

Effects of Technology Innovation on Financial Performance of Commercial Banks in Nigeria

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Keyword:

*Financial Performance;
Technology innovation;
Internet Banking;
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ATMs.*

Abstract

This study examines the effect of banking innovations on financial performance of listed commercial banks in Nigeria. This study adopted correlational research design, Secondary data was collected from all listed Commercial Banks in Nigeria between the period 2008 to 2019. The data was extracted from the annual reports of the listed Commercial Banks in Nigeria. Correlation analysis used to measure the relationship between variable. Specifically, the researcher used multiple regression analysis to establish if the relationship between the independent variable and the dependent variables. The study found that ATM has a significant impact on the FP, IB has a significant impact on the FP and MB has a strong significant impact on the FP. Based on the findings the study concludes that technology innovation has a positive impact on the financial performance of listed Commercial Banks in Nigeria. Based on the foregoing findings and conclusions, the research recommends that Commercial Banks managers and government should properly adopt strategy that will encourage businessmen and general public in using automated teller machine which will improve effectiveness and efficiency of the banking sector and therefore financial deepening and Internet banking should easily accessible by customers, so that quick service and convenience is maintained hence improving financial

deepening. At the same time constantly serviced in order to provide reliability of the services.

Introduction

Innovation is an enterprise developing new products or production processes in order to better execute its operations in the event that new products could be based on new processes in the financial services sector and new financial instruments, technological insights and markets facilitating access to information, exchanges and means of payment (Solans, 2013). Lerner (2002) points out that innovation are not only critical for companies in the financial services sector, but also affect other companies. For example, to enable them to raise more capital and at a lower cost than they could otherwise and that innovation is an important phenomenon in all sectors of the modern economy. In a study in 11 countries in Latin America, Yildirim and Philippatos (2017) state that the rivalry between banks encourages the bank to engage in a process of differentiating the products that it provides and can boosting financial innovation. Yildirim and Philippatos (2017) find that a high degree of foreign investment in Bankcapital is associated with a high level of competitiveness. This improves the quality and differentiation of their products and simulates financial innovation by introducing more modern skills, management techniques and technologies. Size also facilitates the diversification of business risks by launching various innovative projects (Corroher, 2016), Anbalagan (2011). We found that some types of financial innovation are driven by improvements in computer and telecommunications technologies and that, for most people, the creation of automated teller machines was a greater financial innovation than securitization backed by assets.

Although in Nigeria the banking industry has continued to operate in a competitive environment, many banks have introduced new innovative products, processes, technologies and organizational innovations resulting in greater efficiency and product differentiation. Technologically, banks have been forced to provide multiple deposits, investments and loan products through various distribution channels that include decent ATMs, branches, phones and the Internet. Commercial banks are now beginning to move towards innovation and marketing innovation. This includes marketing innovation and the creation of new services, marketing innovation and innovations in delivering customer banking services and marketing innovation and creativity in marketing and providing those services to professionals in a timely and environmentally friendly manner. This has allowed management to engage with both parties' concerns and goals. Innovation management has allowed the bank to respond to internal or external opportunities, and to use its innovations to introduce unique

concepts, processes or products. All of this has resulted in all banks getting a higher rate of growth depending on the number of customers and the base of their assets. However, many of these benefits are taken on time and therefore there are no permanent benefits and can therefore not be relied upon as a prerequisite for growth and survival. Also financial isolation still stands at around 25 % according to CBN Financial Research (2018), leading to missed targets in terms of market growth, banks have been losing market share to money transfer companies. It is possible that customers are happy to choose a bank based on reliability, price and convenience rather than innovation and product management.

Despite the undeniable importance of financial innovation in explaining banking performance, the impact of innovation on performance is still misunderstood for two main reasons: first, insufficient understanding of the drivers of innovation and, second, the impact of these innovations on the banks performance remains poorly tested (Mabrouk & mamoghli, 2010). A study from Deyoung & Nolle (2007) takes an approach to the performance-innovation relationship that does not take into account the history of innovation within and outside the banking organization, which could influence this relationship. Prooja and (2009) Franscesa and Claeys (2010) Batiz-laizo and Woldesenbet (2006) and Mwanis and Muganda (2011) have produced mixed results with respect to the impact of innovations on bank performance. Pooja and Singh (2009) and Franscesa and Claeys (2010) in their studies conclude that financial innovations have the least impact on bank performance, while o and woldesenbet (2006) and mwanis and muganda (2011) concluded that financial innovation had a significant contribution to the performance of banks. It is central to this mixed conclusion that has created and necessitated the need to conduct a study from the Nigeria context to establish the effect of banking innovations on financial performance of listed commercial banks in Nigeria. The specific objectives are to:

- i. identify at which extent Automated Teller Machines contributes to financial performance of Listed Commercial Banks in Nigeria;
- ii. determine at which extent Mobile Banking contributes to financial performance of Listed Commercial Banks in Nigeria; and
- iii. examine at which extent Internet Banking contributes to financial performance of Listed Commercial Banks in Nigeria.

