ELECTRONIC BANKING INNOVATIONS AND BANK PERFORMANCE IN NIGERIA

AN M.Sc PROPOSAL

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TITLE PAGE

ELECTRONIC BANKING INNOVATIONS AND BANK PERFORMANCE IN NIGERIA

APPROVAL

The research work titled: "**Electronic Banking Innovations and Bank Performance in Nigeria**" has followed due process and has been approved to have met the minimum requirement for the award of the Master of Science degree in Economics, University of Nigeria, Nsukka.

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DEDICATION

This research work is dedicated to God Almighty, the giver of wisdom and to my parents Mr. and Mrs. Nsikhe Okon Ekpenyong. They are second to none.

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My profound gratitude goes to the almighty God whose protection and guidance made this dream a reality. However, this work would not be a successful one success without the contribution of some persons. I wish to express my profound gratitude to my supervisorDr. Anthony Orji, whose invaluable contributions, comments and suggestions sustained this study to its logical conclusion.

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ABSTRACT

This study estimates the impact of Electronic banking innovation on bank Performance in Nigeria using selected banks data from Electronic payment system office, Central Bank of Nigeria statistical bulletin from 2007-2016.The study adopts Panel unit root and SURE model estimation technique to conduct quantitative analysis for six selected old and new generation banks. The results of this study were analyzed using economic a priori criteria, statistical criteria and econometric criteria. The positive and statistically significant relationship between automated teller machine of old and new generation banks in Nigeria indicates that automated teller machine is a major factor that contributes to old and new banks performance in Nigeria. The positive and statistically significant relationship between point of sale of old and new generation bank in Nigeria indicates that point of sale is a major factor that contributes to old and new banks performance in Nigeria. The positive and statistically significant relationship between mobile banking of old and new generation banks in Nigeria indicates that mobile banking is a major factor that contributes to old and new banks performance in Nigeria. The study recommends that banks should intensify efforts to increase the assets of banks in Nigeria in order to make more profit. The study also calls for efficient management and utilization of funds to train and evaluate bank workers at every point in time.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Globalization, technological innovations and advanced development in different economies' financial system especially in this 21st century have really changed the dynamics of financial transactions globally (Johnnson, 2005; Ozuru, Chikwe & Uduma, 2010). According to Oyewole, Abba, Gambo and Arikpo (2013), explosive growth in ICTs have removed the narrowed digital divide and turned business sphere into an electronic world (e-world). Edith (2008) also view E-banking innovations as a framework by which exchanges are settled electronically with the utilization of electronic contraption like automated teller machines (ATMs), point of sales (POS) terminals, global system of mobile (GSM) telephones, and V-cards etc which can be taken care of by e-card holders, banks client and partners. Nigerian banks are no exception as banks in Nigeria, especially after the consolidation and recapitalization exercises, have strengthened and streamlined their facilities, tailored their services as well as automated their operations in line with this trend (Hassan, Aliyu and Farouk, 2013).This has given rise to the adoption of aggressive marketing approaches by the banks. In the heat of competition, banks are now adding to the stock of e-banking in order to maintain a competitive edge over their competitors (Adewuyi, 2011). The trend of e-banking have progressed from inception in 1986 when the societe Generale Bank of Nigeria (SGBN) stream lined real-time banking into five subdivisions in Lagos State (Okoro, 2014) and launched its 1st Automated Teller Machine (ATM) in November of the year 1990 (Adewuyi, 2011).

Progressively, the early 2000s was characterized with the prevalent adoption of e-banking by many other Nigerian banks. Today, Nigeria banking industry has been characterized by the deployment of ATMs, internet, phones and Point of Sale (POS) as electronic payment tools (Okoro, 2014). In view of the cashless policy and technological development in Nigeria, the Nigerian banking system is appreciating the use of electronic forms of banking. ATMs, mobile phones, credit cards and debit cards, internet, cyber cash also become delivery avenues for normal banking services and products (NBS,2012).Currently, all commercial banks in Nigeria have their individual networks and platforms for payment like credit and debit cards as well as operation of ATM switch networks.

