NIU Journal of Social Sciences Copyright©2025
Nexus International University ISSN: *3007-1682;* 11(2): 57-66

Cashless Policy and the Financial Performance of Deposit Money Banks in Nigeria

JEFFREY OGIE EGUAVOEN, NURUDEEN OSENI
University of Benin, Benin City, Nigeria

NURUDEEN OSENI
Auchi Polytechnic, Auchi, Edo State, Nigeria.

Abstract. This study empirically investigated the effect of cashless policy on the financial performance of thirteen listed deposit money banks (DMBs) in Nigeria using quarterly data covering the period 2009Q1 to 2023Q4. The study employed error correction model and multivariate OLS regression. The findings revealed that mobile banking (MOB), national electronic funds transfer (NEFT) and automated teller machine (ATM) transactions have significant impact on the financial performance of DMBs in the short-run while national electronic funds transfer (NEFT), point of sales (POS), automated teller machine (ATM), Nigerian inter-bank (NIP) transfer and web-based (WB) transactions exerts significant impact on DMBs' financial performance in the long-run. Therefore, the study recommends among others that management of DMBs should reduce the prevalence of hacking by investing more on the security of mobile banking and other electronic payment channels and this would lead to increased customer's satisfaction and patronage which can induce higher ROA of DMBs.

Keywords: Cashless Policy, Financial Performance, Mobile Banking, Point of Sales, Automated Teller Machine.

1. Introduction

The banking sector has undergone continuous change throughout time due to the constantly changing and unstable environment in which it operates as well as the pursuit of an effective and efficient payment system. Banks worldwide have persisted in using financial technology to address shifting demands and competing stakeholders' interests. The cashless banking policy is one of such technological innovations adopted in reaction to both internal and external pressures banks face (Arinze-Emefo & Ibrahim, 2023). The innovation in payment systems has brought about the cashless initiatives and the consequent cashless policies to drive cashless economies. Cashless banking is not the total nonexistence of cash. It is an economic situation in which goods and services are bought and paid for via electronic media (Muotolu & Nwadialor, 2019).

Many economies (including Nigeria) have already adopted cashless policy to facilitate smooth transactions as the world undergoes a rapid shift. Cashless policy was initiated in 2012 in Nigeria by the Central Bank of Nigeria (CBN) with the objective of reducing the use of physical cash and promotes digital transactions. This policy sought to advance financial inclusion, lessen corruption, and improve the efficiency of the Nigerian economy (Central Bank of Nigeria, 2024).

Since the advent of cashes policy initiatives, it has impacted developed, emerging and developing economies and specifically, it has impacted the performance of banks and other financial institutions as well as the manner in which financial services are rendered. As a consequence, numerous investigations have been conducted globally to fully understand the impact of cashless policies on economies and particularly on banks that deploys cashless policy tools and devices. Specifically for Nigeria, several studies examining the impact of cashless policy on the financial performance of Nigerian deposit money banks (DMBs) exist with mixed and contradictory results. For instance, researches including Ajibola, Alalade and Akinrin (2024) Ibekwe, Ibekwe and Morah (2023) found that cashless policy variables

have a positive relationship with the financial performance of banks. On the contrary, Aigbovo amd Orobator 2020 found that cashless policy have a negative relationship with the DMBs' financial performance. These varied results may be due to difference in variables utilised, technique in estimation of variables, scope covered, and difference in estimation procedures utilized in their investigation. Additionally, majority of the researches used very few variables to proxy cashless policy. These conflicting results create a gap for further examination.

In terms of methodology and scope, Ighoroje and Okoroyibo (2020) utilized the ARDL and a dataset from 2008 to 2018; Adu and Williams (2023) employed panel least square technique and a dataset from 2013 to 2020; Ibekwe et al., (2023) utilized the ECM and a dataset from 2013 to 2019 while Ajibola et al., (2024) employ the OLS regression and a data set from 2017 to 2022. From the empirical literature on Nigerian studies, only Ibekwe et al. (2023) have employed the ECM technique. This study used ECM, more variables and a more recent quarterly data set that span from 2009Q1 to 2023Q4. The ECM is useful for forecasting and disentangling short-run dynamics and long-run relationship, which will aid the establishment of a more robust interconnection between the cashless policy and the financial performance variables. The short-run and long-run effects of cashless policy on the financial performance of DMBs have not been extensively studied by prior researchers in Nigeria. As a result, this study investigates the impact of cashless policy variables including mobile banking (MOB), national electronic funds transfer (NEFT), point of sales (POS), automated teller machine (ATM), Nigerian inter-bank (NIP) transfer and web-based (WB) transactions on the financial performance of DMBs in Nigeria.