Based on the objectives of the study, the following null hypotheses are raised:

H₀₁: Automatic Tellers machine do not significantly influence to financial performance of Listed Commercial Banks in Nigeria

H₀₂: Mobile Banking do not significantly influence to financial performance of Listed Commercial Banks in Nigeria.

H₀₃: Internal banking do not significantly influence to financial performance of Listed Commercial Banks in Nigeria

Literature Review

Concept of Technological Innovation

An innovation is defined as a new idea or a new or substantially improved good or service that has been commercialized or any significantly new process for the commercial production of goods and services (Roger, 1995). Fisher (1998) notes that technology, when applied in the current banking environment, is divided into three categories: client-independent (technology involving a client performing and completing a transaction with a bank totally independent of any human contact with the customer) eg ATMs, MMs and Internet Banking); customer-assisted (a bank employee will use client-assisted technology as a resource to complete a transaction, for example, call center customer service managers will use a Customer Relationship Management (CRM) system to understand customer profile and provide instant responses to customer requests for up-to-date billing and banking transactions (Guttek & Welsh, 1999) and seamless customer technology that represents the true heart of banking and customers never see it but the customer wait.

Concept of Financial Performance

Financial performance is a subjective measure of how well an organization can use assets from its primary mode of business and generate revenues. This term is also used as a general measure of the firm's overall financial health over a given period of time, and can be used to compare similar firms across the same industry or to compare industries or sectors in aggregation. There are many different ways to measure financial performance, but all measures should be taken in aggregation. Line items such as revenue from operations, operating income or cash flow from operations can be used, as well as total unit sales (Jayawardhera & Foley, 2018). Profit is the ultimate goal of the firm. To measure profitability, there are a variety of ratios used of which Return on Assets, Return on Equity and Net Interest Margin are the major ones (Murthy & Sree, 2013). ROA is a major ratio that reflects the profitability of a bank. It is a ratio of Income to its total assets. It measures the ability of an organization's management to generate revenue by utilizing company assets. In other words, it shows how efficiently the resources of the company are used to generate revenue. It further indicates the effectiveness of the management of the company in generating net income from all the resources of the institution. Wong (2014) stated that a higher ROA indicates that the company is more efficient in using its resources.

There are different measures of organizational performance. However, the most used is profitability. Profitability measures the extent to which a business generates profit from the factors of production: labor, management and capital. The profitability analysis looks at the relationship between revenue and expenses and the level of benefits relative to the size of the firm's investment (Gilbert & Wheelock, 2007). The ROA, the ROE, the operating profit margin and the net income of companies are four useful measures of corporate profitability. The ROA measures the return on all assets of the company and is often used as an overall index of profitability. The higher the value, the more profitable the company is. ROE measures the rate of return on owner equity employed in the business. It is useful to look at the ROE against the ROA to determine if the company is making a profitable return on their borrowed money. Operating profit margin measures the return on capital per dollar of gross revenue of the company. Recall that the company has two ways to increase its profits by increasing the profit per unit produced or by increasing the volume of production while maintaining the profit per unit. The operating profit margin focuses on the unit-produced component of profitability and the asset turnover ratio (described below) focuses on the volume of the production component to generate a profit (Crane, 2011). Net business income comes directly from the income statement and is calculated by matching the company income to the expenses incurred to create that income, plus the gain or loss from the sale of the company fixed assets. The net income of the business represents the owner return for the unpaid family operator and labor force, the owner management and equity. Like working capital, net business income is an amount in absolute dollars, not a ratio; it is therefore difficult to make comparisons with other firms because of differences in the size of the firm (Gilbert and Wheelock, 2007).

Theoretical framework

This section explores the different theories and models that can explain the effect of technological innovation on the financial performance of commercial banks. Several theories have been advanced: these include; diffusion of the theory of innovation innovation of rupture Theory of creative destruction.

Diffusion of Innovation Theory

Roger theory (1995) on the diffusion of innovation (DOI) is a model commonly used in information systems research to explain the adoption of new technologies by users. Rogers defines diffusion as 'the process by which an innovation is communicated over time by a member of a social society' (Rogers, 1995). An innovation is an idea or object that is perceived as new (Rogers, 1995). Roger theory (1995) on the diffusion of innovation (DOI) is a model commonly used in information systems research to

explain the adoption of new technologies by users. Rogers defines diffusion as 'the process by which an innovation is communicated over time by a member of a social society' (Rogers, 1995). An innovation is an idea or object that is perceived as new (Rogers, 1995). Diffusion theory is relevant because it explains why banks are adopting technical innovations. One of the reasons why banks adopt technical innovations are relevant benefits. This means that banks that adopt technical innovation have a relatively better financial advantage than those that do not.