According to Aluta (2010), Nigeria banks offer the following e-banking services to their customers: Inquiry, payment, request and download. Inquiry includes those linked with account Balances, account statement, fixed deposit and check statements. Payment include those associated with credit and debit cards, funds transfers, payments of utility bills and direct money payments. Finally, customer

download account information, their profile, bank guidelines and bank annual reports and statement of accounts.

Statistics indicate that online shopping alone in Nigeria through banks is estimated at N62 billion in 2011 and by 2014 this has reached N150 billion which is trending in line with the rate of internet penetration estimated at 12.5 million users and in this segment group the affluent and the youth make up the major adopters (Onwuegbuchi, 2007). According to Awe (1998), the internet is a collection of two or more computers that millions of users shared a compatible means for interacting with one another to exchange information and other resources together''. Internet banking thus relates to the network of computers that have millions of bank users both from client end and banking end to share compatible information and contract with one another. The growth and use of internet banking have tripled especially after the consolidation exercise of 2006 (Arua, 2007) in line with the directive of the apex bank that all the banks especially commercial banks must attain global reach and international competitive.

In the Nigerian banking system, the use of internet banking has assisted data security like pin code to reduce fraudulent activities, computer conferencing, production of payroll. The internet banking products include e-mails, electronic fax, e-links and value cards. Bank customers who constantly push for innovation and easy access can now find it at the click of a button (Akingbola, 2006). With the internet banking system, Nigeria bank users can now pay for transactions, access the balance on their account as well as other services at the click of a ''mouse'' (kayoed, 2008). Consequently, all the banks in Nigeria offer up to 40 percent and 90 percent of interest banking services (Ovia, 2005 and Muse, 2006).

On the customer end however, the story is not the same. A report by the National Space Research and Development Agency showed that only about 21 Percent of Nigerians out of 170 million actively make use of the internet, putting internet service point in the country at 885,469. KPMG review for 2013 put value of daily electronic funds transfers in Nigeria at N80 billion, number of ATM deployed at 11,700, number of cards issued at 26 million and number of ATM deployed at 117,000 numbers of cards issues at 26 million and number of POS terminals at 170000 (KPMG Report 2013).

Nigeria has adopted several reforms to reposition her financial sector and improve banking performance. These policies ranges from financial liberalization, capitalization and consolidation, electronic banking, cashless policy, non –interest banking, and most recently Bank Verification Number to stabilize the financial system and eliminate fraud. These Financial sector reforms and development have played a vital role in promoting bank performance in Nigeria through electronic banking. Electronic banking development emanates with changes in the form of innovations.

By Electronic banking innovations, we mean the emergence of new financial instruments, products, services and new forms of organization structure in more sophisticated and complete financial

markets. These instruments and products are electronically and technologically based which includes Points of Sale, Automated Teller Machines, Electronic Cards both credit and debit card which offered fast service delivery to customers at any point in time.

Electronic banking innovations has indeed revolutionized the Nigerian banking system such that it has tackled most of the challenges associated with the old, manual way of conducting banking transactions given the rate of increase in Electronic banking innovations in Nigeria banking system, it is surprising that empirical evidence using adequate data are not sufficient on quantitative evidence on bank performance-Electronic banking innovations nexus despite the increasing rate of usage. Thus, this research work seeks to proffer empirical evidence on e-banking innovations on old and new generation banks performance in Nigeria that are e-banking innovations compliant within the research period.

1.2 Statement of the problem

A sound, efficient and productive financial system is a prerequisite for the health and development of any economy. The banking sector makes up dominants part of the financial system of any economy (Salehi,2010). It is a major player in allocation of fund from the lenders to borrowers. The few years especially from 2004 where bank consolidation was effected, the Nigerian banking sector system has registered great success with 24 registered banks working through more than 5,000 ATM terminals as at 2015 (Central Bank of Nigeria,2015). In Nigeria, the banking system account for about 76 percent of the Nigerian financial market. As at 2014 financial year, the ratio of deposit money banks total asset to the GDP was equal to 46 percent and the relative significance of financial services including deposit money banks was the highest compared to other sectors (CBN, 2014).