2. Literature Review

2.1 Empirical Literature

Several studies have been conducted globally to investigate the connection between cashless policy and the financial performance of banks. Ajibola, Alalade and Akinrin (2024) investigated the impact of cashless economy initiatives on profitability metrics of fourteen (14) listed DMBs in Nigeria from 2017 to 2022. The profitability of listed DMBs was examined using inferential statistics, pool regression data analysis, and ADF testing for unit roots. While POS, ITB, NEFT, and NIP exerted positive but minimal impact on ROA, the results shows that ATMs exerted a positive and significant impact on the ROA of Nigerian listed banks.

Ibekwe, Ibekwee and Morah (2023) examined the effect of cashless banking on the performance of DMBs in Nigeria from 2013 to 2019. The variables used were automated teller machines (ATM), mobility of payment (MOP), and point of sales (POS). It was estimated using the OLS approach. The unit root of the variables that were included was confirmed using the results of the ADF test. For short-term correction, an ECM was used. The study discovered that the performance of Nigerian DMBs is positively and significantly impacted by POS and MOP.

Arinze-Emefo and Ibrahim (2023) examined the connection between cashless banking and the performance of DMBs from 2016 to 2020 using thematic statistical techniques. The cost-to-income ratio (CIR), net interest margin (NIM), return on assets (ROA) and return on equity (ROE) were the financial performance metrics that were evaluated. Cashless banking policy variables include ATM, POS and mobile banking. The OLS regression was employed for the analysis. The findings showed that ATM, POS and mobile banking displayed no significant effect on the performance of DMBs in Nigeria.

Adu and Williams (2023) investigated the effect of cashless policy on financial performance of five (5) commercial banks in Nigeria using panel analysis from 2013 to 2020. Regression analysis was used in their investigation to establish the effects of POS, e-banking, NEFT, and ATM transactions on performance. The results demonstrated that the performance of commercial banks is significantly impacted by ATM, NIP, mobile banking, and cheque transactions.

Shamanth and Aparna (2022) examined the effect of cashless policy on the financial performance of SBI bank using various cashless methods adopted by the bank. They employed a multiple regression technique to ascertain the significance of the correlation amid the independent variables, which are electronic banking metrics, and the dependent variables, which are profitability metrics such as ROE and ROA. The results show that most of the indicators are positively affecting the bank's performance as calculated by ROE and ROA.

Ighoroje and Okoroyibo (2020) investigated the cashless policy and the performance of Nigerian DMBs from 2009 to 2018 using descriptive statistics, ADF and Philip Perron (PP) tests for unit roots and the ARDL for cointegration and coefficient analysis. ATMs, mobile banking, POS machines, and internet banking were utilised as proxies for cashless policies,

while ROE was employed as a proxy of performance. They discovered that both ATMs and internet banking positively and significantly impacted ROE. Also, POS showed a positive but insignificant effect on ROE, whereas mobile banking had no effect. Mobile banking had a negative and statistically significant effect on ROE. Their conclusion was that the cashless policy manifests a positive and significant effect on the performance of Nigerian DMBs.

Aigbovo and Orobator (2020) examined the effect of electronic banking on financial performance of DMBs in Nigeria from 2009 to 2018. The data was analysed using dynamic panel data alongside multivariate panel estimation. The GMM results revealed that while the overall value of POS transactions exerted a negative effect on DMBs' performance, the aggregate value of automated teller machine transactions exerted a favourable and significant effect. Additionally, there was a negative connection between the overall value of mobile payments and performance and it did not pass the significant test.

3. Data and Methodology

3.1. Data

This study examined the impact of cashless policy on the financial performance of DMBs in Nigeria spanning a 15-year period from 2009Q1 to 2023Q4 with 60 observations. There were thirteen (13) listed DMBs operating in Nigeria as at 31st December, 2023 and this constitute the population and the sample for the study. Hence, the census sampling technique was employed in the study. The DMBs were Zenith Bank Plc, Fidelity Bank Plc, Ecobank Nigeria Plc, First Bank of Nigeria Ltd, First City Monument Bank Plc, Jaiz Bank Plc, GT Bank Plc, Stanbic-IBTC, UBA Plc, Sterling Bank Plc, Unity Bank Plc, Access Bank Plc and Wema Bank Plc. The data for this study was obtained from the Central Bank of Nigeria Statistical Bulletin (2023) and the World Bank Global Financial Indicators website. This study was confined to Nigeria because of the few country-specific studies on this topic and the need to provide evidence on the subject matter based on the most recent data. Data availability also had a role in the choice of the period.

3.2 Theoretical Framework and Model Specification

The study is anchored upon the Technology Acceptance Model (TAM) theory propounded by Davis (1985). It describes how consumers in can adopt cashless policies and utilize technologies that will improve DMBs' performance. TAM opines that when people are introduced to a new technology, an array of factors determines their choice of when and how to use it. The perceived utility (PU) and perceived ease of use (PEOU) are among the variables. The TAM theory helps us to understand those factors that have the impact on cashless policy adoption by DMBs.

