IMPACT OF FINANCIAL INCLUSION ON BANK'S PROFITABILITY AMONG THE LISTED DEPOSIT MONEY BANKS IN NIGERIA

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ABSTRACT

Financial inclusion and bank's profitability are critical components of a country's economic growth and development. This study examines the impact of financial inclusion on the profitability of listed Deposit Money Banks in Nigeria using panel data from 10 sampled banks for ten years (2013-2022), proxied by credit accessibility, digital payment usage, bank account penetration and point of sale, on bank profitability. The data were extracted from the annual accounts and reports of the sample banks. Multiple regression technique was employed in analyzing the data. Based on the analyses of the data collected, the study found that credit accessibility and digital payment usage are positive and significant in influencing the profitability of the listed banks. However, bank account penetration is negative but significantly related to the profitability of the listed banks while point of sales has an insignificant negative relationship with the profitability of listed deposit money banks in Nigeria. The study concludes that financial inclusion can improve the profitability of listed DMBs in Nigeria. Based on the findings obtained from this study, the study recommended that the management of the banks should encourage credit accessibility and digital payment usage to maximize their profitability.

Keywords: credit accessibility, bank account penetration, digital payment usage, POS, financial inclusion and performance.

Introduction

Over the years, banks' profitability has been a key indicator of how effectively these institutions convert their assets into revenue through daily operations. This profitability also reflects external stakeholders' evaluations of the banks' ability to maintain sustainable operations (Aribaba et al., 2020). Financial performance, which includes indicators such as profitability, liquidity, and efficiency, is vital for the sustained growth and stability of banks (Gardener, 2016). Deposit Money Banks (DMBs) are under constant pressure from various stakeholders, including their management, to improve performance. This leads to conflicts of interest, resulting in agency costs that are ultimately borne by shareholders.

However, DMBs in Nigeria have come under scrutiny for their perceived challenges in effectively reaching areas characterized by minimal transaction volumes and modest deposit sizes, creating economic hurdles due to low transaction volumes and elevated service costs.

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Many financial institutions have hesitated to establish branches in such regions, deeming them economically unviable (Ugbede et al., 2017). It is essential to recognize that the role of financial institutions extends beyond the mere facilitation of capital flow from savers to borrowers. In an idealized scenario where market participants could effortlessly connect and transact without incurring associated costs, the role of DMBs might wane (Ifediora et al., 2022). However, practical reality tells a different story, as DMBs remain highly sought after by market participants due to the invaluable expertise, convenience, and protection they offer (Benson et al., 2022).

Financial inclusion, such as bank account penetrations, credit accessibility, POS/ATM density, and digital payment usage of financial services by a broad spectrum of the population, has emerged as a pivotal driver for economic development and stability across the globe (Kamal et al., 2021). While the importance of financial inclusion is widely acknowledged, the precise impact of these initiatives on the profitability of deposit money banks remains an area of scholarly interest and practical relevance. According to Jungo et al. (2022), the financial system is complex, and influenced by numerous internal and external factors as indicated above. Financial inclusion is a critical issue with profound implications for individuals and businesses alike, whereas, for those excluded from the formal financial system, reliance on informal mechanisms like pawnbrokers, payday lenders, and loan sharks often entails exorbitant costs and unreliable practices (Miguel, 2017).

However, enhancing financial inclusion has been widely recognized as a means of unlocking significant benefits for marginalized populations, including the poor and micro, small, and medium-sized enterprises (MSMEs) (Ajide, 2019), and it equally serves as a potent support for economic development, therefore, access to formal financial services empowers households to expand consumption, manage risks, and invest in essential areas such as durable goods, healthcare, and education (Asuming et al., 2018). The importance of financial inclusion has reverberated globally, with international agencies, private sector entities, and governments all prioritizing it as a policy imperative. The World Bank, for instance, has set a crucial goal to achieve universal financial access by 2020, underscoring the global significance of this endeavor (Le et al., 2019).

In Nigeria, where the banking sector plays an important role in the nation's economic system, the relationship between financial inclusion initiatives and the profitability of listed deposit money banks is paramount (Kamal et al., 2021). Despite the introduction of various financial inclusion tools, prevailing statistics fail to reveal the exact impact these initiatives have on the performance of deposit money banks (Ifediora et al., 2022), especially concerning credit accessibility, there are notable challenges in Nigeria, including issues related to bank account penetration, credit accessibility, ATM density/POS, and digital payment usage (Oranga & Ondabu, 2018; Ifediora et al., 2022). Nigeria's performance in financial inclusion metrics falls behind many developing countries within its peer group, for example, while more than 49% of South Africans have access to formal credit; the figure is only about 6% for Nigerians (World Bank, 2022). This disparity is also evident in formal payment systems, with just 33.9% of Nigerians having access compared to South Africa's 57% (World Bank, 2022). The latest World Bank report, as of 2022, highlights this situation, ranking Nigeria at 118 out of 176 countries on the financial inclusion index. However, in recent times, there has been a notable shift in this system (Ifediora et al., 2022).

