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CASHLESS POLICY AND THE PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

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ABSTRACT*: The main objective of the study is to investigate the effect of cashless policy on the performance of deposit money banks in Nigeria (2009-2018). The specific objectives are to: Investigate the effect of automated teller machine, examine the effect of point of sale, assess the effect of mobile banking, and to examine the effect of internet banking respectively on the performance of deposit money banks in Nigeria. We employed Econometric techniques involving Descriptive Statistics, Augmented Dicker Fuller and Philip Perron Tests for Unit Roots and the Autoregressive Distributed Lags (ARDL) for cointegration and coefficient analysis. The result of the study indicates that Automated Teller Machine (ATM) and Internet Banking each has a positive and significant effect on return on equity (ROE). Point of Sale (POS) has a positive but insignificant effect on return on equity, while Mobile Banking (MB has a negative and statistically significant effect on ROE, The study thus concludes that cashless policy has positively affected the performance of money deposit banks in Nigeria. The study recommends that government should provide uninterrupted power supply and adequate communication link while shortfalls should be covered by banks through back-up arrangement to power standby generator in case of power outage.*

KEYWORDS: *automated teller machine, point of sale, mobile banking, internet banking,* economic growth, Nigeria.

INTRODUCTION

According to Ajayi (2014),a cashless economy is referred to as an environment in which money is spent without being physically carried from one place to another. Nigeria's quest to migrate from cash to cashless economy has been at the fore for quite a while.Prior to introducing a cashless policy, prognosis by various analysts in economics and finance had been made to the fact that it would be difficult to attain the status of a leading economy by 2020 without entirely embracing the electronic payment system. Equipped with this awareness, the CBN which doubles as apex regulator of the banking sector ushered in the cashless policy to check-mate growing dominance of cash in the banking sector and in turn, enhance e-payment system in the economy (Alagh &

Emeka, 2014).

The conceptualization of the cashless policy in Nigeria was the fore thought of CBN. Following the hitherto heavy dependence on cash based economy; the idea was to migrate to a cashless one through the conduit of the payment system. The expected immediate benefits of this would be to discourage the citizens and corporations from manually moving with cash, enhance the proficiency of Nigeria's payment system, improve on the service quality being offered to the banking public, and above all, the Nigeria monetary system would be in line with international best practices (Adewoye, 2013).

The frequent and soaring practice of the traditional habit of using physical cash in an economy comes with negative ramifications. This practice usually leads to increased cost of cash, somewhat elevated risk, high subsidy, promotion of inefficient and corrupt practices, and results to informal economy (CBN, 2011). For example, according to Osazevbaru an Yomere (2015) the cost of printing new notes to replace the ones that are torn or worn out due to frequent handling continue to be high. Osazevbaru an Yomere quoted the CBN at putting the direct cost of cash to the Nigerian financial system as at 2009 at N114.5 billion. The introduced policies are therefore aimed at curbing some of these ills which results from the high rate of using physical cash.

One should not mistake a cashless economy to the complete absence of cash. It should clearly be understood as an economic structure or setting whereby goods and services bought or sold is paid for by the use of, or through electric media.Despite the usefulness of the proposed cashless policy, there are still some problems of a cashless society such as unstable electronic value of money which has become even more volatile especially given the fact that people will be conducting businesses imaginary money. For instance the government has been able to monitor purchases, spending habits and corresponding patronage. The implication is that under this new system, the government will have a total control of our transaction and therefore exposing the privacy of individuals (Siyanbola, 2013).

Technology Acceptance Model (TAM) and Diffusion of Innovation (DOI) theory has been one of the models that have been developed to provide a better understanding of the usage and adoption of information technology. In spite of the stated implication of the cashless policy the introduction of cashless policy in Nigeria has a strong influence on the development of payment system; it involves commitment of huge amount of financial resources on computer technology, telecommunication facilities and constant electricity. It has equally generally been asserted that cash-less **economy** is likely to have led to increased convenience, more service option, reduced risk of cash related crimes, cheaper access to banking services, and credit to customers and corporate organizations will **benefit** by way of faster access to capital, reduce revenue leakages as well as cash handling cost.

Various empirical studies have been carried out on the cashless policy and deposit money banks in Nigeria with different conclusions and results. Adekoya (2011); Alagh and Emeka(2014), examined the impact of cashless banking on the profitability of banks in Nigeria. The result showed that ATM and POS are positively related to ROE, while WBT related negatively to ROE. Also,

Sorinola, (2015) examined cashless policy and customers' satisfaction by analyzing data using descriptive statistics and correlation co-efficient. The findings of the study revealed that cashless policy contributed significantly to customers' satisfaction in Ogun State.

A Study by Osazevbaru and Yomere (2015) found banks' income higher in cashless setting than in cash based arrangement thus highlighting the immense benefits of cash-less policy offers to the banking sector. Ochei, Achugamonu, Areghan and Edwin (2015) revealed that the rate of fraud and unemployment in Nigeria would increase as a result of cashless economy. Abubakar, Gatawa, and Birnin-Kebbi, (2013); Onyedimekwu, and Oruan, (2013); Alao, and Sorinola, (2015) suggest that cashless policy has negative effect on the performance of commercial banks in Nigeria.