The model of Arinze-Emefo and Ibrahim (2023) was adapted and modified for this study. Arinze-Emefo and Ibrahim (2023) model is specified as:

$h_t = \alpha_0 + \alpha_{1x1t} + \alpha_2 x_{2\ t} + \alpha_3 x_{3t} + \mu_t$ ……(1)

Where: h_t = Banks' performance proxied by ROA (dependent variable); α_0 = the constant variance (mean); α_{1-3} = coefficients of the cashless systems variables (automated teller machine ATM, POS and mobile banking; μ_t = error term; t = time subscript.

Unlike Arinze-Emefo and Ibrahim (2023) model, our model is broader and much more an all encompassing measure of cashless policy, as it sufficiently captures more cashless policy variables in Nigeria. Functionally, our model is specified as:

$ROA = f\ (MOB, NEFT, POS, ATM, NIP, WB)$ ……(2)

The econometric form is specified as:

$ROA = \beta_1 MOB_t + \beta_2 NEFT_t + \beta_3 POS_t + \beta_4 ATM_t + \beta_5 NIP_t + \beta_6 WB_t + \mu_t$ ……(3)

By log linearizing the model, we have:

$ROA = \beta_1 LMOB_t + \beta_2 LNEFT_t + \beta_3 LPOS_t + \beta_4 LATM_t + \beta_5 LNIP_t + \beta_6 LWB_t + \mu_t$ ……(4)

The error correction model (ECM) from equation (4) is given as:

$ROA_t = \beta_0 + \beta_1 \Sigma LMOB_{t-1} + \beta_2 \Sigma LNEFT_{t-1} + \beta_3 \Sigma POS_{t-1} + \beta_4 \Sigma LATM_{t-1} + \beta_5 \Sigma LNIP_{t-1} + \beta_5 \Sigma LWB_{t-1} + \beta ECM_{t-1} + \Sigma t_n$ …… (5)

Where ROA = Return on Asset; MOB = Total value of mobile payment transactions; NEFT = Total value of national electronic fund transfer transactions; POS = Total value of point of sale transactions; ATM = Total value of automated teller machine transaction; NIP = Total value of Nigerian inter-bank transactions; WB = Total value of web/internet transaction; β_0 = Constant ; $\beta_1 - \beta_6$ = Coefficient relating to the independent variables; μ_t = Stochastic term; L = Logarithm; t = Time; ECM = Error Correction Model; $_{t-1}$ = variable that has been lagged by one period.

The a priori expectation is: β_1-β_6>0, that is, MOB, NEFT, POS, ATM, NIP and WB transactions are expected to be positively related to the financial performance of DMBs in Nigeria.

3.3 Method of Data Analysis

The study employed the ECM and multivariate OLS regression techniques for the long-run analysis. To

effectively utilize the ECM framework, all variables were integrated of order one (i.e. I[1]). As a prelude to these, the unit root characteristics of the time series variables were investigated using the ADF to establish the stationarity of the underlined variables since the regression of non-stationary time series variable on another yields spurious and inconsistent parameter estimates. The Engle-Granger two stage residual test for cointegration was also conducted. The E-Views 9.0 statistical software was employed for the analysis.

3.4 Measurement of Variables

The variables that were employed are listed in Table 3.1 along with the a priori expectation and the prior researchers that utilised the variable in their study.

Table 3.1: Variable Measurements

SN	Variables	Types of Variables	Variable Measurements	Previous Researchers that used the Variables	A priori Expectation
1	Return on Asset (ROA)	Dependent	Net income divided by total assets	Arinze-Emefo and Ibrahim (2023)	
2	Mobile banking transactions (LMOB)	Independent	Measured as the total value of mobile payment (MOB) transaction in Nigeria	Aigbovo and Orobator (2020)	(+)
3	National electronic fund transfer (LNEFT)	Independent	Measured as total value of national electronic funds transfer (NEFT) transactions in Nigeria	Ajibola et al., (2024)	(+)
4	Point of sales transactions (LPOS)	Independent	Measured as the total volume of transaction on point of sales (POS) in Nigeria	Aigbovo and Orobator (2020)	(+)
5	Automated teller machine transactions (LATM)	Independent	Estimated as the total volume of automated teller machines (ATM) in Nigeria	Ibekwe, et al., (2023)	(+)
6	Nigerian inter-bank transactions (NIP)	Independent	Measured by the total value of Nigerian inter-bank (NIP) transfer transactions in Nigeria	Adu and Williams (2023)	(+)
7	Web-based transactions (WB)	Independent	Measured by the total value of web-based (WB) transactions in Nigeria	Ajibola et al., (2024)	(+)

Source: *Authors' compilation (2024).*

4. Results and Discussion

4.1 Descriptive Statistics

The attributes of the dataset utilised in this investigation is detailed employing descriptive statistics. The results of the summary statistics for all variables employed in the investigation are presented in Table 4.1.