Nigeria has witnessed substantial efforts to enhance financial inclusion, with initiatives ranging from the deployment of mobile banking solutions to the establishment of microfinance institutions (Kamal et al., 2021). The Central Bank of Nigeria (CBN) has been at the forefront of these efforts, implementing policies and

frameworks to promote inclusivity in the financial sector (CBN, 2021). As the nation strives to create a more inclusive financial ecosystem, evaluating the impact of these initiatives on the profitability of listed deposit money banks is imperative. Deposit money banks (DMBs) in Nigeria have embarked on a concerted effort to embrace the concept of financial inclusion. Through innovative approaches such as agency banking, POS/ATM terminals, mobile banking, etc., by extend their reach to even the remotest corners of the country (Kamal et al., 2021). This transformation has been facilitated by policy changes enacted by the government, notably the "Agent Banking Regulations" of 2023. These regulatory changes have incentivized financial institutions to adopt the agent banking model, owing to its cost efficiencies for both the institutions themselves, the agents, and, crucially, the customers. For customers, the advantages include lower transaction costs, shorter queues, extended operational hours, and greater accessibility, even for those in the population who may be intimidated by traditional bank branches (Kamal et al., 2021).

In response to a series of awareness campaigns by regulatory authorities, banks in Nigeria have come to recognize that the concept of financial inclusion extends far beyond the traditional benchmarks of opening bank accounts, establishing branches, extending credit, and deploying automated teller machines (ATMs), the basic inclusion indicators (World Bank, 2020). Consequently, banks now actively investing in innovation and expanding their portfolio of products and services to meet the evolving demands of customers, especially in rural markets (Kamal et al., 2021). This strategic shift benefits bank customers by reducing transaction costs, enhancing service accessibility, and improving overall efficiency, resulting in an upgraded quality of service (Ajide, 2019; Aribaba et al., 2020).

There are numerous studies such as Aribaba et al. (2020); Claessens et al. (2020); Demirguc-Kunt et al. (2018); Demirgüç-Kunt et al. (2015); Oranga and Ondabu (2018); Shihadeh et al. (2018); and Ifediora et al. (2022) have explored the link between financial inclusion and profitability in developed countries and some few developing nations, often highlighting positive associations with increased market share, profitability, and sustainability. However, the Nigerian context presents unique challenges and opportunities that deserve specific attention for example, regulatory environments, technological advancements, and cultural factors can significantly shape the outcomes of financial inclusion efforts in this context.

Therefore, the present study aimed to conduct comprehensive research on the relationship between financial inclusion and the profitability of listed deposit money banks in Nigeria. Drawing on a diverse set of financial indicators, including profitability, the research uncovers the impact of financial inclusion policies on the overall health and sustainability of these financial institutions (DMBs).

Literature Review and Empirical studies

This section provides a review of relevant literature and empirical studies. Notably, the section reviews financial inclusion and financial performance.

Financial Inclusion and Financial Performance

Financial inclusion and financial performance have received a great deal of attention from both the academic community and policy makers, with a growing body of research exploring the complex relationships between access to financial, banks performance and economic and economic development.

Appah and Tebepah (2023) studied "Financial Inclusion and Financial Performance of Deposit Money Banks in Nigeria". They investigated the relationship between financial inclusion and the financial performance of deposit money banks in Nigeria from 2011 to 2021. The study employed ex post facto and correlation research

design with secondary data obtained from the Central Bank of Nigeria and financial institutions of deposit money banks. The population of the study consisted of all listed deposit money banks, and a sample size of ten was employed for data analysis using univariate, bivariate, and multivariate analysis. The study found that financial inclusion positively influences the level of financial performance of deposit money banks. The results indicated a positive and significant relationship between loans to customers, deposits by customers, bank branches, mobile banking, and agency banking on return on assets of deposit money banks. The study recommends that financial inclusion innovation methods should be stressed in the financial sector through Central Bank of Nigeria (CBN) regulatory and advisories since it leads to improved financial performance and efficiency. In addition, the study also recommends that deposit money banks in Nigeria should invest more in agency, internet banking, and ATM services to include the excluded people in financial services and products throughout the country since they provide significant influence on the financial performance of deposit money banks.

Haider and Zaid (2022) studied "The Impact of Financial Inclusion on Financial Performance: Evidence from Iraqi Banks" and it aimed to measure and analyze the impact of financial inclusion on financial performance. The study uses a quantitative approach and selects four banks listed in the Iraqi Stock Exchange as a sample. The study finds that financial inclusion has a positive effect on financial performance and supports the interaction of banks and customers in building long-term relationships. The study provides valuable information to the fields of business management, financial management, and banking management. The study proposes a model linking financial inclusion and financial performance, which can be adopted by banks to improve their performance.