The deference in findings and conclusions of these researchers in respect of its positive and negative effect implies that there is inconsistency and gap in literature which calls for more study and contribution on the debate. The motivation for this study stems from the fact that apart from the conflicting results, most of these studies are theoretical, and very few use secondary data encompassing many cashless policy variables in their models. Secondly, the presumed benefits of cashless policy are enormous and require a thorough empirical examination employing a more robust method.

However, this study filled the gap that arises from inconsistency in the previous empirical findings by the incorporation of automated teller machine, point of sale, mobile banking and internet banking, all in one model to determine the actual effect of cashless policy on the performance of Deposit money Banks in Nigeria.

This study attempts to contribute to the existing body of literature on the effect of cashless policy on bank performance in Nigeria by addressing the above shortcomings identified in previous works. Therefore, the objective of this study is to investigate the effect of cashless policy on the performance of deposit money banks in Nigeria applying autoregressive distributed lags (ARDL) bound technique for cointegration and coefficient estimation using quarterly data for Nigeria. The remaining part of this study is organized as follows; section II is the review of related literature, section III contains methodology, section IV addresses the results of the study, while section V is the conclusion and recommendation.

REVIEW OF RELATED LITERATURE

Conceptual and Theoretical Literature

Cashless Policy

The goal of Cashless Policy is not to eliminate cash entirely from the economy as money remains the medium through which goods and services are exchanged as a means of exchange The essence is to minimize the use of physical cash as much as possible, and at the same time, provide alternative channels for making payments. In this regard, converse to what the term may suggest, cashless economy is not an outright absence of cash transactions in the economic setting, but refers to a setting in which the amount of cash-based transactions are minimally kept.

In such an economic system, transactions are not done principally in exchange for actual cash. It is not equally the barter system where goods and services are exchanged for goods and services. In this perspective, Ajayi (2014) described a cashless economy as an economic setting where goods and services are mostly bought and paid for through electronic media. It has been stressed repeatedly therefore that a cashless economy is not the complete absence of cash. It is rather an economic setting in which electronic media is the dominant method for buying and paying goods and services.

According to Roth (2010) in a cashless economy, there is no point to worry about how much cash is in ones wallet as this is practically irrelevant. One could pay for purchases by either credit cards or bank transfer. Developed countries have been observed to have virtually moved away from paper payment instruments and embraced electronic means, especially payment cards. Some aspects of the functioning of the cashless economy are enhanced by e-finance, e-money, e-brokering and e-exchanges. These refer to how transactions and payments are effected in a cashless economy (Mohammed, Mohammed, & Alexander, 2014).

Ajayi, (2014) argued that by increasing the use of cashless banking instruments, monetary policy effectiveness is strengthened and further stated that the present level of e-money usage is not yet posing a threat to the stability of the financial system. However, Ajayi cautioned that if the government does not run a responsible fiscal policy, the central banks may eventually lose control over monetary policy. For Woodford (2003), in cashless economy, there is assumedly no transactions friction that can be reduced through the use of money balances, and that consequently provide a reason for holding such balances even when they earn rate of return. Basel Committee (1998) emphasized the difficulty in accurately defining electronic money. The committee however, agrees that it blends technological and economic characteristics.

In a similar vein, other reputable institutions and experts have tried to define concept of electronic money which they all consider as the backbone of the cashless economy. According to ECB (1998), electronic money is generally characterized as an electronic store of money value, usually on a technical device, and that could be extensively used for making payments to undertakings except for the issuer, and not necessarily involving bank accounts in the transactions, although actually acting as a prepaid bearer instrument. Electronic payments as arguably have a significant number of economic benefits aside their convenience and safety.

These benefits when maximized can contribute immensely to economic development of a nation. Bank deposits are deepened following the use of Automated electronic payments. As a result, funds available for commercial loans considered as a driver of the general economic activity are increased. There is a wide range of significant macroeconomic benefits that come with efficient, safe and convenient electronic payments. One could liken the impact of establishing electronic payments to using the gears on a bicycle. Put in place an additional efficient electronic payments system to an economy, and the economy is kicked into a higher gear. Add better-controlled consumer and business credit, and you notch up economic velocity even further (Okoye & Raymond 2013).

Automated Teller Machine (ATM)

ATM is a computer controlled device that can be instructed to dispense cash and equally provide other services to customers who are identified with a personal identification number (PIN). The introduction of this service has greatly reduced the physical carriage of cash and frequent visits to the banks. With ATM, cash is dispensed at anytime of the day and it must not necessarily be located within the banking premises. It could be located even in stores, shopping malls, and fuel stations etc. This is different from the customary method where customers queue, and sometimes, for a very long period to withdraw cash or transfer funds.