Disruptive Innovation Theory

Disruptive innovation is probably one of the most important theories of innovation of the last decade. The basic underlying concepts circulated so well that as early as 1998, a year after the publication of the theory, people used the term without referring to Clayton Christensen, Harvard professor, or his book, *Dilemma de* (Harvard Business School Press). The term disruptive innovation as we know it today appeared for the first time in the best-seller of 1997. The dilemma of the innovator. In the book, Harvard Business School professor Clayton Christensen explained why some radical innovations reinforced the incumbent position in a given sector, as predicted by previous models (for example, the Henderson-Clark model). Specifically, he thoroughly analyzed the record industry that could be found in our economy. Just consider 35% per year, from 50 kilobytes in 1967 to 1.7 megabytes in 1972, 12 megabytes in 1981 and 1100 megabytes in 1995. The upsetting theory is relevant to explain the type of technology that banks are adopting. Banking technology is disruptive because it removes the traditional banking system

Schumpeterian Theory of Creative Destruction

Schumpeter (1939), who saw innovations as a perpetual threat of creative destruction, the essential engine of growth rates in a capitalist system. Schumpeter's thinking has evolved over the course of his life to the extent that some scholars have disseminated his original ideas when innovation relies heavily on exceptional individuals willing to assume exceptional risks as an act of will, that is, to say entrepreneurs, from his last thought: recognized role of large companies in organizing and supporting innovation. This led him to focus on the role of oligopolies in innovation, which was later considered the main contribution of his work. (Freeman, 1994).

Schumpeter (1928) emphasized the discontinuous and disruptive nature of technological change in capitalism, which brings the inseparable combination of insatiable growth in the short run and the long run. He was not a technological determinist, but recognized the social and organizational strength that played a key

role in his cyclical process of industrial change. Schumpeter argued that entrepreneurs, who could be independent inventors or R & D engineers in large companies, offered the opportunity to make a new profit through their innovations. In turn, the demo groups attracted by the super-profits would launch a wave of investments that would erode the profit margin of innovation. However, before the economy can balance a new innovation or define innovations, Kondratievl cycles emerge to revive the business cycle. Despite his ideas about the role of innovation, Schumpeter still did not really explain the source of innovation. He was able to emphasize his role in the synchronization of economic cycles but did not address its source. This allowed Keynesian economists to argue that investment levels were the cause of innovation. It was not the unity of the 1960s that economists began to look again for the source of innovation. Researchers like Abramo Vitz (1956) and Solow (1957) have emphasized the importance of innovation. Explain. According to data on the United States economy from 1909 to 499, Solow showed that only 12.5% of the increase in production per capita.

Empirical Review

Aragba-Akpore (2018) on the application of information technology in Nigerian banks and emphasizes that information technology is becoming the back end of the regeneration of banking services in Nigeria. He cited Diamond Bank Limited Diamond Integrated Banking (DIBS) and the Electronic Chip Card (ESCA) account of all state-owned banks as part of efforts to create sophisticated banking. Ovia (2012) found that the banking sector in Nigeria was increasingly dependent on the development of information technology and that the IT budget for this sector was much higher than that of any other sector in Nigeria. He claimed that the online system had facilitated Internet banking in Nigeria as evidenced by some website launch sites. He also found that banks now offer their customers the ability to manage an account in any branch, regardless of the account domiciled branch. Cashless transactions are now possible in our society. This suggests that larger banks with a more centralized structure were more likely to adopt SBCs. The use of the technology of the UBCB always seems to be aimed mainly at large banking organizations. However, a recent study suggests that small banks now often use the consumer credit score of the main owner of the business (Barger, 2007).

The dramatic rise in individual Internet usage in the 1990s has created the possibility of a new form of banking organization. According to Delgado (2017), in mid-2002, there were approximately 35 Internet-only banks and 20 others in the United States. However, in Europe, almost all of these banks were affiliated with existing instructions, while in the United States, be novo operations This may explain why most

or all of the closure) or established a physical presence for complete their Internet base. This suggests that the dominant technology is clicks and mortar. Gakure (2017) study of the influence of banking innovations on the profitability of commercial banking in Kenya concluded that bank innovations had a statistically significant influence on bank profitability. This means that the combined effect of banking innovations in this research is statistically significant in explaining the bank profitability commercial banks in Kenya. In Kenya, banks have taken more than a decade to increase their earning capacity and control by adopting innovations such as mobile Internet banking and agency banking. Kihumba (2018), the reasons for innovation, the financial performance of 43 banks between 2000 and 2017, how each factor has brought innovation to the Kenyan market and how innovation generates annual revenue, the volume of business, the customer turnover and the reduction in operating costs share and geographical coverage of the bank. He noted that some financial institutions are innovating to use their excess capacity and maximize their revenues within existing capabilities.