Elysée and Paul (2021) focused on the effect of financial inclusion strategies on the performance of commercial banks in Rwanda, with a specific focus on I&M Bank. The researchers conducted research using a sample size of 92 employees and collected data through questionnaires and interview guides. The results of the study indicated that agency banking and financial inclusion strategies explain 59.4% of the variations in the performance of commercial banks. The study recommended that I&M Bank improve its agency banking by increasing its number and location, extending its branches to remote areas, and increasing the number of ATMs to provide financial services to people in remote areas.

Bank Account Penetration and Financial Performance

Bank account penetration and financial performance have become increasingly intertwined in recent research, with scholars and policymakers seeking to understand the impact of expanding access to formal financial services on the financial health and stability of banks.

Azzuwut, Sabo, and Bashir (2023) conducted a study on the impact of financial accessibility on small and medium enterprises' profitability. The study highlighted that in a developing nation like Nigeria, small and medium-sized businesses (SMEs) have had a difficult time in accessing banking services especially when trying to acquire external financing, they encounter several difficulties. This is due to a low level of financial literacy among SME owners and Managers. SMEs in Nigeria 's Plateau State make up the study population. According to SMEDAN's estimates from 2021 there were 14558 registered SMEs in Nigeria's Plateau State. The study employed a survey research approach, in which 316 questionnaires were utilized to collect primary data using the convenient sampling technique. The study particularly used a multivariate regression model.

The results of the research on assessing the impact of financial accessibility on small and medium enterprises profitability showed a strong positive correlation between profitability of SMEs and loan, overdraft, collateral requirement, and size.

Credit Accessibility and Financial Performance

Credit accessibility is a key driver of financial performance, influencing risk management and profitability. Frances, Lawrence, and Adenike (2019) study the Analysis of The Profitability and Credit Accessibility among Garri Processors in Epe, Lagos State, Nigeria. This study examined profitability and credit accessibility among Garri processors in Epe, Lagos State. Nigeria. It examined the profitability of the Garri processing enterprise and determined factors militating against credit access by Garri processors in Epe. Multi-stage sampling technique was used to select the study area, the first stage was the purposive selection of Epe, the second stage was the random selection of two communities from each of the three zones in Epe LGA while the third stage involved the random selection of 20garri processors from each community, totaling 120 processors. Ten (10) improperly filled question names reduced the total to 110 Respondents sampled. The data collected were analyzed using descriptive statistics, profitability analysis, and the Logit model. The study revealed that more females (89.1%) than males (10.9%) were Garri processors, as many as 68.2% married and 4.5% unmarried Respondents, and an average household size of 6. The mean year of experience in Garri processing is 16. The average weekly total cost incurred by the Respondents was ₦33,531.39 while total revenue was ₦51,211.82. The Rate of Return on Investment (RRI) of 53% showed earnings of 53% profit on every naira invested. About 68.2% of Respondents did not belong to a cooperative society. There was a low probability of credit acquisition to increase the production level of Garri in the study area. The problems militating against credit accessibility in the study area include high interest rates, low income, no savings, non-membership in cooperative groups, and lack of information on credit availability. It is recommended that the government subsidize the cost of inputs for Garri processors. The local government through Extension agents should embark on enlightenment programmes to educate the processors on modalities for credit accessibility and modern processing methods. There is also a need for financial institutions to look into the conditions for obtaining credit by processors.

A similar study was conducted by Khan, Nasir†, and Arslan (2020), This study was conducted to identify the direction of the relationship between working capital management (WCM) and firm performance of the non-financial sector of Pakistan from 2009 to 2018. This has also looked at the effect of restricted access to loans on the WCM- WCM-profitability relationship. The findings confirmed that restricted loan accessibility impacts the WCM-Profitability relationship. The comparative analysis demonstrated that financially constrained firms are mostly non-family firms that are new, growing, smaller in size, face high risk, and maintain higher liquidity and tangibility ratios than non-constrained firms. Further, the working capital levels of financially constrained firms are lower because of high operating expenses and greater capital rationing. Managers and scholars may use these findings for the administration of their working capital policies to avoid the financial cost and create more opportunities for financial accessibility which is further beneficial for making informed investment decisions, yielding higher profits that contribute towards sustainable growth.

POS/ATM and Financial Performance

POS/ATM deployment impacts financial performance, driving transaction efficiency and customer convenience.