Despite the performance of banks in Nigerian banking sector, it is surprising that the recent publications from National Bureau of statistics, (2014) and CBN (2014) based on the CAMELS (Capital Adequacy, Asset Quality, Management, Earnings, Liquidity and risk sensitivity) system for banks' health concluded that only four banks were categorized as strong, nine banks satisfactory, seven banks were shaking and four banks were on the brink of distress. The capital adequacy ratio (CAR) of commercial banks decreased from 17.8 percent in 2013 to 15.92 percent in 2014 and however surpassed the capital base sufficiency edge of 10 percent. The savings money industry aggregate credits and advances remained at 12.63 trillion in 2014, demonstrating an increment of 25.73 percent more than 10.04 trillion in 2014.NBS (2014) further showed that the business volume of non profitable advances in banks expanded by 10.26 percent from 321.66 billion in 2013 to 354.84 billion in 2014, whereas non profitable advances to aggregate credits proportion increased from 3.20 percent in 2013 to 2.81 percent in 2014.

The unaudited profit before tax (PBT) of the commercial banks remained at 601.02 billion in line with an increment of 11.31 percent more than 539.97 billion reported in 2013.Return on Asset (ROA) and Return On Equity (ROE) declined by 1.70 percent and 1.76 percent from 2.33 percent and 20.71 percent to 2.29 percent and 20.34 percent 2013 and 2014 respectively. According to a CBN report published in 2014, the asset quality in the banking sector recorded a decline while the ratio of non-performing loans to gross loans recorded an average increase to 3.5 percent in june,2014 periods that can be acclaimed as the heights of e-banking streams.

Consequently, in line with the current trend of economic meltdown that affected the performance of banks in Nigeria during the last financial year. Five banks recorded a decline in banks profits by N54 billion. The affected banks were identified based on their current annual financial statement of the banks published in Nigeria stock exchange. It is recorded that in 2015, five banks PBT declined by 69 percent to N77.65 billion from N131.19 billion in 2014 and the joint PAT of the affected banks dropped from N107.279 billion in 2014 to N59.73 billion in 2015 indicating a decline of 79.5 percent. This current economic crisis facing Deposit money banks (DMBs) has affected banks as one of the anchored sector importantly in the sense that out of 15 Deposit money banks quoted in the Nigerian Stock exchange, 10 DMBs released their 2015 annual financial statement as of march 31, 2016 based on the dateline set up by the Central Bank of Nigeria for submission of the statement. Five banks encountered a sharp reduction in their profits, a huge deviation from the steady increase in profits in almost all the banks after the 2010 banking crisis.

Moreover, available statistics revealed that Eco-bank recorded N40 billion as profit after tax (PAT), Union bank of Nigeria declared N18.1 billion as profit after (PAT), FCMB posted N2.5 billion as profit after tax (PAT), Fidelity Bank recorded N14 billion profit after tax (PAT) and Wema Bank recorded N3.046 billion as profit after tax (NSE, 2015).