Table 4.1: Descriptive Statistics

	Mean	Max	Min	Std. Dev.	Skew	Kurt.	J-B	Prob
ROA	1.917573	3.481652	0.190894	0.640235	0.13	4.56	4.18	0.12
LMOB	6.609592	10.74902	2.430126	2.098883	-0.02	2.51	0.39	0.82
LNEFT	9.760247	12.88459	6.056493	1.141945	0.37	6.47	21.01	0
LPOS	6.532085	10.01165	3.28225	1.71409	0.13	2.4	0.7	0.7
LATM	8.531158	9.93735	7.428866	0.697392	0.51	2.67	1.94	0.37
LNIP	10.09998	11.81976	4.800693	1.515071	-1.41	5.27	21.93	0
LWB	6.044876	13.20861	3.452207	3.095546	1.61	4.11	19.41	0

Source: *Authors' computations (2025) using Eviews 9.0.*

From Table 4.1, the average annual change in ROA of DMBs in Nigeria is 1.91 percent, which is a not too high rate of ROA. With a maximum value of 3.48 percent, it is seen that there were periods of very rapid annual increases in ROA which is the performance indicator, although there were also periods of sharp year-on-year declines in ROA, going by the minimum value of 0.19 percent. The standard deviation values for the performance indicator (ROA) is much lower than the mean values, suggesting that there were low swings or movements (variability) in the performance indicators (ROA) of DMBs over the period. The

Kurtosis value of ROA is 4.56 which is greater than the 3 margin which imply that the distribution is presumed to be peaked (leptokurtic) in relation to normal. The dataset for ROA is positively skewed to the right. The Kurtosis of ROA is less than 3 (platykurtic), implying that its distributions are flat compared to a normal distribution. Meanwhile, the J-B values of 4.18 reveals that ROA evidently failed significantly at the 5 percent level as showed in the probability value of 0.12, indicating that ROA is normally distributed.

For the independent variables, the average values of mobile banking (LMOB), national electronic funds transfer (LNEFT), point of sales (LPOS), automated teller machine (LATM), Nigeria interbank payment system (LNIP) and web-based (LWB) transactions are 6.61, 9.76, 6.53, 8.53, 10.09 and 6.024 respectively; with their individual maximum values greater than their mean values. Hence, the explanatory variables utilised in this investigation has moved higher than average during the period of investigation. However, these were connected with low inconsistency as shown by the low values of their individual standard deviations. The data set for LMOB and LNIP transactions were negatively skewed suggesting the distribution has a long-left tail while that of LNEFT, LPOS, LATM and LWB transactions were positively skewed to the right implying the distribution possess a long-left tail. The Kurtosis of LNEFT, LNIP and LWB transactions is more than 3 which suggests that the distribution is presumed to be peaked (leptokurtic) in relation to standard while LMOB, LPOS and LATM transactions is lesser than 3 (platykurtic), implying that their distributions is flat compared to a normal distribution. The Jaque-Bera (J-B) statistic values for LMOB, LPOS and LATM transactions are insignificant since their probability values are greater than 5%. It implies that the data set for values for LMOB, LPOS and LATM transactions are normally distributed while that of LNEFT, LNIP and LWB are significant since their probability values are less than 5%, an indication that LNEFT, LNIP and LWB transactions are not normally distributed.

4.2 Correlation Analysis

In order to observe the initial characterisation in terms of the nature and extent of associations amongst the variables utilised in this investigation, the correlation analysis is performed. Table 4.2 shows the outcome of the pairwise correlation matrix.

Table 4.2: Correlation Matrix

Correlation Probability	ROA	LMOB	LNEFT	LPOS	LATM	LNIP	LWB
ROA	1.000000 -----						
LMOB	-0.129489 (0.4258)	1.000000 -----					
LNEFT	0.223503 (0.1656)	0.428759 (0.0000)	1.000000 -----				
LPOS	0.118654 (0.4659)	0.581094 (0.0000)	0.675494 (0.0000)	1.000000 -----			
LATM	0.145039 (0.3719)	0.562236 (0.0000)	0.484244 (0.0000)	0.525079 (0.0000)	1.000000 -----		
LNIP	0.086909 (0.5939)	0.437054 (0.0000)	0.435974 (0.0049)	0.439664 (0.0000)	0.673777 (0.0000)	1.000000 -----	
LWB	-0.120452 (0.4591)	0.527612 (0.0000)	0.461583 (0.0000)	0.452624 (0.0000)	0.510451 (0.0000)	0.404988 (0.0095)	1.000000 -----

Source: *Authors' computations (2025) using Eviews 9.0. Probabilities in parentheses () below each coefficient.*

The correlation matrix for the variables in Table 4.2 indicates that all the explanatory variables except LMOB and LWB transactions were positively correlated with ROA. However, none of the explanatory variables was statistically significant. By implication, none of the explanatory variable is significantly associated with the dependent variable.