This is one of the main advantages of ATM. The ATM is the most popular e-transaction solution in Nigeria. Its popularity stems from its convenience as it has rendered withdrawing cash, or checking of account balance a lot more easy. However, despite its popularity, the effect of ATM has not been as expected as there is still huge amount of cash in circulation in the economy. Apparently, its introduction has done very little in reducing the amount of cash in the economy. This could be attributable to the fact that most Nigerians use ATM only for cash withdrawal. The vast majority of customers ignore the fact that ATM machines can perform other functions like fund/cash transfer, mobile phone credit recharge and bills payment.

It has been noticed that cash withdrawals and balance inquiry are the most popular applications requested by users in Nigeria. This may be due to absence of education on the part of banks who are expected to properly educate their customers. The absence of merchants has also been sited among the reasons for not utilizing the other functions of ATM. For the fact that ATM machines are mainly used for cash withdrawals, their impact has not gone far enough in turning Nigeria into a cashless economy.

ATM has succeeded in making more cash available in the economy since depositors can withdraw cash with ease. To turn Nigeria into a cashless economy, Nigerians need more than just ATM cards; they need credit/debit cards.

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INTERNET BANKING

According to Olorunsegun (2010), getting access by customers to their various accounts in addition to wide-ranging information on bank products and services and making use of banks' websites without inconveniencing themselves by sending letters, faxes, original signature, and or telephone confirmation, is what is referred to as Internet banking.

In the words of Siyanbola (2013), it involves carrying out banking transactions using the internet (www) by means of electronic tools, for example the computer, without visiting the banking hall. E-commerce is known to have been facilitated by internet banking and is most frequently used to effect payment. Internet banking like mobile banking equally employs the use of the electronic card infrastructure to execute payment instructions and merchants use it for final settlement of goods and services with their customers over the internet. Some of the most widely used internet banking transactions in Nigeria include settlement of commercial bills as well as purchase of air

tickets through the websites of the merchants.

It has been noticed that the Level of awareness of the saving populace of the benefits of this product is still very low. This implies that there is still room for improvement if the effectiveness of cashless banking would be upheld as expected (Siyanbola, 2013). Internet banking (e-banking) is the use of internet and telecommunication networks to deliver a wide range of value added products and services to bank customers (Uchenna, 2015) through the use of a system that allows individuals to perform banking activities at home or from their offices or over the internet. Some of these services are offered by traditional banks which also offer online banking, meanwhile some are specifically online only without any physical presence.

With online banking in traditional banks, customers could perform most routine transactions, including account transfers, balance inquiries, bill payments, and stop-payment requests. Some go as far as offering online loan applications. In addition, it has been made possible for customers to access account information at any time of the day, and from anywhere. Internet banking has improved banking efficiency in rendering services to customers. Internet banking is a type of e-banking service where customers' instructions are taken and attended to through the internet and offer customers the freedom of enjoying banking services from the comfort of their homes and offices.

The implication is that customers can purchase goods by simply placing orders from the net, instructing their banks to pay the vendor the invoice amount involved, and the products are subsequently delivered to the destination where the buyer wants.

Mobile Banking

This involves the use of mobile phone for settlement of financial transactions. Mobile banking (m-banking) can therefore be defined as the provision and availment of banking and financial services through the help of mobile telecommunication devices. This is more or less fund transfer process between customers with funds available immediately for the beneficiary. Card infrastructure is used for movement of payment instructions equally as secure SMS messaging to beneficiaries intended for confirmation of receipts It has become a very popular as well as exciting innovation to the customers given that it requires low infrastructure to function and the speedy mobile phone penetration in the country.

Services covered by this product include account enquiry; funds transfer; recharge phones; changing passwords, bill payments. Although the product may appear exciting, it is surprising to note that most customers are yet to fully buy into it in Nigeria. In this regard, the apex banks alongside other banks are urged to increase awareness of the product to the saving populace in the country (Siyanbola, 2013). The scope of services offered may include facilities to conduct bank and stock market transactions, administer accounts and to access customized information (Kennedy & Jacky, 2013). Mobile banking is an electronic banking product that allows customers to access banking services through a dedicated telephone line from the comfort of their homes, offices etc. Services rendered here include; balance transfer, change of pin, authorization of inter-branch money transfer, transaction alert (withdrawal or deposit) and enquiry (Adewoye, 2013).

This is the most common of the tele-banking devices. It allows customers to transact banking business via phone. It can be used as an alternative to the traditional branch banking or in conjunction with it (Agwu, Atuma Ikpefan, & Aigbiremolen, 2014). The customer can access their accounts using telephone lines as a link to the financial institutions computer centre. Some of the services rendered here include account balance, transfer, and change of pin.This product has also experienced low patronage as a result of inadequate awareness and education of the customer on how to maximize the use of their phones to transact simple banking operations (Siyanbola, 2013).