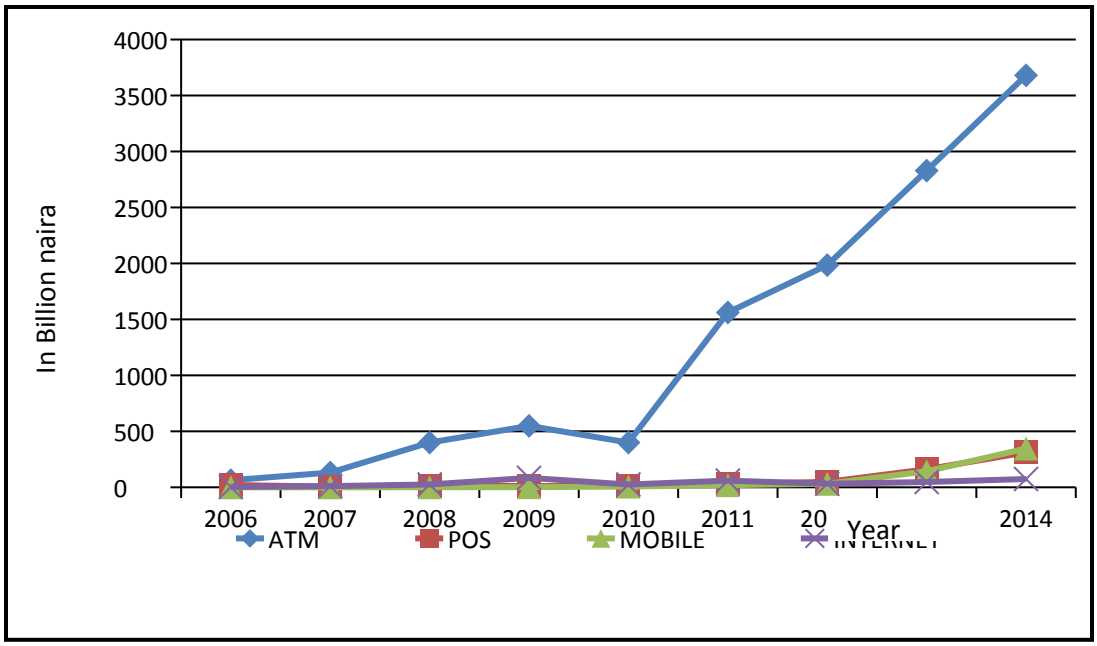
Again, other DMBs that released their 2015 annual reports in March 2016 recorded a huge increase in profits in both profit before tax (PBT) and profit after tax (PAT) irrespective of their enormous provision for bad loans that most of the DMBs made in the 2015 financial year. These are GTB, UBA, Access Bank, Sterling Bank and Zenith Bank Plc. Sterling bank PBT increases from N10.7 billion in the previous year to N11 billion in 2015 while its PAT rose from N9 billion to N10.3 billion, United Bank for Africa PBT rose from N42.4 billion to N50.8 billion, while PAT rose from N40 billion to N47 .6 billion and Zenith Bank PBT rose from N107 billion to N115 billion, while the PAT rose from N92.4 billion and Access Bank's PBT increased from N46.1 billion to N65.2 billion while it PAT increased from N39.9 billion to N58.9 billion.

Statistics have further shown that Nigeria still have low payment penetration rate in spite of revolution in modern payment systems. Compared to some of its contemporaries, statistics have shown that Nigeria has a low formal payment penetration rate of 21.6 per cent as against 46 per cent obtained in both Kenya and South Africa, while accessibility to savings accounts in Nigeria stood at an average of 461 savings accounts for every 1000 population when compared to 2,063 savings accounts for every 1000 population in Malaysia (Mbutor2013).

Evidence has also shown that the number of automated teller machines (ATMs) in Nigeria deployed at the end of 2011 was 9,640, representing an average of 11 number of automated teller machines (ATMs) for every 100,000 adults population of Nigeria, compared with an average of 59 number of automated teller machines (ATMs) for every 100,000 adult population in South Africa, 42 automated teller machines (ATMs) for every 100,000 adult population in Argentina, 13 automated teller machines (ATMs) for every 100,000 adult population in Indonesia, 56 automated teller machines (ATMs) for every 100,000 adult population in Malaysia, and 120 automated teller machines (ATMs) for every 100,000 adult population in Brazil.

Figure 1 below depicts stylized facts on trend performance of the electronic payment channels in Nigeria where the value of ATM cash dispensing and transactions rose from N63.2 billion in 2006 to N399.7 billion in 2008 and further increased to N548.60 billion in 2009. The value of ATMs fell sharply to N399.71 billion in 2010 but thereafter rose rapidly N1,561.74 billion in 2011. The value of ATMs further increased from N1,984,66 billion in 2012 to N3,679.88 billion in 2014 as depicted in figure 1 below.