Malhotra (2019) in the study on the banks impact on bank performance and risk found that, on average, Internet banks are larger, more profitable and more operationally efficient. They also found that Internet banks had higher quality assets and were better managed for construction and equipment expenses, and that Internet banks in India depended in essence on deposits. They also found that small banks that adopt internal banking have a negative impact on profitability. Mabrouk (2019), in his study on the dynamics of financial innovation and the performance of banking enterprises: context of the emergence of a banking sector, analyzed the effects of the adoption of two types of financial innovations, namely product innovation (telephone bank and SMS bank, etc.) and process innovation (magnetic stripe card (debit, ATM and credit card)) ATM machine (ATM: electronic payment terminal etc.) on the performance of banks, analyzing in particular the behavior of adoption, the first mover in the adoption of Innovation and the simulator of the first movements. They discovered that the concept of the first intuitive engine in product innovation enhances the profitability process initiative has a positive effect on profitability and efficiency. Banks that mimic the first less efficient and effective engine. Nader (2011) analyzed the profitability of Saudi Arabia commercial banks between 1998 and 2007. The results of his study indicate that the availability of a single number of ATMs and a number of branches have had a positive effect on the profitability of Saudi banks. On the contrary, he found that the number of point-of-sale terminals available in OPC banking did not improve profitability.

Methodology

This study adopted correlational research design, which was involve the collection of longitudinal data in 2010 to 2019. The target population of the study was being all listed Commercial Banks in Nigeria. The study used census sampling technique to adopt all the population as the sample size of the study. Three independent variables were being used in the study: These are ATMs, Mobile Banking and Internet banking. ATMs will be measured by a number of ATMs, at the Deposit listed Money Banks in Nigeria. Mobile banking will be measured by numbers of electronic bills payments, fund transfers. Internet banking will be measured by online loan application; balance inquiries bill payment, stop payment request. Financial bank, performance will be dependent variables and will be measured by return on assets. The researcher used secondary data which will be extracted from the annual reports of the listed Commercial Banks in Nigeria. Correlation analysis used to measure the relationship between variable. Specifically, the researcher used multiple regression analysis to establish if the relationship between the independent variable and the dependent variables were statistically significant

Model Specification

The model will be shown below:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

$$FP_{i,t} = \alpha + \beta_1 ATM_{i,t} + \beta_2 MB_{i,t} + \beta_3 IB_{i,t} + \varepsilon_{i,t}$$

Where:

FP = Financial Performance

ATM = Automatic Teller Machine

IB = Internet Banking

MB = Mobile Banking

$\beta_1 - \beta_3$ = Coefficient of independent variable.

i = bank identifier

t = time

ε = Stochastic Error term (Disturbance term).

Data Presentation and Analysis

This section will provide an analytical perspective of the data used in this particular study and how the results of this study will affect the overall perspective on the achievement of the research objectives.

Descriptive Statistics

In the study examined the effects of technology innovation on financial performance of deposit listed money banks in Nigeria. The descriptive and correlation was analysis under study. The figures are given in table 1.

	Mean	Std. Deviation
FP	3.0480	.12926
ATM	3.2757	.38268
MB	3.3375	.32987
IB	3.1056	.03073

Source: SPSS Output, (2020)

The table 1 shows the innovation with the mean score and the standard deviations from the means of each variable in the study. In the table of financial performance (FP), ATM, MB and IB are 3.0480, 3.2757, 3.3375 and 3.1056 respectively across the entire firm under the study. The standard deviations recorded by FP, ATM, MB and IT were minimal showing an indication that there was minimal variation in the variables between the firms under study.

		FP	ATM	IB	MB
Pearson Correlation	FP	1.000	.433	.356	-.277
	ATM	.433	1.000	-.369	.673
	MB	.356	-.369	1.000	-.811
	IB	-.277	.673	-.811	1.000

Source: SPSS Output, (2020)

Correlation coefficient varies from -1 to +1. A +1 coefficient is an indication of a perfect correlation while a -1 shows a perfect negative correlation. In table 4.11, the correlation coefficient for the variables was positive and significant showing a clear indication that there is a correlation between financial decision and Performance in cement firms except for IB which had a negative correlation.