Electronic Banking

Different authors have defined Electronic Banking in different ways based on their understanding of its application. E-banking is the term used for new age banking system and it is also called online banking (Amu, & Nathaniel, 2016). E-banking makes use of the internet as the delivery channel through which banking activities can be conducted, for instance, transferring funds, paying bills, viewing checking and savings account balances, paying mortgages and purchasing financial instruments as well as certificates of deposits (Amu, & Nathaniel, 2016). Electronic banking is the delivery of banking services and products through the use of electronic means irrespective of place, time and distance.

Such products and services include; deposit-taking, lending, account management, provision of financial advice, electronic bill payment, as well as the provision of other electronic payment products and services such as electronic money. Electronic banking is also known as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels (Echekoba & Ezu (2012). As has been pointed out by Adewuyi, (2011) electronic banking means the provision of information about the bank and its product via a page on the internet.

Akubueze, (2013) assert that electronic banking is a means where by banking business is transacted using automated processes and electronic devices such as personal computers, telephones, fax machines, internet, card payments and other electronic channels.

Performance of Deposit Banking

Traditionally, performance in deposit money banking has been measured through costs, time, and quality, which highlight production orientation in the banking (Akhalumeh & Ohiokha, 2012). According to the "triple constraint", a policy is considered to be successful if the service is delivered at the right time, for the right price and quality (Omotunde, Sunday & John-Dewole 2013). In this former way of thinking, services were in the dominating position, the crucial field of know-how was production, and the customer was seen as a passive receiver of the building in the end of the construction value chain.

However, this production related assessment does not describe the present state of the construction. On the contrary, banking affiliates strongly with customers' orientation in which case services delivered by the banks is emphasized alongside the traditional success factors. Regarding the level of customer satisfaction, the negative factors appear towards the end of commercial banks services.

It is well described by the fact that in less successful projects, all sectors of the project are seen as poor, and if a project succeeds in one sector, it is likely to succeed in another as well. What is noteworthy here is that co-operation and banks qualities of services are not separate dimensions but interwoven with the central processes of banking. Furthermore, direct and indirect relationships can be perceived between the factors of customer satisfaction. In this regards, the study offers new perspectives for customer-centered development of banks.

Practically, a good number of targets for development are related to communication and handover methods of a banking service. Should these methods be developed, it will be a step in the right direction for commercial banks to eliminate factors causing dissatisfaction, thereby improve their operations in addition to customer orientation. Customer satisfaction as a research subject is based on service quality and marketing research which showed that the traditional quality indicators cannot be used in measuring the quality of services.

More banks are interested in gaining more comprehensive understanding of their customers' perceptions.

THEORETICAL FRAMEWORK

The study is anchored upon the Technology Acceptance Model (TAM) and Diffusion of Innovation (DOI) Theory by Davis (1985). TAM is an information systems theory that models how users come to accept cashless policy and use a technology that will enhance the performance of Deposit money Banks in Nigeria. TAM is one of the models that have been developed to provide a better understanding of the usage and adoption of information technology which is the base of cashless policy that will promote the performance of Deposit money Banks in Nigeria.

It is presently a prominent theory used in modeling technology acceptance and adoption in information systems research. The model suggests that when users are presented with a new technology, a number of factors influence their decision about how and when they will use it. The factors are; perceived usefulness (PU) and perceived ease-of-use (PEOU). According to TAM, one's actual use of a technology system is influenced directly or indirectly by the user's behavioral intentions, attitude, perceived usefulness of the system, and perceived ease of the system.

DOI theory seeks to explain how, why, and at what rate new ideas and technology spread through cultures. Innovation Diffusion Theory (IDT) consists of six major components: innovation characteristics, individual user characteristics, adopter distribution over time, diffusion networks, innovativeness and adopter categories, and the individual adoption process which are the bases of cashless policy that promote the performance of commercial banks in Nigeria.

Empirical Review

Various empirical studies have been carried out on cashless policy and the performance of Deposit money Banks in Nigeria with different conclusions and results. Ogutu and Fatoki (2019) examined the effect of electronic banking on financial performance of listed commercial banks in Kenya. Quantitative research design was employed by the study using panel data analysis. The target

population of the study was the 11 listed commercial banks in Kenya. Secondary data was extracted from CBK banking supervisory reports and published annual reports of banks. The data was recorded on data collection sheets.

Both descriptive and inferential statistics were used. The findings were presented using tables with associated explanations. The study found that there was strong positive relationship between mobile banking, agency banking, ATM banking and online banking and financial performance of listed commercial banks in Kenya. Financial performance of commercial banks and m-banking were strongly and positively correlated.

Hussein and Elyjoy (2018) examined the effect of internet banking on operational performance of commercial banks in Nakuru County, Kenya. The study employed Bank-Focused Theory as well as The Technology Acceptance Model (TAM). The study adopted a cross-sectional research design. The population of the study comprised of 56 employees of the commercial banks. Since the banks were few, the study adopted a census survey. Data was collected using structured questionnaires. A pilot study was conducted in Uasin Gishu County to determine validity of the research instruments where Cronbach's alpha coefficient (0.7) was employed. Data was analyzed using correlation and regression analysis. The study established that internet banking had a positive significant effect on operational performance of the commercial banks.

