DW stat between 1 and 2 as not explosive and worrisome.

Results from Table 4, shows that automated teller machine transactions improved the financial performance of deposit money banks in Nigeria evidenced by its positive and significant coefficient at 1, 5 and 10% level. All variables held constant, return on asset of deposit money banks will increase by 134%.

Table 4. Re-estimation of Pooled OLS for ROA and ATM

Model Estimates	ROA
ATM	0.0000247 0.0000015 (0.0000)
Constant	1.347940 0.103514 (0.0000)
Adjusted R^2	0.95
R^2	0.96
F-statistic	292.0349*** (0.0000)
Jarque-Bera	0.844754 (0.6554)
Breusch-Pagan LM	13.11650*** (0.2172)
Pesaran CD Test	-0.6445 (0.5192)
Durbin-Watson Stat	1.21

Source: Authors Computation

From the above econometric evidence, the researcher can reject the null hypothesis positing that ATM transactions possesses a significant effect on the financial performance of domestic systemically important banks in Nigeria.

Table 5. Pooled Ordinary Least Squares (OLS) E-views Output for Hypothesis Two

Model Estimates	ROE (Return on Equity)
POS	0.000169 0.000036 (0.0001)
Constant	10.30054 1.5437 (0.0000)
Adjusted R^2	0.48
R^2	0.46
F-statistic	21.57731*** (0.0001)
Jarque-Bera	1.063952 (0.5874)
Breusch-Pagan LM	20.07286*** (0.0286)
Pesaran CD Test	-0.14457 (0.8850)
Durbin-Watson Stat	0.59

Source: Authors Computation

Test of Hypothesis Two (Ho2)

Research Objective 2: To investigate the effect of Point of Sale (POS) on the return on equity of domestic systemically important banks in Nigeria.

Research Question 2: What is the effect of point of sale (POS) on the return on equity of domestic systemically important banks in Nigeria?

Research Hypothesis 2 (Ho2): There is no significant effect of point of sale (POS) on the return on equity of domestic systemically important banks in Nigeria.

From the above Table 5, it is clearly visible that the model is plagued with problems of serial correlation and heteroskedasticity and inference from the above estimated model may be misleading and inconsistent owing to violations of the classical assumptions of the linear regression model.

At this point, the researcher has to re-estimate the model to address the violations of the assumptions of the CLRM.

Table 6. Re-estimated model for POS and ROE

Model Estimates	ROE
POS (-1)	0.000395 0.000062 (0.0000)
Constant	5.488669 0.9674 (0.0000)
Adjusted R^2	0.68
R^2	0.69
F-statistic	40.93732*** (0.0000)
Jarque-Bera	2.274031 (0.320775)
Breusch-Pagan LM	15.67223*** (0.1094)
Pesaran CD Test	0.132292 (0.8948)
Durbin-Watson Stat	1.42

Source: Authors Computation

After addressing the problem of heteroskedasticity and serial correlation, we can conclude that there is no existence of cross-sectional dependence and problems of normal distribution either evident by the presented Jarque-Bera statistic. The F-statistic accounts for joint-significance of independent variables in explaining variations in the dependent variables and in our case is significant stating that our model is adequate. Econometric test results shows that point of sale wields a significant effect on the return on equity of deposit money banks in Nigeria at 1%, 5% and 10%. All variables held constant, ROE will increase by 5.48%. The researcher, in the light of present econometric evidence, can reject the null hypothesis and accept the alternate hypothesis that point of sale has a significant effect on return on equity of deposit money banks in Nigeria.

Test of Hypothesis Three

Research Objective 3: To ascertain the effect of mobile transfer/web on the return on capital employed (ROCE) of domestic systemically important banks in Nigeria.

Research Question 3: What is the effect of mobile transfer/web on the return on capital employed (ROCE) of domestic systemically important banks in Nigeria?

Research Hypothesis 3: There is no significant effect of mobile transfer/web on the return on capital employed (ROCE) of domestic systemically important banks in Nigeria.