Test of Hypotheses and Discussion of Results

Regression analysis are used to measure the effect of the independent variable to the dependent variable of hypothesis 1, 2 and hypothesis 3 and proper interpretation and analysis techniques were used to explain the hypotheses testing.

H₀₁: Automatic Tellers machine do not significantly influence to financial performance of Deposit Listed Money Banks in Nigeria

H₀₂: Mobile Banking do not significantly influence to financial performance of Deposit Listed Money Banks in Nigeria.

H₀₃: Internal banking do not significantly influence to financial performance of Deposit Listed Money Banks in Nigeria

Table 4 Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.891 ^a	.794	.790	.05917	2.509

a. Predictors: (Constant), ATM, MB, IB
b. Dependent Variable: FP

Source: SPSS Output, (2020)

The table above shows, R adjusted is 79.4% indicating how the statistical measures in the above study are closer to the fitted regression line. In this study we relied on adjusted R squared because of the number of study variables in the prediction of the dependent variable. The standard error shown in the study is .05917 which indicates a high accuracy of the prediction made in this study. This is a clear indication that 79% percent of changes in financial performance of listed deposit money banks in Nigeria could be attributed to innovation under study. R in this study is shown by the correlation coefficient which determines the relationship between the study variables. Durbin Watson value of 2.509 shows there is no autocorrelation. From the above findings, we can, therefore, conclude that there is a positive correlation between the study variables.

Table 5 ANOVA^a

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.124	3	.708	202.219	.000 ^b
	Residual	.550	157	.004		
	Total	2.673	160			

a. Dependent Variable: FB

b. Predictors: (Constant), ATM, MB, IB

Source: SPSS Output, (2020)

Table 5 shows the ANOVA presentation. The population parameters were found to have a significant p-value of 0% which is lower than the 0.001. This is clear evidence that the data used in the study was adequate and reliable for concluding the variables under study since the value of significance (p-value) is lower than 5%. The F statistic

critical at 5% level of confidence was 202.219, the study concludes that the overall model is significant and that ATM, MB and IB are influencing FB in listed Deposit Money in Nigeria.

Table 6 Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	18.841	1.147		16.430	.000
ATM	.409	.018	1.211	22.576	.000
MB	.094	.027	.241	3.556	.000
IB	.415	.358	1.287	15.118	.000

a. Dependent Variable: FB

Source: SPSS Output, (2020)

The established multiple linear regression equation is

$$Y=18.841+0.409X_1 + 0.094X_2 + .415X_3 + e.$$

In the above regression equation, it was established that holding the innovation in the regression namely: Automatic Teller Machine (ATM), Mobile Banking (MB) and Internet Banking (IB) at a constant zero, financial performance of listed Commercial Banks in Nigeria will be at 18.841. Further analysis from the study and the regression indicates that, the relationship between ATM and FB is significant and positive with a coefficient of .409 and a p-value of 0.000, a unit increase in ATM would result to increase to the FB by a factor of 0. 409, this suggests that the ATM has significantly positive impact on the FB during the period of the study. Based on this, the study rejects the null hypothesis one (H₀₁) which states that Automatic Tellers machine do not significantly influence to financial performance of Deposit Listed Money Banks in Nigeria. As a result, the study deduces that ATM has a significant impact on the FB of listed Commercial Banks in Nigeria during the period of the study.

From the coefficient table, the analysis from this study and the regression indicates that, the relationship between MB and FB is significant and positive with a coefficient of 0.094 and a p-value of 0.000, a unit increase in MB would result to increase to the FB by a factor of 0.094, this suggests that the MB has significantly positive impact on the FB during the period of the study. Based on this, the study rejects the null hypothesis two (H₀₂) which states that Mobile Banking do not significantly influence to financial performance of Deposit Listed Money Banks in Nigeria. As a result, the study deduces that MB has a significant impact on the FB of listed Commercial Banks in Nigeria during the period of the study.

In addition, from table 4.13, the analysis of study and the regression indicates that, the relationship between IB and FB is significant and positive with a coefficient of 0.415 and a p-value of 0.000, a unit increase in IB would result to increase to the FB by a factor of 0.415, this suggests that the IB has significantly positive impact on the FB of listed cement firms in Nigeria during the period of the study. Based on this, the study rejects the null hypothesis three (H_{03}) which states that Internal banking do not significantly influence to financial performance of listed Commercial Banks in Nigeria. As a result, the study deduces that IB has a significant impact on the FB of listed Commercial Banks in Nigeria during the period of the study.

Discussion of Findings and Implication

The study found that ATM has a p-value of 0.000 and a beta value of 0.409 which is significant at 5%. This signifies that ATM has a positive impact on the FB of listed Commercial Banks in Nigeria. It, therefore, implies that for every increase in ATM, FB increases by 40.9%. This finding is however in conformity with that of Akinruwa (2013) & Aliyu (2017).