Taiwo, and Agwu (2017) investigated the roles e-banking adoption has played in the performance of organizations using a case study of commercial banks in Nigeria. Primary data were obtained by administering questionnaires to staff of four purposively selected banks (Ecobank, UBA, GTB and First bank). Pearson correlation was used to analyze the results obtained using the Statistical Package for Social Sciences (SPSS) and it was observed that banks' operational efficiency in Nigeria since the adoption of electronic banking has improved compared to the era of traditional banking.

Amu, and Nathaniel (2016) studied the relationship between electronic banking and the performance of Nigerian commercial banks. The study became necessary due to the increased adoption of the electronic banking which has redefined the banking service both in Nigeria and internationally. Electronic banking was proxied by value of Point-of-Sale transactions while commercial banking performance was proxied by customers' deposits. Engle-Granger cointegration model was used to analyze data. The results show that POS is not cointegrated with both the savings and time deposits but are cointegrated with demand deposits.

Abaenewe, Ogbulu, and Ndugbu, (2015) investigated the profitability performance of Nigerian banks following the full adoption of electronic banking system. The study became necessary as a result of increased penetration of electronic banking which has redefined the banking operations in Nigeria and around the world. Judgmental sampling method was adopted by utilizing data collected from four Nigerian banks. These four banks are the only banks in Nigeria that have consistently retained their brand names and remain quoted in the Nigerian Stock Exchange since 1997. The profitability performance of these banks was measured in terms of returns on equity (ROE) and returns on assets (ROA). With the data collected, we tested the pre- and post-adoption

of e-banking performance difference between means using a standard statistical technique for independent sample at 5 percent level of significance for performance factors such as ROE and ROA. The study revealed that the adoption of electronic banking has positively and significantly improved the returns on equity (ROE) of Nigerian banks.

Alao and Sorinola, (2015) examined cashless policy and customers' satisfaction: A Study of Deposit money Banks in Ogun State, Nigeria. The study seeks to investigate the customers' satisfaction of the recently introduced cashless policy in Ogun State, Nigeria with a survey of bank customers in Abeokuta. Data was collected with a well structured questionnaire and analyzed with descriptive statistics, while hypotheses formulated for the study were tested with correlation co-efficient. The findings of the study reveal that cashless policy contributed significantly to customers' satisfaction in Ogun State.

Osazevbaru and Yomere (2015) investigated the benefits and challenges of Nigeria's cashless policy. Secondary data were collected and content analysis applied in data analysis. The study found banks' income higher in cashless setting than in cash based arrangement. Igbara, Emerenini, and Daasi, (2015) examined the impact of cashless policy on small scale businesses. The study carried out in Ogoni of Rivers state, using the purposive sampling technique, 250 owners and operators of small scale businesses were selected and administered questionnaire. The data collected were coded and analyzed using frequency table and percentage, while regression analysis was used to test the formulated hypotheses using SPSS (Statistical Package for Social Sciences). The results indicate that: small scale businesses in Ogoni land are predominately occupied by sole proprietorship with meager income with a significant numbers of them having a very poor banking habit

Isaac and Michael (2015) examined the effectiveness of mobile banking services in selected Deposit money Banks in Rwanda. Descriptive design involving both qualitative and quantitative approaches was employed. Sample size of 227 was computed from a total population of 524 employees from the selected banks and the selection of respondents was done through systematic random sampling. The instruments of data collection used in this study included both structured questionnaires and interview. In data analysis, quantitative data was analyzed through frequencies and percentages for respondents', mean values were used to determine the effectiveness of mobile banking services in the selected Deposit Money Banks. Difference in effectiveness of mobile banking services was determined through One-Way-ANOVA. Research findings reveal that mobile banking services in the selected Deposit money Banks were generally effective.

METHODOLOGY

The study is descriptive and adopts ex-post facto research design and relies on historical time series quarterly data collected from the Central Bank of Nigeria (CBN) data browser website and TheGlobalEconomy.com.
The study covers the period of 11 years (1989-2019)**.**

Model Specification

The model used for the study was the adaptation and modifications from the work of Alagh and Emeka (2014). They analyzed the effect of Cashless policy on Banks' Profitability in Nigeria. The model is stated thus:

ROE= f (ATM, POS, MB)

This model was adapted and modified by introducing internet banking (ITB) to

ROE = f (ATM, POS, MB, ITB)

Where:

ROE = Return on Equity

ATM = Automated Teller Machine

POS= Point of sale

MB= Mobile Banking

ITB= Internet Banking (ITB)

This was transformed to an econometric equation thus;

$ROE = \beta_0 + \beta_1 ATM + \beta_2 POS + \beta_3 MB + \beta_4 ITB + \mu$ - - - - - 1

Where:

β_0 and μ are the constant and error term respectively while β_1, β_2, β_3, and β_4 are the coefficient of cashless policy on the performance of deposit money banks in Nigeria