Karimzadeh, Emadzadeh and Shateric (2014) researched the "Effects of Electronic Banking Expansion on Profitability of a Commercial Bank (Sepah Bank of Iran)". In this study investigated the effect of electronic banking expansion on the profitability of Sepah Bank using quarterly data in the period 2004-2012 with the help of the Autoregressive Distributed Lag model (ARDL). To this purpose, the total return on assets (ROA) was considered as the dependent variable, and the number of ATMs, terminal branches, point of sales (POS), market concentration, and bank size were considered as independent variables. The research results show that the number of terminal branches, ATMs, POSs, bank size, and market concentration have positive effects on the bank profitability; the number of terminal branches had more effect on the bank profitability than other variables. Accordingly, we can conclude that expanding electronic banking has a significant and positive effect on the profitability of Sepah Bank.

Genevois, Celik, and Ulukan (2015) study "ATM Location Problem and Cash Management in Automated Teller Machines". Automated Teller Machines (ATMs) can be considered among one of the most important service facilities in the banking industry. The investment in ATMs and their impact on the banking industry is growing steadily in every part of the world. The banks take into consideration many factors like safety, convenience, visibility, and cost to determine the optimum locations of ATMs. Today, ATMs are not only available in bank branches but also at retail locations. Another important factor is the cash management in ATMs. A cash demand model for every ATM is needed to have an efficient cash management system. This forecasting model is based on historical cash demand data which is highly related to the ATMs location. So, the location and the cash management problem should be considered together. This study provides a general review of studies, efforts, and development in ATM location and cash management problems.

Digital Payment Usage and Financial Performance

Digital payment usage is transforming financial transactions, influencing financial performance and competitiveness.

Morufu (2016) researched "E-payments Adoption and Profitability Performance of Deposits Money Banks in Nigeria". This study focuses on the impact of four (ATM, POS, web/Internet, and mobile) e-payments adoption and bank-specific variables on the profitability of the Nigerian Deposits Money Banks (DMBs). Secondary data were obtained from annual reports and accounts of ten quoted (DMBs) between 2005 and 2012. Data were analyzed using panel logistic regression. The overall result from data analysis shows that when bank adopt e-payment systems, their performance level, such as gross margin, profits after tax, return on assets, and return on equity changes. This is reflected in the positive association between adoption and gross earnings of banks. Further, the adoption of the four e-payment instruments ATM, WEB, POS and Mobile banking influenced performance indices measured by return on assets (ROAE), gross margin, and profits after tax (PAT) of the sampled banks.

Muotolu et al. (2019) investigated the effect of the Central Bank of Nigeria's Cashless Policy on the financial performance of Deposit Money Banks in Nigeria. The study uses return on assets as a proxy for bank performance and e-banking products (ATM, POS, Internet Banking, NIP, and NEFT) as a proxy for the cashless policy. The study found that ATM transactions have a positive and significant effect on the return on

assets of banks in Nigeria, while POS, Internet Banking, NIP, and NEFT have a positive but insignificant effect on the return on assets of quoted banks in Nigeria. The study concludes that e-banking products as a proxy for the cashless policy have a positive effect on the financial performance of Deposit Money Banks in Nigeria. Overall, the study provides insights into the impact of the cashless policy on the financial performance of banks in Nigeria and highlights the importance of e-banking products in improving bank performance.

Methodology

This research adopts the ex post facto design and it is a quantitative study. The population of the study is the 10-year data of listed deposit money banks in the Nigeria stock exchange from 2013-2022. The population for the study consists of 22 listed DMBs in Nigeria as at 31st December 2022. The study employs purposive sampling as its sampling technique. The sample selection criteria consist of three key filters: the bank must be publicly listed on the Nigeria Stock Exchange, it must disclose its financial and operational reports to the public, and it must maintain up-to-date financial statements. Since all of the listed banks meet these criteria and have up-to-date financial statements, the sample size will include 10 of the listed Deposit Money Banks (DMBs). This reduced sample size is justified to ensure a manageable and focused study that provides meaningful insights while reducing potential data collection and analysis complexity.

This study derives its data from secondary sources. The data was extracted from annual reports and accounts of the sampled DMBs listed in the Nigeria Stock Exchange and the DMBs' websites and other financial information that was used to collect data between 2013 and 2022.

Model Specification

To test the hypothesis developed in the research work, the following regression model will be used.

$Y = \beta o + \beta 1_{it} + \beta 2_{it} + \beta 3_{it} + \beta 4_{it} + e_{it}$

$ROA_{it} = \beta o + BAP_{it} + CA_{it} + POS_{it} + DPU_{it} + e_{it}$

Where;

βo = Constant

$\beta 1 - 4$ = Coefficient of explanatory variables

ROA = Return on assets

BAP = Bank Account Penetration

CA = Credit Accessibility

DPU = Digital Payments Usage

POS = Point of sales

e_{it} = Error term.

i = Represent cross-section

t = represents the time/year.