Table 7. Pooled OLS E-views Output for Hypothesis Three

Model Estimates	ROCE
MTW	0.000006 0.000008 (0.4992)
Constant	6.220758 1.5066 (0.0004)
Adjusted R^2	0
R^2	0
F-statistic	0.471393*** (0.4992)
Jarque-Bera	4.9207 (0.0854)
Breusch-Pagan LM	21.84967*** (0.0159)
Pesaran CD Test	-0.811868 (0.4169)
Durbin-Watson Stat	0.18

Source: Authors Computation

Table 8. Re-estimated model for ROCE and MTW

Model Estimates	ROCE
MTW(-2)	0.000076 0.000020 (0.0023)
Constant	1.919267 1.8031 (0.3065)
Adjusted R^2	0.49
R^2	0.52
F-statistic	14.2030*** (0.002)
Jarque-Bera	2.5993 (0.2726)
Breusch-Pagan LM	12.3969*** (0.2594)
Pesaran CD Test	1.6434 (0.1003)
Durbin-Watson Stat	1.33

The model estimation in Table 7 is plagued with problems of serial correlation, model inadequacy and heteroskedasticity. F-statistic further proves that the model estimated is not adequate and therefore, re-estimation is needed to rid the model free of the aforementioned problems.

After re-estimation, the model is free from problems of serial correlation, heteroskedasticity and model inadequacy evident from the DW stat, F-stat and BP LM stat. Mobile transfer/web possesses a significant effect on the return on capital employed of domestic systemically important banks in Nigeria at 1%, 5% and 10%.

Owing to evidence provided in Table 8, the researcher can reject the null hypothesis and accept the alternate hypothesis that mobile transfer/web possesses a significant and positive effect on return on capital employed of domestic systemically important banks in Nigeria from 2015-2019.

Discussion

This section recapitulates peculiar findings from this study emanating from the testing of hypotheses raised in the course of this study. Conclusions and recommendations are in line with the research findings.

After estimation of data collected by the researcher from the full disclosure financial statements of D-SIBs in Nigeria produces the following set of findings;

Findings from the three estimated econometric models (5, 6 and 7) shows that automated teller machines, point of sale and mobile transfer/web actually increases the performance of domestic systemically important banks in Nigeria significant across the three adopted measures of performance comprising ROA, ROE and ROCE. Our study tows the line suggesting that investment in financial technologies actually increases performance of banks, however in our case, is the too-big-to-fail banks which is christened the domestic systemically important banks in Nigeria. Our findings deviates from some already established empirical evidence such as Willy & Obinne (2013), Mabhoub (2018) and Dabwor, et al. (2017) where the three studies concluded that investment in financial technologies does not elevate the performance of banks. However, our findings is in line with already established empirical evidence residing in Mohammad (2011), Chibueze, Maxwell and Osundu (2013), Oyewole, Abba, El-Maude, and Gambo (2013), Sadr (2013), Makinde (2014) and Victor, et al. (2015). Fierce competition in the post-integration stage necessitates excellent service delivery from commercial banks in a bid to gain a competitive edge against its rivals. Facilitating day-to-day transactions at malls, markets, online stores, supermarkets, spars, salon, eateries, clubs and other businesses with ease without carrying physical cash increases the volume of flows within the digitised payment system alongside maintenance charges across the aforementioned channels increases the profitability of D-SIBs alongside its huge customer base.

Conclusions

The novelty of this empirical masterpiece lies in the lacuna unexploited by previous authors and sits perfectly as a fantastic addition to the body of knowledge by investigating the impact of financial technologies adoption on the performance of too-big-to-fail banks in Nigeria. In addition, previous studies relied on one measure of performance whilst this study employed three popular measures of performance to increase the reliability of their findings. After proper econometric protocol execution, findings shows that Automated Teller Machine, Point of Sale and mobile transfer/web increased the performance of domestic systemically important banks in

Nigeria from 2015-2019. Furthermore, investments in financial technologies possesses a positive impact on performance of domestic systemically important banks in Nigeria for the period under review. Limitations of this study emanates from a small statistical sample which limits the variety of econometric test applicable, unfortunately, the sample for D-SIBs are fixed all around the world and only a cross-country study can adequately capture more banks from multi-jurisdiction and this may serve as an area for further studies for futuristic researchers.

Recommendations

Policy options available to the regulators, industry participants and investors in the financial system are itemised as follows:

1. Increased investment in more viable financial technologies will increase speed in banking operations, efficient service delivery, customer retention and overall performance of domestic systemically important banks in Nigeria.
2. Optimal utilisation of available financial technologies spurs performance of D-SIBs more compared to additional investments in financial technologies.
3. Regulators such as the Consumer Protection Council, CBN complaints unit and the Ombudsman must focus on protecting the consumer of financial services from undue exploitation of too-big-to-fail banks in Nigeria.

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