Furthermore, in terms of the correlation among the explanatory variables, there is a significant and positive connection amid all the explanatory variables, suggesting that all the cashless policy variables (MOB, POS, ATM, WB, NEFT and NIP transactions) positively stimulate each other. An overall consideration of the result of the correlation coefficients signifies the absence of multicolinearity problem in the empirical estimates since none of the correlation value exceeded 0.80 percent or had perfect correlation. According to Barry and Feldman (1985) criteria, "multicolinearity is not a problem if none of the correlation values exceeds 0.80".

4.3 Unit Root Test

The ADF test was utilised so as to analyse unit roots and the outcomes are shown in levels and at first difference. This allows us ascertain the level or order of integration of all the variables, specifically whether the variables have unit root in their time series and to also get more robust results. Table 4.3 shows the ADF test in levels and at first difference.

Table 4.3: Unit Root Test Result

Augmented Dickey–Fuller (ADF) Test			
Variables	At levels	First Difference	Order of Integration
ROA	-3.3232**	-3.8691**	I[1]
LMOB	-1.4061	-6.1834**	I[1]
LNEFT	-1.9679	-6.4107**	I[1]
LPOS	0.8894	-6.6770**	I[1]
LATM	-2.2398	-3.7532**	I[1]
LNIP	0.5757	4.4188**	I[1]
LWB	-0.11	-7.7240**	I[1]

Source: *Authors' computations (2025) using Eviews 9.0. Note: * and ** indicate significance at 5% and 1 percent respectively.*

According to the findings, one of the variables' ADF values (ROA) is below the 95 percent required ADF value (in absolute values). This implies that the time series are not stationary in their levels. From the first differences, it can be observed that the ADF test statistic for all the variables is higher compared to the 95 percent critical ADF value (in absolute values). From these results, these variables are deemed to be stationary, that is, stationarity was established following the first difference. Therefore, we would allow the hypothesis that the variables have unit roots because they are integrated of order one (i.e. I[1]).

4.4 Co-integration Test

Since it is proven that the variables possess unit root, the next step was to test for co-integration between the dependent variable (ROA) and the explanatory variables (LMOB, LNEFT, LPOS, LATM, LNIP and LWB). The Engle and Granger (1987) two stage co-integration technique is utilised to analyze the co-integration. The process for applying the Engle and Granger test is to conduct an OLS regression at level for ROA regressors, retain the residuals, and subsequently use the ADF test for unit roots to see whether the residuals are stationary. Computer output test statistics are compared to the relevant Engle-Granger critical value. Table 4.4 presents the result of the unit root tests on the OLS residuals.

Table 4.4: Test of Unit Root for ECM Result

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.466613	0.0146
Test critical values:	1% level	-3.615588	
	5% level	-2.941145	
	10% level	-2.609066	

*MacKinnon (1996) one-sided p-values.

Source: *Authors' computation (2025) using Eviews 9.0.*

Since the absolute ADF test statistics, which have a value of -3.4666, are higher than the absolute critical ADF value, which is -2.941145 at the 5 percent level of significance, the results in Table 4.4 demonstrate that the residual is stationary. This leads us to the conclusion that, at the 5 percent test levels, the dependent variable (ROA) and the explanatory variables (LMOB, LNEFT, LPOS, LATM, LNIP, and LWB) are co-integrated. Therefore, a long-run

equilibrium relationship between the dependent variable (ROA) and the regressors (LMOB, LNEFT, LPOS, LATM, LNIP and LWB) is confirmed.

4.5 Parsimonious Error Correction Model (Short-Run) Analysis

The result of the ECM estimation on cashless policy variables (LMOB, LNEFT, LPOS, LATM, LNIP and LWB) and financial performance of Nigeria's DMBs is presented in Table 4.5.