Data presentation, analysis and interpretation

This chapter starts with a preliminary discussion of the variables using descriptive statistics. This is followed by the presentation of the results of model estimations and the inferences drawn from the hypotheses tested.

Pearson correlation coefficients and multiple regression techniques were used to analyze the relationship between the dependent and independent variables of the study.

Table 1: Descriptive Statistics

VARIABLES	OBSERVATION	MEAN	STD D.	MIN.	MAX.
ROA	100	0.187	0.643	0.032	3.940
BAP	100	-0.459	1.030	-6.214	1.371
CA	100	0.882	0.646	0.002	3.940
POS	100	0.499	0.511	0.005	0.466
DPU	100	1.426	1.289	0.004	2.930

Source: Descriptive Statistics Results Using STATA

Table 4.1 presents a detailed account of descriptive statistics for the dependent and independent variables. From the table, return on asset (ROA) has minimum and maximum values of 0.032 and 3.940 respectively, and the mean and standard deviation of 0.187 and 0.643 respectively. This means that on average, for every 18.7% increase in financial inclusion, the financial performance of listed Deposit Money Banks will increase by 18.7%% approximately. The standard deviation of 0.643 indicates that the data deviate from the mean value from both sides by 64.3% which implies that there is a wide dispersion of the data from the mean because the standard deviation is higher than the mean value.

The minimum and maximum values of bank account penetration (BAP) are -6.214 and 1.371 respectively and mean value is -0.459 and 1.030 as the standard deviation. The minimum figure of credit accessibility (CA) is 0.002 and the maximum value is 3.940 while the mean and the standard deviation values are 0.882 and 0.646 respectively. Furthermore, the minimum and maximum values for point of sale (POS) are 0.005 and 0.466 respectively and the mean value is 0.499 while 0.511 is the standard deviation. The mean and the standard deviation for digital payment usage (DPU) are 1.246 and 1.289 while the minimum and maximum values are 0.004 and 2.930 respectively.

Table 2: Correlation Matrix

VAR	ROA	BAP	CA	POS	UDP
ROA	1.0000				
BAP	0.6452* 0.0000	1.0000			
CA	0.9731* 0.0000	0.7724* 0.0000	1.0000		
POS	-0.0633 0.5314	-0.0207 0.8377	-0.0444* 0.6608	1.0000	

DPU	0.0487	-0.4089*	-0.1244	-0.0267*	1.0000
	0.6305	0.0000	0.2175	0.7922	

Source: Correlation Matrix Result Using Stata.

*=significant at 1% (0.01), **= significant at 5% (0.05), ***= significant at 10% (0.10)

Table 2 shows the relationship between financial inclusion and profitability (ROA) of listed Deposit Money Banks in Nigeria. The table shows a positive and significant relationship between bank account penetration (BAP) and ROA from a correlation coefficient of 0.6452 and a p-value of 0.0000. This suggests that as bank account penetration of listed banks keeps on rising, ROA will increase grossly. Credit accessibility (CA) has a significant positive relationship with profitability as shown by the coefficient of 0.9731 and a p-value of 0.0000. This implies that as the CA of the bank's increases, ROA will increase significantly. Also, the relationship between Point of sale (POS) and ROA proved to be negative and insignificant as indicated by the correlation coefficient and a p-value of -0.0633 and 0.5314 respectively. This means that as the number of POS increases, the profitability of the bank decreases. The association between digital payment usage (DPU) and profitability indicates an insignificant positive relationship from the correlation coefficient of 0.0487 and a p-value of 0.6305. This signifies that as the DPU of the bank increases, ROA increases in the same direction but slowly.

However, the relationship among the variables themselves is not found to be insignificant to the extent that one can conclude that there is multicollinearity unless the variance inflation factor and tolerance values are comparatively beyond the established rule of thumb. Thus, the variance inflation factor (VIF) and tolerance values are advanced measures for assessing multicollinearity among the regressors.

Regression results

This section presents the regression results of the dependent variables (Profitability) and the independent variable (Financial inclusion) of the study. This is followed by the analysis and interpretation of the association between the variables.

The summary of the regression result obtained from the model of the study *(ROA= β_o + β_1 BAP$_{it}$ + β_2 CA$_{it}$ + β_3 POS$_{it}$ + β_4UDP$_{it}$ +μ_{it})* is presented in the table below.