Figure. 1: Performance of E-payment channels in Nigeria, 2006-2014



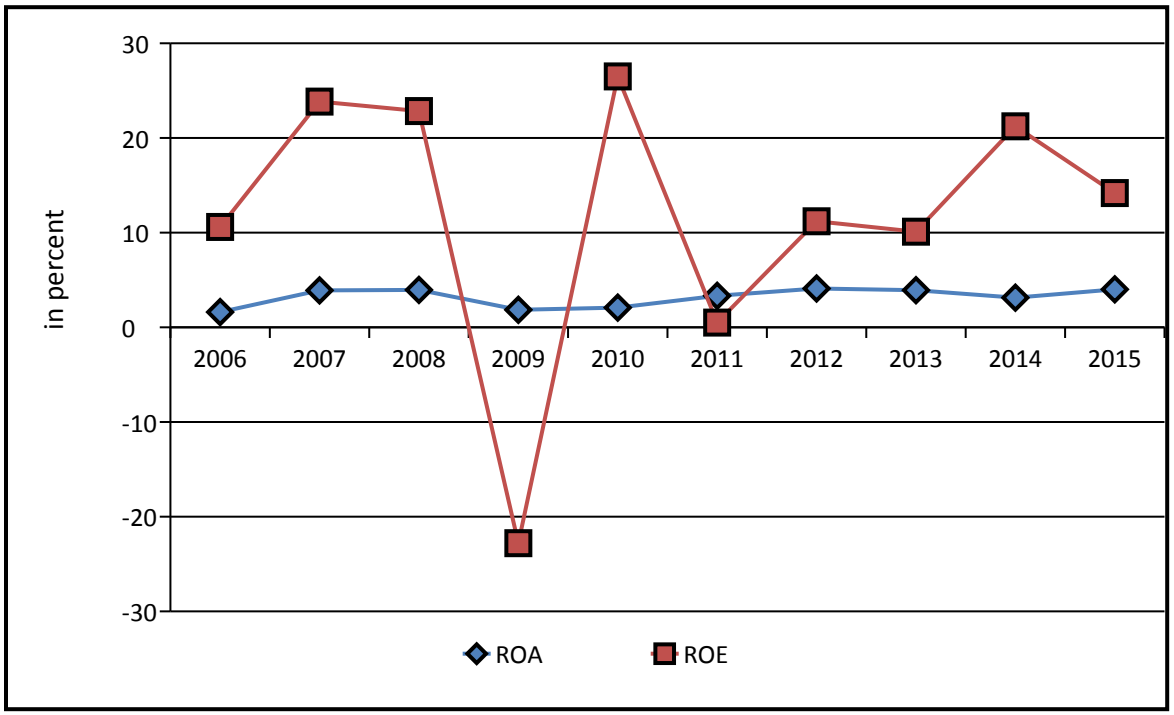
Source: CBN (2015) and Researcher's computation, (2015)

The value of POS transactions declined from N20.2 billion in 2006 to N6.4 billion in 2007. The value of POS thereafter increased rapidly to N16.1 billion in 2008 but fell again to N11.03 billion in 2009. The value of POS thereafter increased from N12.72 billion in 2010 to N48.01 billion in 2012. The value of POS then increased rapidly from N 161.02 billion in 2013 to N312.07 billion in 2014 (CBN,2014).

Statistics in figure 1 further showed that the value of mobile payments increased consistently from N0.10 billion in 2006 to N1.27 billion in 2009 and increased further to N18.98 billion in 2011. The value of mobile transaction increased further from 142.80 billion in 2013 to N346.47 billion in 2014. The increase in the use of mobile payment system was due to the increase in the number of banks offering the services and increased public confidence in e-payments. Further examination of information in figure 1 showed that the value of internet transaction rose from N3.0 billion in 2006 to N25.1 billion in 2008 and thereafter rose sharply to N84.15 million in 2009. The value of internet transaction declined to N25.05 billion in 2010 before rising consistently to N74.04 billion in 2014 (CBN, 2014).

During the same period, returns on asset (ROA) declined from 1.85 percent in 2005 to 1.61 percent in 2006 but increased consistently to 3.95 percent in 2008 and fell to 1.85 percent in 2009. In the same period, return on equity (ROE) increased from 10.60 percent in 2006 to 23.84 percent in 2007 and then fell sharply to -22.80 percent in 2009 and thereafter increased rapidly to 26.50 percent in 2010. Return on asset increased gradually from 2.08 percent in 2010 to 4.10 percent in 2012 but fell to 3.13 percent in 2014 and then rose slightly to 4.01 percent in 2015. On the other hand, return on equity fell to 0.50 percent in 2011 and rose sharply to 11.20 percent in 2012 and thereafter fluctuated between 10.10 percent and 21.23 percent from 2013 to 2015 (see figure 2).