The study also found that MB has a p-value of 0.000 and a beta value of 0.094 which is significant at 5%. This signifies that MB has a positive and significant impact on FB of Deposit Listed Money Banks t firms in Nigeria. It, therefore, implies that an increase in MB leads to increase in FB by 9.4%. This study is however in conformity with Nersia, (2005); Nusrat & Tarun, (2014) & Aliyu, (2017).

Finally, the study found that IB shows a p-value of 0.000 and a beta value of 0.415 which is significant at 5%. This signifies that IB has a positive, strong and significant impact on FB. It, therefore, implies that an increase in FB leads to increase in FB by 41.5%. This study is also in conformity with Nersia, (2005); Nusrat, & Tarun, (2014) & Aliyu, (2017).

Summary of Major Findings

In summary, the regression indicates that the relationship between ATM and ROA is significant and positive with a coefficient of .409 and a p-value of 0.000. Therefore, a unit increase in ATM would result to increase to the FB by 40.9%; this suggests that the ATM has a significantly positive impact on the FB of listed cement firms in Nigeria during the period of the study. Based on this, the study rejects the null hypothesis one (H_{01}) which states that there is no significant relationship between ATM and FB of listed Commercial Banks in Nigeria. As a result, the study deduces that ATM has a significant impact on the FB of Deposit Listed Money Banks in Nigeria during the period of the study.

The regression result indicates that the relationship between MB and FB is significant and positive with a coefficient of 0.094 and a p-value of 0.000. Therefore, a unit increase in MB would result to increase to the FB by 9.4%; this suggests that the MB has a significantly positive impact on the FB of Deposit Listed Money Banks in Nigeria during the period of the study. Based on this, the study rejects the null hypothesis two (H_{02}) which states that there is no significant relationship between MB and FB of listed Commercial Banks in Nigeria. As a result, the study deduces that MB has a significant impact on the FB of listed Commercial Banks in Nigeria during the period of the study.

Finally, the regression result on the relationship between IB and FB indicates that, is significant and positive with a coefficient of 0.415 and a p-value of 0.000. Therefore, a unit increase in IB would result to increase to the FB by 41.5%; this suggests that the IB a significantly positive impact on the FB of listed Commercial Banks in Nigeria during the period of the study. Based on this, the study rejects the null hypothesis three (H_{03}) which states that there is no significant relationship between IB and FB of listed Commercial Banks in Nigeria. As a result, the study deduces that IB has a significant impact on the FB of listed Commercial Banks in Nigeria in Nigeria during the period of the study.

Conclusion

The research examined the influence of technological innovation on financial performance of listed Commercial Banks in Nigeria. This finding has imperative implications for banks management and the firm as a whole in Nigeria in particular listed banks in Nigeria. As these banks have a tendency to have inadequate resources, as such managers to centre on activities which generate the highest impact on financial performance. The study found that ATM has a significant impact on the FP, IB has a significant impact on the FP and MB has a strong significant impact on the FP. Based on the findings the study concludes that technology innovation has a positive impact on the financial performance of listed Commercial Banks in Nigeria.

Recommendations

Based on the foregoing findings and conclusions, the research recommends that;

1. Commercial Banks managers and government should properly adopt strategy that will encourage businessmen and general public in using automated teller machine which will improve effectiveness and efficiency of the banking sector and therefore financial deepening.
2. Internet banking should easily accessible by customers, so that quick service and convenience is maintained hence improving financial deepening. At the

same time constantly serviced in order to provide reliability of the services.

3. Banks in Nigeria should continue with the popularization of mobile banking in the industry as this has a positive effect on their financial performance.