Table 3: Regression Results

VARIABLES	Coefficients	T-Statistics	T-Sig	VIF/Tolerance
Constant	-0.2556	-9.99	0.000	
BAP	-0.107	-7.70	0.000	3.29/0.30
CA	1.114	54.29	0.000	2.79/0.35
POS	-0.017	-1.13	0.261	1.00/0.99
DPU	0.498	8.16	0.000	1.35/0.74
R^2				0.98
F- Stat.				1611
P-sig				0.000

Source: Stata Output

The cumulative R^2 (0.98) which is the multiple coefficients of determination gives the proportion of the total variation in the dependent variable explained by the independent variables jointly. Hence, it signifies that 98% of the total variation in the profitability of listed Deposit Money banks in Nigeria is caused by their financial inclusion capacity. This indicates that the model is fit and the regressors are properly selected, combined, and used. This further implies that for any changes in the financial inclusion capacity of listed Deposit Money Banks in Nigeria, their financial performance will be directly affected.

The F-Statistics are really the same thing in that, after normalization chi-squared is the limiting distribution of the F as the denominator degrees of freedom goes to infinity. So, therefore, the F-Statistic of 1611 which is significant at 1% indicates that the financial inclusion and profitability model is fitted.

Discussion of Findings

Table 3 revealed that bank account penetration (BAP) has a coefficient value of -0.107, T-Statistics value of -7.70, and T–Sig of 0.000 which is significant at a 1% level of significance. From the coefficient value of -0.70, it can be deduced that the BAP and ROA of listed Deposit Money Banks in Nigeria are negatively related which implies that when bank account penetration increase by 1%, will lead to a decrease in the profitability of listed DMB's by 70%. This implies that the higher the BAP of the banks the lower the profitability. The relationship between Bank account penetration (BAP) and that of profitability of listed Deposit Money Banks in Nigeria is negative but statistically significant.

Credit accessibility (CA) has a coefficient of 1.114, T-Statistics of 54.29, and a T-Sig 0f 0.000 which is significant at 1%. The positive coefficient of the value of 1.114 signifies that credit accessibility (CA) and profitability of listed DMBs are directly related which implies that for every 1% increase in CA, the ROA of listed DMBs will also increase in the same direction to the tune of 100% approximately.

Also, point of sale (POS) shows a coefficient of -0.017, T-Statistics of -1.13, and T-Sig of 0.261 which is not significant at all levels of significance. The negative coefficient of -0.017 signifies that point of sale and profitability of listed Deposit Money Banks in Nigeria are inversely related meaning that whenever the number of POS of the banks increases by 1%, their profitability will decrease by 1.7%, which means that point of sale (POS) has an insignificant negative relationship with the ROA of listed DMBs in Nigeria.

Table 4.3 also revealed that digital payment usage (DPU) has a positive coefficient value of 0.498, T-Statistics value of 8.16, and T-Sig of 0.000 which is significant at a 1% level of significance. The positive coefficient signifies that the DPU and ROA of listed DMBs in Nigeria are positively related which implies that if the digital payment usage increase by 1%, profitability of the listed DMBs increase by 50% approximately
.

Summary and recommendation

The study investigates the effect of financial inclusion on the profitability of listed DMBs in Nigeria. The independent variable of this study is financial inclusion proxied by; Bank account penetration, credit accessibility, point of sale, and digital payment usage and the dependent variable is profitability proxied by return on assets. The four financial inclusion components form the basis of hypotheses one to four of the study. The findings of this study are based on the panel data collected for the period of ten years (2013-2022) from a sample of ten (10) listed Deposit Money Banks on the Nigerian Exchange Group as of 31st December 2022. The data were analyzed using descriptive statistics, Pearson correlation The coefficient, and multiple regression techniques. The result reveals that credit accessibility, and digital payment usage give a positive and significant relationship with profitability. The study therefore concludes that credit accessibility and digital payment usage have an impact on the profitability of listed Deposit Money Banks in Nigeria. For the bank account penetration and point of sale, the result revealed a negative relationship with the profitability of listed Deposit Money Banks in Nigeria which signifies that bank account penetration and point of sale harm the profitability of listed Deposit Money Banks in Nigeria.

This further suggests that financial inclusion components; credit accessibility and digital payment usage are factors that the banks should consider in making decisions that have to do with the improvement of their profitability because they can influence the financial performance of the banks rapidly as revealed by this study. On the contrary, bank account penetration and point of sale will not improve profitability as it shows a negative relationship with the ROA. Hence, the banks should not consider them for the higher profitability.

REFERENCES

Abdul, R. A., Ghaleb, A. E., & Amer Q., (2020). The impact of financial inclusion on bank performance: the case of Jordan., *Int. J. Economics and Business Research, 20*(4), 483–496.

Adedokun, A. J. (2020). Financial inclusion and financial performance of deposit money banks in Nigeria. *Journal of Economics and Business*, 65(3), 45-58.

Ajide, F. M. (2019). Financial inclusion in Africa: does it promote entrepreneurship? *Journal of Financial Economic Policy, DOI 10.1108/JFEP-08-2019-0159.*

Alaba, O. V. (2019). Capital structure and financial performance of oil and gas companies in Nigeria (2014–2018). *International Journal of Finance and Commerce, 1*(3), 1-5.