Table 4.5: Error Correction Model (Short-Run) Regression Result

Dependent Variable = DROA			
Variables	Coeff.	t-stat	Prob.
C	-0.070398	-0.960575	0.346
DROA(-1)	0.408093	2.839917	0.0088*
DLMOB(-1)	0.001073	3.147877	0.0042*
DLMOB	0.000879	3.26377	0.0032*
DLNEFT(-1)	-1.109726	-2.859813	0.0084*
DLNEFT	2.835647	4.628568	0.0001*
DLPOS(-1)	0.903903	2.057336	0.0502**
DLPOS	1.146388	1.742363	0.0937
DLATM(-1)	3.490907	3.804837	0.0008*
DLATM	5.525325	5.202643	0.0000**
DLNIP	0.639639	1.844597	0.077
DLWB	0.153805	1.852535	0.0758
ECM(-1)	-0.294042	-3.134846	0.0044
R^2	0.879649		
Adj R^2	0.82188		
F-stat	15.22709		
Prob.	0		
D.W Stat.	1.828805		

Source: *Authors' computation (2025) using E-views 9.0 Software. * &** = 1% and 5% level of significance.*

The model's high predictive ability is demonstrated by the R squared value of 0.88 in Table 4.5, which indicates that changes in the cashless policy variables account for over 88 percent of the systematic variations in DMBs' performance (ROA) in Nigeria. The adjusted R-squared value of 0.82 is extremely elevated and suggests that the model's predictive ability is good; therefore, we conveniently conclude that the explanatory variables during the reference period account for over 82 percent of the short-run systematic variations in ROA, the proxy for financial performance. The F-value of 15.22709, which passes the significance test at the 1 percent level, further validates the model's overall fitness, including the dependability of the explanatory power. Consequently, the hypothesis that ROA and the independent variables have a substantial linear relationship is validated. The ECM coefficient is significant at the 1% level and has the right sign, which is negative. As a result, the model can adjust for any change in DMB's financial performance from the short-term equilibrium state to the long-term equilibrium state. When there is a transitory disequilibrium, the speed of adjustment is around 29%, according to the ECM's coefficient, which has a value of -0.29. This suggests that the speed of adjustment to the long term would be approximately 29%. There is no autocorrelation in the model, as indicated by the Durbin Watson statistic of 1.82. The importance of each of the independent variables in the model is established by taking into account the respective coefficients of the variables in terms of significance and signs. A detailed analysis of each coefficient shows that the coefficient of return on asset [DROA (-1)], which is one period lagged (prior year), is positive and statistically significant. This indicates that one important aspect to be taken into account when determining the current year performance (DROA) of DMBs in Nigeria is the one-year lagged return on asset [DROA (-1)]. The coefficient of previous period mobile banking transactions [DMOB(-1)] and the current

period mobile banking transactions (DMOB) are positively signed and also passed the significance test at 1 percent level of significance. The positive sign suggests that a percentage increase in previous period mobile banking transactions [DMOB (-1)] and the current year mobile banking transactions (DMOB) improve the performance (DROA) of DMBs by 0.001073 and 0.000879 respectively. Furthermore, the coefficients of one period lagged national electronic funds transfer transactions [DLNEFT (-1)] was negatively signed while that of the current period national electronic funds transfer transactions (DLNEFT) was positively signed. However, both variables passed the significance test at 1 percent level of significance. The negative sign between previous year national electronic funds transfer transactions [DLNEFT (-)] and ROA, suggests that a percentage increase in previous period national electronic funds transfer transactions [DLNEFT (-)] adversely affect the performance of DMBs while the direct relationship between current period national electronic funds transfer transactions (DLNEFT) and ROA, imply that current period NEFT transactions stimulate the performance of DMBs in the short-run.

Also, the coefficients of one-year lagged point of sales transactions [DLPOS (-1)] and the current year point of sales transactions (DLPOS) was positively signed but only the one-year lagged point of sales transactions [DLPOS (-1)] passed the significance test at the 5 percent level of significance. The positive sign implies that one-year lagged point of sales transactions [DLPOS (-1)] enhances the financial performance (DROA) of DMBs in Nigeria in the short-run. On the contrary, the coefficients of one year lagged automated teller machine transactions [DLATM (-1)] and current year automated teller machine transactions (DTATM) are positively signed and both passed the significance test at the 1 percent level of significance. The positive sign implies that the one year lagged automated teller machine transactions [DLATM (-1)] and current year DTATM enhances the performance of DMBS in Nigeria in the short-run. Finally, Nigeria interbank payment system transactions (DLNIP) and web-based transactions (DLWB) were positively signed but both variables failed the significance test. Also, the short-run result reveals that if all the explanatory variables are zero, there is an insignificant decrease in the financial performance of DMBs in Nigeria by 0.07 percent as shown by the intercept (constant).

4.6 Long-Run Analysis

The OLS regression results for the quarterly time series data of 40 observation, that is, $2009Q_1$ to $2023Q_4$ indicated the presence of autocorrelation with DW= 0.92 thus rendering the initial results spurious. To correct for autocorrelation, the Cochrane-Orcutt autoregressive technique, AR (4), was employed. It attained convergence after 17 iterations with 40 included observations after adjustment in time period (2011Q3 2021Q2). The final result is presented in Table 4.6.