References

- Abiodun, E., & Chima, O. (2012). Cashless policy: A burden or relief? This day Live. Retrieved from <http://www.thisdaylive.com/articles/114483/>
- Achor, P. N., & Robert, A. (2019). Shifting policy paradigm From Cash-based economy to cashless economy: The Nigerian experience. *Afro Asian Journal of Social Sciences*, 4(4): 1-16
- Adegbaju, A. A., & Olukoye, F.O. (2008). "Recapitalization and banks performance: A case study of Nigerian Banks", *African Economic and Business Review*, Vol. 6(1): 27-41
- Adewoye, J. O. (2013). Impact of mobile banking on service delivery in the Nigerian commercial banks. *Int. Rev. Manage. Bus. Res.* 2(2):333-344.
- Adeyemi, K. S. (2006). Banking sector consolidation: Issues and challenges: A paper presented by an Executive Director, Union Bank of Nigeria PLC.
- Ajayi, L. B. (2014). Effect of cashless monetary policy on Nigerian banking industry: Issues, prospects and challenges, *International Journal of Finance and Business Management Research*, 2, 29-41.
- Ajayi, M. (2006). Banking sector reforms and banking consolidation: conceptual framework, *Bullion*, 29(2): 60-74
- Ajayi, S. I., & Ojo, O. O. (2001). *Money and Banking: Analysis and Policy in the Nigerian Context*, Second Edition, University of Ibadan, Daily Graphics Nigeria Ltd.
- Ajayi, S. I., & Ojo, O. O. (2006). *Money and banking: Analysis and policy in the Nigerian context*. Ibadan Daily Graphics
- Akhalumeh, A. A., & Ohioka, F. (2012). Nigeria's cashless economy: the imperatives, *International Journal of Management and Business Studies*, 2(2), 31-36
- Akindele, J. A., Okewale, J. A., & Bakare, T. O. (2017). Effect of Ownership Structure on the Quality of reported earnings of Quoted Conglomerate Companies in Nigeria. *African Journal of Management and Business Admin*, 2(3), 1–16.
- Akpan, I. (2009). Cross channel integration and optimization in Nigerian banks. *Telnet Press Release*, 20(1): 1-4.
- Alves, H., Rodrigues, A. M., & Canadas, N. (2012). Factors influencing the different categories of voluntary disclosure in annual reports: An analysis for Iberian Peninsula listed companies. *Tekhne*, 10(1), 15–26
- Amaka, E. (2012). Prospects and challenges of mobile money in Nigeria economy, retrieved from <http://www.thisdaylive.com/articles/prospects-and-challenges-of-mobile-money-onnigeria-economy/129273>
- Aragba-Akpore, E. (2018). Prospects and challenges of mobile money in Nigeria economy. *American Journal of Economics*, 5(5), 400-420.
- Amire, C. M., & Omoare, E. O. (2015). Cashless Policy and Economic Activities in Developing Countries (A Case Study of Nigeria). *American Journal of Economics*, 5(4), 417-422.

- Babalola, R., (2008). "E-payment: Towards a Cashless Economy", A Keynote Address of the Finance Minister of State at CardExpo Africa Conference. [Online] Available: <http://www.nigeriavillagesquare.com>.
- Beasley, M. S., & Petroni, K. R. (2001). Board Independence and audit-firm type. *Auditing: A Journal of Practice & Theory*, 20(1), 97–114.
- Central Bank of Nigeria (2019). The cashless Nigerian project, Retrieved from: <http://www.cenbank.org/cashless/> on August 30, 2019.
- Central Bank of Nigeria, (2011). "New cash policy", retrieved from www.cenbank.org
- Central Bank of Nigeria,(2011). "Guidelines on Point of Sales (POS) Card Acceptance Services", retrieved from www.cenbank.org
- Chen, G., Firth, M., Gao, D. N., & Rui, O. M. (2006). Ownership structure, corporate governance, and fraud: Evidence from China. *Journal of Corporate Finance*, 12, 424–448. doi:10.1016/j.jcorpfin.2005.09.002
- Choi, J. H., Jeon, K. A., & Park, J. I. (2004). The role of audit committees in decreasing earnings management: Korean evidence. *International Journal of Accounting, Auditing and Performance Evaluation*, 1(1), 37–60
- Christopher F Baum, (2000). "XTTEST3: Stata module to compute Modified Wald statistic for groupwise heteroskedasticity," Statistical Software Components S414801, Boston College Department of Economics, revised 05 Jul 2001.
- Chu, E. Y., & Cheah, K. G. (2006). Does Ownership Structure Matter? Evidence from Malaysian Equity Market. *Corporate Ownership & Control*, 4(1), 77–90.
- Chung, C. Y., Kim, D., Kim, K. S., Lee, J. H., & Lee, K. (2019). Do institutional investors enhance accounting earnings attributes in the Korean Market? *Emerging Markets Finance and Trade*, 55(1), 39–58. <https://doi.org/10.1080/1540496X.2018.1503081>
- Claessens, S., Djankov, S., & Lang, L. H. (2000). The separation of ownership and control in East Asian Corporations. *Journal of Financial Economics*, 58(1–2), 81–112
- Gakure, P. (2017). Monetary policy in a cashless society, Brussel CEPR Discussion Study.
- Davies, F., Moutinho, L., & Curry, B. (2009). ATM users' attitudes: a neural network analysis. *Marketing Intelligence and Planning* 14(2), 26–32.
- Ding, Y., Zhang, H., & Zhang, J. (2007). Private vs state ownership and earnings management: Evidence from Chinese listed companies. *Corporate Governance: An International Review*, 15(2), 223–238.
- Emeni, F. K., & Ugbogbo, S. N. (2018). Equity ownership structure and equity returns of Nigerian quoted companies. *International Journal of Accounting & Finance*, 7(2), 2–15.
- Ernest S. O. & Banuso, F. B. (2015). Cashless banking in Nigeria: Challenges, Benefits and Policy Implications. *European Scientific Journal* 8(12), 289- 316.
- F.G. Approves Lagos for Test Run of Cashless Banking”, (2011), [Online] Available: http://www.234next.com/.../fg_approves_lagos_for.
- Farouk, M. A., & Bashir, N. M. (2017). Ownership structure and earnings management of listed conglomerates in Nigeria. *Journal of Accounting and Finance*, 1(4), 42–54. Retrieved from <http://ipjaf.omjpalph.com/index.php/ipjaf/article/view/27>
- Halioui, K., & Jerbi, A. (2012). The effect of blockholders on earnings management: The case of Tunisian listed firms. *International Journal of Multidisciplinary Research*, 2(2), 37–49
- Idode, P. E., Oluoch, O. J., & Oloko, M. (2018). Does ownership concentration influence discretionary earnings quality in emerging market: Evidence from Nigeria. *International Journal of Management, Accounting and Economics*, 5(2), 105–117.