The ARDL model is presented as:

$$\Delta ROE_t = \lambda_0 + \sum_{i=1}^{n} \lambda 1 \Delta(ROE)t - i + \sum_{i=0}^{n} \lambda 2 \Delta(ATM)t - i + \sum_{i=0}^{n} \lambda 3 \Delta(POS)t - i + \sum_{i=0}^{n} \lambda 4 \Delta(MB)t - i + \sum_{i=0}^{n} \lambda 5 \Delta(ITB)t - 1 + \beta_1 (ROE)_{t-1} + \beta_2 (ATM)_{t-1} + \beta 3(POS)_{t-1} + \beta(MB)_{t-1} + \beta 5(ITB)_{t-1} + \varepsilon_t$$

where

Δ denotes the first difference operator; λ_0 is the drift component, and ε_t is the usual white noise residuals, λ 's are coefficients of short run dynamics and β's are long run relationship.

To investigate the presence of long run relationships among the variables bound test under Pesaran, *et al.*,(2001) is used which is based on the F-test.

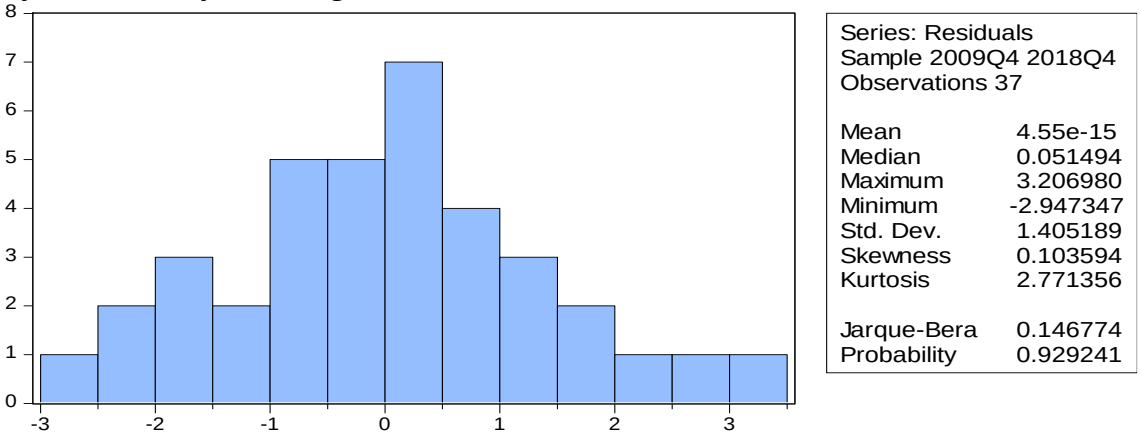
ANALYSIS OF RESULTS

4.1 Table 2: Descriptive Statistics

	ROE	ATM	POS	MB	ITB
Mean	14.72450	821.9980	139.4108	116.9800	31.92425
Median	15.95500	798.7050	64.05500	61.71500	20.47500
Maximum	23.40000	1832.550	714.3500	592.9400	221.5200
Minimum	0.640000	62.59000	1.870000	0.060000	3.370000
Std. Dev.	4.816798	540.4782	190.9581	149.6055	45.77496
Skewness	-0.811007	0.234548	1.614338	1.488842	3.354176
Kurtosis	3.578231	1.847522	4.636971	4.614430	13.97234
Jarque-Bera	4.942139	2.580426	21.84003	19.12164	275.6571
Probability	0.084494	0.275212	0.000018	0.000070	0.000000
Sum	588.9800	32879.92	5576.430	4679.200	1276.970
Sum Sq. Dev.	904.8602	11392549	1422135.	872890.4	81718.54
Observations	40	40	40	40	40

Source: Computed from E-views 9.0

The results of the descriptive statistics showed that the mean of the variables in each quarter of the year are: return on equity14.72450 %,automated teller machine N821.9980 Billion, point of sale N139.4108 Billion, mobile banking N116.9800 Billion, and internet banking N 31.92425 Billion respectively. Their respective standard deviations of, 4.816798%, N540.4782Billion, N190.9581Billion, N149.6055 Billion, and N 45.77496 billion respectively suggest that apart from ROE and ATM whose deviations are less than their means, the deviations of the rest of the variables are much greater than their means. This implies a wide variation within the values of each series of the variables. Also, the values for their respectively skewness and kurtosis are close to 0 and 3 respectively indicating presence of normal distribution in the series. This is confirmed by the normality test in figure 1 below.



The probability of Jarque-Bera of 0.929241 shows that the null hypothesis of normal distribution is accepted and the alternative of no normal distribution is rejected.

Table 2 Breusch-Godfrey Serial Correlation Test
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.143626	Prob. F(2,23)	0.8670
Obs*R-squared	0.456402	Prob. Chi-Square(2)	0.7960

The F-statistic of 0.143626 and the prob of 0.867 show that the null hypothesis of no serial correlation is accepted and the alternative of serial correlation rejected. Therefore the model doe not suffer serial correlation problems thereby good for further analysis.