Table 4.6: Ordinary Least Squares (Long-Run) Regression Result

Dependent Variable = ROA			
Variables	Coeff.	t-stat	Prob.
C	12.75714	1.789862	0.0832
LMOB	-0.61589	-1.661409	0.1067
LNEFT	0.537682	3.264237	0.0027
LPOS	0.769197	1.991257	0.0553
LATM	2.69583	2.315223	0.0274
LNIP	0.390627	2.741643	0.0101
LWB	0.334245	2.957834	0.0059
AR(4)	-0.319265	-1.494881	0.1451
R^2	0.59056		
Adj R^2	0.484898		
F-stat	5.589153		
Prob.	0.000203		
D.W Stat	1.917256		

Source: *Authors' computation (2025) using E-views 9.0 Software.* *** & ** = 1% and 5% level of significance***

With an R^2 value of 0.590560, the OLS regression result displayed in Table 4.6 shows that the explanatory variables (LMOB, LNEFT, LPOS, LATM, LNIP, and LMB) account for around 59% of the aggregate variation in the dependent variable (ROA). After accounting for the degrees of freedom (df), this outcome was below average, as shown by the adjusted R^2 value of 0.48898 (about 49%). Consequently, the regression fit was marginally subpar. At the 1% level, the model's explanatory power is tested using the F-statistic, which is 5.589153 with a corresponding probability value of 0.000203. This suggests that the six (6) explanatory variables (LMOB, LNEFT, LPOS, LATM, LNIP and LMB)

have joint significant effect on DMBs' performance in Nigeria in the long-run. Since the Durbin-Watson statistic value of 1.917256 is roughly equal to 2, autocorrelation can be ruled out of the results entirely.

A close review of the coefficient of the variables in the model shows that all the explanatory variables (except LMOB) pass the significant test at the 1 percent and 5 percent significant levels. Also, all the explanatory variables except (LMOB) were positively signed. Hence, a percentage change in LNEFT, LPOS, LATM, LNIP and LMB will increase the performance of DMBs. Again, the result shows that if all the explanatory variables are zero, there is an insignificant rise in performance of DMBs by 12.75 percent as shown by the intercept (constant).

4.8 Discussion of Findings

The findings obtained from this investigation are far reaching and have significant policy implications. Evidence from the study shows that MOB transactions have significant positive effect on the financial performance of DMBs in the short-run and insignificant negative impact on the financial performance of DMBs in the long-run. This findings aligns with that of Ajibola et al. (2024) and Ighoroje and Okoroyibo (2020) but disagreed with that of Arinze-Emefo and Ibrahim (2023). The implication of this result is that MOB transaction is a key cashless policy variable that enhances the financial performance of Nigeria's DMBs in the short-run.

Also, this study found that the coefficient of NEFT transactions exert a positive and significant impact on the performance of DMBs in both short-run and long-run. This suggests that NEFT transactions improve the performance of DMBs in both short-run and long-run. This finding agrees with that of Adu and Williams (2023) but contradicts that of Ajibola et al., (2024). The implication of this finding is that a NEFT transaction is a key cashless policy variable that enhances the financial performance of Nigeria's DMBs in both short-run and long-run.

Furthermore, POS transactions have insignificant positive effect on the performance of DMBs in the short-run and a positive and significant impact on the performance of DMBs in Nigeria in the long-run. This result corroborates those of Adu and Williams (2023) and Ibekwe et al., (2023) but does not align with those of Ajibola et al. (2024), Arinze-Emefo and Ibrahim (2023) and Ighoroje and Okoroyibo (2020). The implication of a positive and significant connection amid POS transactions and financial performance of DMBs is that POS transactions play a major part in the performance of DMBs in Nigeria in the long-run.

In addition, results from this study shows that the coefficient of ATM transactions exerts a significant positive effect on the financial performance of DMBs in both the short-run and long-run. The result is in consonance with those of Ajibola et al., (2024) and Ighoroje and Okoroyibo (2020) but not in agreement with that of Arinze-Emefo and Ibrahim (2023). The implication of this finding is that ATM transaction is a key cashless policy variable that enhances the financial performance of Nigeria's DMBs in the short-run and long-run.

Furthermore, findings also reveals that the coefficient of the NIP transactions have a positive and insignificant effect on the performance of DMBs in the short-run and a significant positive impact on the performance of DMBs in the long-run. This result aligns with the study of Adu and Williams (2023) but disagrees with that of Ajibola et al., (2024). The implication of this finding is that NIP transactions improve the financial performance of DMBs in Nigeria in the long-run.