- Igbara, F. N., Emerenini, F. M., & Daasi, G. L.K (2015). The Impact of Cashless Policy on Small Scale Businesses in Ogoni Land of Rivers State, Nigeria. *Journal of Economics and Finance*, 6(3), 33-38
- Jensen, M.C., & Meckling, W.H. (1976). Theory of the firm: Managerial behaviour, agency costs and ownership structure. *Journal of Financial Economics*, 2, 305-360.
- Jesse Wursten, (2017). "XTCDF: Stata module to perform Pesaran's CD-test for cross-sectional dependence in panel context," *Statistical Software Components S458385*, Boston College Department of Economics.
- Kihumba, S. S. (2018). The impact of corporate governance on earnings management in Korea. *Malaysian Accounting Review*, 7(1), 43–59
- La Porta, R., Lopez-De-Silanes, F. & Sheilfer, A. (1999). Corporate ownership around the World. *The Journal of Finance*, 54, 471-517.
- Lawal, O. D. (2018). Effect of ownership structure on financial performance of listed insurance firms in Nigeria. *Journal of Accounting, Finance and Auditing Studies*, 4(3), 123–148. Retrieved from www.jafas.org
- Maswadeh, S. (2018). The effect of the ownership structure on earnings management practices. *Investment Management and Financial Innovations*, 15(4), 48–60.
- Malhotra, H. (2019). Additional evidence on equity ownership and corporate value. *Journal of Financial Economics*, 27(2), 595–612.
- Mehrani, S., Moradi, M., & Eskandar, H. (2017). Institutional ownership type and earnings quality: Evidence from Iran. *Emerging Markets Finance and Trade*, 53(1), 54–73.
- Mabrouk, L. (2019). Customer satisfaction measurements: prolonged satisfaction with ATMs. *International Journal of Bank Marketing*, 10 (7), 30-7.
- Muyiwa, O., Tunmibi, S., & John-Dewole, A.T (2013). Impact of Cashless Economy in Nigeria. *Greener Journal of Internet, Information and Communication Systems*, 1 (2), 40-43.
- Nweze, U., Eze, E. C., Nze, D. & Ejeagbasi, G. (2017). Empirical Analysis of the Effect of Cashless Policy on the Performance of Banking Industry in Nigeria (2008-2015). *Journal of Humanities And Social Sciences* 2(2): 93-110.
- Okereke, J. U. (2016). Cashless Banking Transactions and Economic Growth of Nigeria. *Middle-East Journal of Scientific Research* 24 (11), 3576-3581.
- Omotayo, F. (2015). Factors Affecting Adoption of Point of Sale Terminals by Business Organisations in Nigeria. *International Journal of Academic Research in Business and Social Sciences*, 5(10), 115- 136.
- Osazevbaru, H. O., & Yomere, G. O. (2015). Benefits And Challenges Of Nigeria's Cash-Less Policy. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 4(9), 1-10.
- Ovia, S. N. (2012). The effect of board composition and ownership concentration on earnings management: Evidence from Iran. *World Academy of Science, Engineering and Technology*, 66, 165–171
- Suberu, O. J., Afonja, J.A., Akande M.O., & Olure-Bank, A. (2015). The effect of cashless policy, saving and bank credit on Nigerian deregulated economy. *Journal of emerging trends in Economics and Management Sciences*, 6(2), 144-150
- Zhizhong, H., Juan, Z.Yanzhi, S., & Wenli, X. (2011). Does corporate governance affect restatement of financial reporting? Evidence from China. *Nankai Business Review International*, 2, 289-302.