Appah, E., & Tebepah, S. F. (2023). Financial Inclusion and Financial Performance of Deposit Money Banks in Nigeria. *African Journal of Accounting and Financial Research, 6*(1), 116-143.

Aribaba, F. O., Bamidele, T. R., & Adewale, A. A. (2020). *Analysis of environmental, social and governance integration and sustainable lending practices by commercial banks in Kenya* (Doctoral dissertation, Strathmore University).

Asuming, P. O., Osei-Agyei, L. G., & JMohammed, J. B. (2018): Financial Inclusion in Sub-Saharan Africa: Recent Trends and Determinants, *Journal of African Business, DOI: 10.1080/15228916.2018.1484209*

Avom, D., & Bangaké, C., & Ndoya, H. (2021) "Measuring financial inclusion in African countries", *Economics Bulletin, 41*(3)867-881.

Awolusi, J. P., & Akotey, J. O. (2010). *Financial performance of rural banks in Ghana*: A case study of Naara Rural Bank. A thesis submitted to the Faculty of Economics and Business Administration, Catholic University College of Ghana.

Ayadi, I., & Ellouze, A. (2015). The determinants of Tunisian banking performance: A panel data analysis. *International Journal of Economics and Finance, 7*(1), 262-272.

Azzuwut, W. A., Sabo, B., & Bashir, T. (2023). Assessing the Impact of Financial Accessibility on Small and Medium Enterprises' Profitability. *Gusau International Journal of Management and Social Sciences, 6* (3), 2787-0383.

Beck, T., Demirgüç-Kunt, A., & Levine, R. (2021). *Bank regulation and supervision: What works best?* World Bank.

Benson, M. K., Josiah, A., Duncan, E. O., & Winnie, N., (2022). Effect of Financial Inclusion on the Relationship between Innovation and Financial Performance of Commercial Banks in Kenya. *African Development Finance Journal, 4* (1), 13-34

Berger, A. N., Hasan, I., & Zhou, M. (2010). The effects of focus versus diversification on bank performance: Evidence from Chinese banks. *Journal of Banking & Finance, 34,* 1417-1435.

Boateng, K., &Nagaraju, Y. (2020). The impact of digital banking on the profitability of deposit money banks: Evidence from Ghana. *International Journal of Research in Finance and Management, 3*(1), 144-150.

Boot, A. W. (2021). The future of banking: From scale & scope economies to fintech. *European Economy - Banks, Regulation, and the Real Sector*, (1), 1-15

CBN (2018). National Financial Inclusion Strategy. Retrieved from https://www.cbn.gov.ng/

CBN (2019). Statistical Bulletin 2018. Abuja: CBN Publications.

Demirgüç-Kunt, A., Klapper, L. Singer, D. & Oudheusden, P.V. (2018). *The global findex database 2014*. World Bank Policy Research Working Paper No. 7255, The World Bank.

Demirgüç-Kunt, A., Klapper, L., Singer, D., & Van Oudheusden, P. (2015). *The Global Findex Database 2014: Measuring Financial Inclusion around the World. World Bank Policy* Research Working Paper, 7255.

Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *The Review of Economic Studies*, 51(3), 393-414.

Diamond, D. W., and Rajan, R. G. (2001). Liquidity Risk, Liquidity Creation and Financial Fragility: A Theory of Banking. *Journal of Political Economy, 109*(2), 287-327.

Egberi, A. K. & Ighoroje, E. J. (2021). Financial Inclusion as Determinant of Performance: Does it Matter for Nigeria Deposit Money Banks. *Journal of Research in Business and Management, 9*(2), 32-40.

evidence and an application to employment equations. *The Review of Economic Studies, 58*(2), 277–297.

Frances, B. O., Lawrence, A., A., & Chinwe, A. A. (2019). Analysis of the Profitability and Credit Accessibility Among Garri Processors in Epe, Lagos State, Nigeria. *Global Journal of Agricultural Sciences, 18,* 2019: 57-71

Gardener, E. P. M. (2016). Financial performance measurement in banking. *International Journal of Business, 21*(1), 82-101.

Gurley, J. G., & Shaw, E. S. (1960). *Money in a Theory of Finance*. Brookings Institution.

Haider, H., & Zaid, Z. (2022). The Effect of Financial Inclusion on Financial Performance-Analytical study of a sample of banks listed on the Iraq Stock Exchange. *International Journal Of Research In Social Sciences & Humanities*, *12*(2).

Haider, N., & Zaid A.M., (2022), The Effect of Financial Inclusion on Financial Performance: Analytical study of a sample of banks listed on the Iraq Stock Exchange, International *Journal of Research in Social Sciences & Humanities, 12* (2), 304-320.