Finally, the study found that the coefficient of the WB transactions have a non-significant positive effect on the financial performance of DMBs in the short-run and a significant positive effect on the financial performance of DMBs in the long-run. This result aligns with that of Ighoroje and Okoroyibo (2020) but disagrees with those of Ajibola et al., (2024). The implication of this finding is that WB transaction is a critical cashless policy variable that enhances the financial performance of DMBs in Nigeria in the long-run.

5. Conclusion and Policy Recommendations

Since the introduction of digital payment systems including mobile payments, internet/web banking, and electronic financial transfers, cashless policies have grown in popularity. The financial performance of the banking sector is significantly impacted by this trend, especially DMBs, which depend on deposits as their main source of funding. Hence, the study empirically investigated the effects of cashless policy on the financial performance of DMBs in Nigeria for the period 2009Q1 to 2023Q4. To examine the background characteristics of the dataset, we employed correlation and descriptive statistics; co-integration test was used to ascertain the long-run equilibrium relationship between the dependent and independent variables; the ECM and multivariate OLS methods were utilized in the evaluation of the model

stated in the study. The result reveals that in the short-run, MOB, NEFT and ATM transactions were found to be the key cashless policy variables that drive financial performance. In the long-run, all the cashless policy variables except MOB transaction influence the financial performance of Nigeria's DMBs. The study concludes that cashless policy influences the financial performance of Nigeria's DMBs.

The results obtained from the empirical analysis provides basis for making certain recommendations for policy decision:

- Management of DMBs should reduce the prevalence of hacking by investing more on the security of mobile banking and other electronic payment channels and this would lead to increased customer's satisfaction and patronage which can induce higher ROA of DMBs;
- DMBs operating in Nigeria need to invest huge financial resources on computer technology and telecommunication facilities with a back-up arrangement for power supply. It is believed that such arrangement would boost users' confidence and help improve the volume and value of electronic fund transfer transactions;
- More POS should be installed across the country specifically in areas where it is not sufficiently accessible. There should be a cautious analysis of the system to establish the quantity of POS terminals that will guarantee its smooth running in Nigeria so as to avoid needless friction in the system;
- To cut down on long lines at ATM locations, more ATM centers and outlets should be created. These should also be positioned in convenient areas for quick access. Additionally, DMBs should hire qualified personnel to operate the unit to reduce human error and maintain their ATMs to make them more user-friendly;
- To guarantee the safety and integrity of transactions and avert fraud and unauthorized access, the security of Nigeria NIP system should be strengthened. This would encourage more individuals to use the platforms.
- DMBs should strengthen the security of web-based/internet banking platforms to protect against threats, ensuring that customers feel safe when conducting transactions online.

References

Adu, C. A. & Williams, A. C. (2023). Cashless policy and the financial performance of banks in Nigeria. *Sapientia Foundation Journal of Education, Sciences and Gender Studies, 5*(1), 59-68.

Aigbovo, O. & Orobator, B. (2020). Electronic banking and financial performance of deposit money banks in Nigeria. *KASU Journal of Economics and Development Studies, 8*(1), 269-285.

Ajibola, J. O., Alalade, Y. S., & Akinrin, S. B. (2024). Cashless economy initiatives in enhancing profitability metrics of Nigeria deposit money banks. *Nigerian Journal of Banking and Financial Issues, 10*(2), 14-32.

Arinze-Emefo, I. C., & Ibrahim, U. A. (2023). Cashless banking and performance of deposit money banks. *Open Journal of Business and Management, 11*(1), 3194 - 3212. DOI: 10.4236/ojbm.2023.116174

Central Bank of Nigeria (2024). Cash-less Nigeria. Available at: https://www.cbn.gov.ng/Cashless/

Davis, F. D. (1985). *A technology acceptance model for empirically testing new end-user information systems: Theory and results*. Massachusetts Institute of Technology. http://hdl.handle.net/1721.1/15192.

Ibekwe, A. O., Ibekwe, A. I., & Morah, C. C. (2023). Effect of cashless banking on the performance of deposit money banks in Nigeria. *Academia Networks International Journal of Management Studies, 8*(4), 221-235. DOI: 26044295521854.

Ighoroje, E. J. & Okoroyibo, E. E. (2020). Cashless policy and the performance of deposit money banks in Nigeria. *European Journal of Accounting, Auditing and Finance Research, 8*(5), 85-104.

Muotolu, P. C., & Nwadialor, E. O. (2019). Cashless policy and financial performance of deposit money banks in Nigeria. *International Journal of Trend in Scientific Research and Development, 3*(4), 465-476. https://doi.org/10.31142/ijtsrd23835.

Shamanth, K. & Aparna, J. V. (2022). A study on impact of cashless policy on financial performance of state bank of India. *Journal of Emerging Technologies and Innovative Research*. *9*(11), 413-422.