Unit Root Test
Table 3: Summary of the Unit Root Result

Variable	TEST CONDUCTED	Mackinonn Critical Value at 5% probability level	Level Test Stat	Mackinonn Critical Value at 5% probability level	1st Difference Test Stat	Order of Integration
ROE	PP	-2.938987	-2.143879	-2.941145	-3.143688	I(1)
ATM	ADF	-3.544284	-3.816581	-	-	I(0)
POS	PP	-2.938987	21.47044	-3.533083	-3.832244	I(1)
MB	PP	-2.938987	5.052497	-2.941145	-4.048439	I(1)
ITB	PP	-2.938987	1.423834	-2.941145	-6.330083	I(1)

Source: Computation from E-view Version 9.0

The table above shows that automated teller assumes stationarity at levels while machine return on equity, , point of sale, mobile banking and internet banking are all stationary at first difference I(1). The unit root test was conducted using both the Augmented Dickey fuller test and the Philip-Peron test. The stationarity was decided whenever the Test statistic was more negative than the Mackinnon value at 5% level of significance.

Analysis of the effect of cashless policy and the performance of Deposit money Banks in Nigeria
The existence of a mixed order of integration disqualifies the use of Johansen cointegration test and the Engel Granger cointegration test for further analysis. In this regard, the use of Autoregressive Distributed Lag method of analysis was necessitated and the model ARDL(3 1 1 1 1) was automatically selected using Akaike Info Criterion (AIC). This is presented in Table 4.3. The selected model gives the short run properties of the model. The model showed that the first lags ROE(-1), ATM(-1), and ITB(-1) have a positive and significant effect on ROE, while ATM, POS,MB, ITB, and mb(-1) have insignificant effect on ROE in the short run.

Dependent Variable: ROE
Method: ARDL
Date: 04/18/20 Time: 10:24
Sample (adjusted): 2009Q4 2018Q4
Included observations: 37 after adjustments
Maximum dependent lags: 3 (Automatic selection)
Model selection method: Akaike info criterion (AIC)
Dynamic regressors (1 lag, automatic): ATM POS MB ITB
Fixed regressors: C
Number of models evalulated: 48
Selected Model: ARDL(3, 1, 1, 1, 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
ROE(-1)	1.158620	0.181030	6.400151	0.0000
ROE(-2)	-0.310580	0.281375	-1.103794	0.2802
ROE(-3)	-0.267517	0.176914	-1.512128	0.1430
ATM	-0.003287	0.004104	-0.800997	0.4307
ATM(-1)	0.009529	0.004535	2.101333	0.0459
POS	0.063185	0.038926	1.623210	0.1171
POS(-1)	-0.056579	0.044395	-1.274464	0.2142
MB	-0.013363	0.016959	-0.787979	0.4381
MB(-1)	-0.032525	0.018459	-1.762027	0.0903
ITB	0.010377	0.016538	0.627451	0.5361
ITB(-1)	0.045336	0.022314	2.031708	0.0529
C	2.760094	1.302236	2.119504	0.0442

R-squared	0.912444	Mean dependent var	15.13838
Adjusted R-squared	0.873919	S.D. dependent var	4.748881
S.E. of regression	1.686227	Akaike info criterion	4.139471
Sum squared resid	71.08406	Schwarz criterion	4.661931
Log likelihood	-64.58021	Hannan-Quinn criter.	4.323663
F-statistic	23.68461	Durbin-Watson stat	2.068091
Prob(F-statistic)	0.000000		

Source: Computation from E-view Version 9.0

However, the coefficient of determination (R^2) = 0.0.912444 and adjusted R2 of 0.873919 showed that about 87.4% of changes in the performance of Deposit money Banks in Nigeria is accounted for by the level of cashless policy in Nigeria. This implies that cashless policy is one major contributor on the performance of Deposit money Banks in Nigeria**.** The F-statistics (23.68461; p. < 0.05) indicated that all the variables of the model (cashless policy variables) have a joint significant effect on the performance of Deposit money Banks in Nigeria

Cointegration Analysis

Following the mixed order of integration, a robust ARDL bound testing technique for cointegration was employed to examine if a long run equilibrium relationship exists between the explained variable ROE, and the explanatory variables in the ARDL model.This is presented inTable 4.4.

Table4.4 ARDL Bound Test

ARDL Bounds Test
Date: 04/18/20 Time: 10:25
Sample: 2009Q4 2018Q4
Included observations: 37
Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	4.830759	4
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.45	3.52
5%	2.86	4.01
2.5%	3.25	4.49
1%	3.74	5.06

Source: Computation from E-view Version 9.0

From the table, the value of the F-statistic of 4.83 is greater than upper bound critical value of 4.01 at 5% level of significance. This implies that the Null Hypothesis of "no long-run relationship exists" is rejected and the alternative of the "long-run relationship exists" is accepted. Thus, a long-run equilibrium relationship exists between ROE and the explanatory variables- ATM, POS, MB, and ITB.