Ifediora, C., Offor,K. O., Eze, E. F., Takon, S. M., Ageme, A. E. E., Ibe, G. I., & Josaphat U. J. (2022) Financial inclusion and its impact on economic growth: Empirical evidence from sub-Saharan Africa, Cogent Economics & Finance, 10 (1), 1 -27.

Jegede, C. A. (2014). Effects of automated teller machine on the performance of Nigerian banks. *American Journal of Applied Mathematics and Statistics, 2*(1), 40-46.

Jungo, J., Mara, M. & Anabela, B. (2022). The effect of financial inclusion and competitiveness on financial stability: Why financial regulation matters in developing countries? *Journal of Risk and Financial Management, 15*(122), 1-20.

Kamal, A., Hussain, T., & Khan, M. M. S. (2021). Impact of financial inclusion and financial stability: Empirical and theoretical review. *Liberal Arts and Social Sciences International Journal (LASSIJ), 5*(1), 510-524.

Le, T., Chuc, A. T., & Taghizadeh-Hesary, F. (2019). Financial inclusion and its impact on financial efficiency and sustainability: Empirical evidence from Asia. *Borsa Istanbul Review, 3 (1),* 310 – 322.

Lukman, O. L., Idris, A. A., & Rahmat, A. S., (2020). Financial Inclusion, Msmes and Its Impact on Deposit Money Banks Performance in Nigeria. *Al-hikmah management review, 5* (1), 41 – 56

Miguel A. S., (2017). Factors driving financial inclusion and financial performance in Fintech new ventures: *An empirical study.* 1-258.

Morufu, O. (2016). E-payments adoption and Profitability performance of Deposits Money

Muotolu, P., Chikwemma, O., & Nwadialor, E. O., (2019). Cashless Policy and Financial Performance of Deposit Money Banks in Nigeria. *International Journal of Trend in Scientific Research and Development (IJTSRD). 5* (4), 465 – 476

Naser, H., & Alabassi, Z. M. (2022). The effect of financial inclusion on financial performance: Analytical study of a sample of banks listed on the Iraq Stock Exchange. *International Journal of Research in Social Sciences & Humanities, 12*(2), 304-320.

National Bureau of Statistics (NBS). (2020). *Financial Services in Nigeria.* Retrieved from https://nigerianstat.gov.ng/download/1062

Odero J. O., & Ibrahim, T. O., (2018). Effect of Financial Inclusion on Financial Performance. *The Strategic Journal of Business & Change Management, 4*(2), 22–34.

Okon, A. N., & Amaegberi, M. A. (2018). Mobile banking transactions and bank profitability in Nigeria. *International Journal of Economics, Commerce and Management, 4(*6), 692-716.

Okonkwo, A. A., & Ekwueme, C. M. (2022). Effect of Electronic Payment on Financial Performance of Nigerian Deposit Money Banks. *International Journal of Advanced Academic Research, 8* (3), 105 - 117.

Oranga, O. J., & Ondabu, I. T. (2018). Effect of Financial Inclusion on Financial Performance of Banks Listed at the Nairobi Securities Exchange in Kenya. *International Journal of Scientific and Research Publications, 8*(5), 624 – 732.

Sarma, M. & Pais, J. (2011). Financial inclusion and development. *Journal of International Development, 23*(5), 613-628.

Shihadeh, F. H. & Liu, B. (2019). Does financial inclusion influence the banks risk and performance? Evidence from global prospects. *Academy of Accounting and Financial Studies Journal, 23*(3), 1-12.

Sia Partners. (2021). Banking in the age of COVID-19: A digital transformation for the long term. *Sia Partners Insights*.

Skvarciany, V., Jurevičienė, D., & Morkunas, M. (2019). Determinants of bank profitability: empirical research on Lithuanian market. *Int. J. Economic Policy in Emerging Economies, 12* (5), 443-452.

   Sub-Saharan Africa. DOI: 10.1002/ijfe.2135.

Ugbede O., Mohd L., & Ahmad K., (2017). Financial Inclusion and the Nigerian Economy: Empirical Evidences. *Asian Journal of Economics, Business and Accounting. 4*(4): 1-10,

Wang, H., & Gunawan, A. (2022). Analyzing the Impact of Digital Payment on Efficiency and Productivity of Commercial Banks: A Case Study in China. Proceedings of the 12th. *Annual International Conference on Industrial Engineering and Operations Management, Istanbul, Turkey, March 7-101-11.*

World Bank (2018). *The Global Findex Database.* http://microdata.worldbank.org

World Bank. (2016). *The Global Findex Database: Measuring Financial Inclusion and the Fintech Revolution*. Washington DC: World Bank Group.

World Bank. (2022). *The Global Findex Database: Measuring Financial Inclusion and the Fintech Revolution.* Washington, DC: World Bank Group.