Long-run Analysis

The long-run analysis was made by restructuring the selected ARDL (3 1 1 1 1) model to accommodate the short run and the long run dynamics. This is presented in Table 4.5. The value of the adjustment coefficient (CointEq(-1)) which is the equivalence of Erroro correction model (ECM) coefficient is -0.419477 signifies that in the short run, there is error, and that this error is corrected at the rate of 41.9% in each period in other to attain equilibrium in the long run.

Table 4.5 ARDL Cointegrating And Long Run Form

Dependent Variable: ROE
Selected Model: ARDL(3, 1, 1, 1, 1)
Date: 04/18/20 Time: 10:26
Sample: 2009Q1 2018Q4
Included observations: 37

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(ROE(-1))	0.578097	0.142739	4.050016	0.0004
D(ROE(-2))	0.267517	0.176914	1.512128	0.1430
D(ATM)	-0.003287	0.004104	-0.800997	0.4307
D(POS)	0.063185	0.038926	1.623210	0.1171
D(MB)	-0.013363	0.016959	-0.787979	0.4381
D(ITB)	0.010377	0.016538	0.627451	0.5361
CointEq(-1)	-0.419477	0.091698	-4.574575	0.0001

Cointeq = ROE - (0.0149*ATM + 0.0157*POS -0.1094*MB + 0.1328*ITB + 6.5798)

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ATM	0.014881	0.004729	3.146485	0.0042
POS	0.015748	0.030087	0.523419	0.6053
MB	-0.109394	0.046983	-2.328359	0.0283
ITB	0.132815	0.059637	2.227063	0.0352
C	6.579843	2.378675	2.766180	0.0105

Source: Computation from E-view Version 9.0
From Table 4.5, the cointegrating equation is given as
ROE = 0.0149*ATM + 0.0157*POS -0.1094*MB + 0.1328*ITB + 6.5798

The result showed that automated teller machine (ATM), point of sale (POS), and internet banking (ITB) with coefficients and P-Values of 0.0149 and 0.0042, 0.0157 and 0.6053, 0.1328 and 0.0352 respectively, each has a positive effect on return on equity of deposit money banks in Nigeria. However, while the effect of ATM and ITB is statistically significant at 5% level of significance

that of POS is insignificant. On the contrary, mobile banking (MB) with a coefficient and P-value of -0.109394 and 0.0352 has a negative and statistically significant effect return on equity (ROE) of deposit money banks. The intercept of the model C is 6.579843 and its probability p = 0.0105 showed that return on equity (ROE) which is the dependent variable(Y) has a positive value which means that if all the independent, explanatory variables (X) are held constant at zero, return on equity (ROE) as a dependent variable (Y) will equate to 6.579843 units.

DISCUSSION OF FINDING

The coefficient of ATM of 0.0149 showed that a unit increase in value of ATM transaction will lead to 1.5% increase in returns on equity ROE of money deposit banks and vice versa. The results of this finding is consistent with the work of Adu, (2016) which showed that automated teller machine has positive effect on the performance of deposit money banks in Nigeria. The result indicates that point of sale has an insignificant positive effect on the performance of deposit money banks in Nigeria. The result of the findings is inconsistent with the work of Agwu, Atuma, Ikpefan, and Aigbiremolen, (2014) (2016) they posited that point of sale has negative and insignificant effect on the performance of deposit money banks in Nigeria.The coefficient of internet banking ITB of 0.132815showed that a unit increase in internet banking will result to a 13.3% increase in Return on equity of deposit money banks. The finding is consistent with the work of Okoro (2014) which revealed that internet banking has significant effect on the performance of Deposit money Banks in Nigeria

On the contrary, the coefficient of Mobile banking MB of -0.109394 is an indication that an increase of one unit in mobile banking will lead to a decrease in return on equity of money deposit banks by 10.9%. The result contrasts that of Asidok, and Michael, (2018) which rather revealed that mobile banking has significant effect on the performance of deposit money banks in Nigeria

CONCLUSION AND RECOMMENDATION

The study investigated the effect of cashless policy on the performance of deposit money banks in Nigeria. The study showed that all the variables in the study were stationary at first difference I(1) except POS that was stationary at level I(0). This led us to proceed with ARDL method for cointegration tests and coefficient analysis. Findings showed that Automated teller machine (ATM) and Internet banking (ITB) each has a positive and significant effect on the performance of deposit money banks represented by return on equity (ROE). Also, point of sales (POS) has a positive, but the effect is insignificant at the 5% level of significance. Mobile banking (MB) showed a negative and significant effect on the performance of deposit money banks in Nigeria.
The result of this study is consistent with some studies in Nigeria including Adu, (2016), Okoro (2014) which equally showed a positive effect of cashless policies on the performance of deposit money banks in Nigeria. The study concludes that cashless policy is essential for the performance of deposit money banks in Nigeria and recommends education and awareness on the benefits of automated teller machine, point of sales, and internet banking as enhancers of cashless policy in Nigeria.

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