Figure 2. Performance of Return on Assets (ROA) and Return on Equity(ROE) (2006-2015)



Source: CBN, 2016 and Researcher's Computation, 2015

Notwithstanding the rapid increase in both the volume and value of the various payment channels in Nigeria, the e-payment system is not without its dark side. In Nigeria, Internet banking and ATM are the leading channels for perpetuating e-fraud. Statistics show that the volume of e-fraud reported was 822 in 2013 and in 2014, the volume rose rapidly to 1,461 (CBN, 2015). Attempted fraud value reported was N19,148,787,069 billion in 2013 and in 2014, attempted fraud value reported was N7,750,152,718 billion. In the same way, the actual loss value due to e-fraud was N485,194,350 million in 2013 and N6,215,987,323 billion in 2014 (CBN, 2015). There are also cases of hidden charges by banks to their customers. A recent survey conducted by the Ngozi Okonjo Iwieala (NOI) Polls revealed that 61 per cent of bank customers believe that Deposit Money Banks in the country are exploiting them through hidden charges (Chima & Horsfall, 2013). Short messages are usually sent to customers at a cost higher than the stipulated one. These messages can be sent many times and each time it is sent, customers' money is removed. This act may be considered as fraudulent.

The problem of high illiteracy among the Nigerian population has also affected the successful implementation and operation of electronic banking in Nigeria. Inadequate education coupled with poor enlightenment of bankers and customers on various aspects and issue of electronic payment transactions and cashless policy before launching the scheme has made the strategies for marketing the project fall short of expectations (Ajayi, 2014). A research study by Akhalumeh & Ohioka (2011)

showed that 34.0 percent of the respondents identified the problem of internet fraud, 15.5% cited problem of limited POS/ATM, and 19.6% cited problem of illiteracy among the people as some of the challenges militating against the smooth operation of the cashless policy in Nigeria.

Meanwhile, in Nigeria there seems to be a serious debate on whether the financial sector reforms have contributed to performance of the banking sector. This is because the Nigeria's financial system is not effectively providing its development roles as such and is currently not in a position to fulfill its potential as a propeller of economic growth and development (Nkoro & Uko, 2013). And in spite of the banking sector reforms in the areas of bank recapitalization, electronic banking and effective corporate governance, the Nigeria's major productive sectors have considerably shrunk in size since the 1980s prompting arguments as to the efficacy of the reforms. The policy of bank recapitalization came up in the mid 2004 which was predicated on the need to increase risk management procedures and enhance corporate governance in order to strengthen and reposition the banking industry to enable it contribute effectively to the development of the real sector through its intermediation process. The essence of the electronic banking reform was to promote a comprehensive process of substantially improving the regulatory and surveillance framework, fostering healthy competition in banking operations, ensuring an efficient framework for monetary management, expansion of savings mobilization, enforcement of capital adequacy, promotion of investment and growth through market-based interest rates, increasing sophistication of the global financial products, and even the recent global financial crisis, all make the need for banking sector reforms a sine qua non, but the challenges of insecurity and inadequate infrastructure are still persistent. Poverty is deep, severe and pervasive, with about 70% of the population living below poverty line. Poverty is also becoming entrenched in Nigeria, with the threat that the children of the poor are also likely to end up poor. Income distribution is so skewed that the country is one of the most unequal societies in the world, with 50% of the population having only 8% of the national income (Soludo et al, 2007, Nkoro & Uko, 2013).

Given the issues raised above, this is contrary to the aim of financial sector reforms and development. Since it is obvious that the conventional indicator in measuring the contribution of financial sector performance is measured by the quantum of mobilized and the volume of credit given, especially to the private sector. Hence, despite the rapid development in electronic banking innovations, the scenarios have cast doubt as to whether e-banking innovations have impacted positively and significantly on banks performance in Nigeria.

1.3 Research Questions

1 What is the impact of ATM transactions on the performance of selected old and new generation banks in Nigeria?

2 What is the impact of mobile banking transactions on the performance of selected old and new generation banks in Nigeria?

3 What is the impact of point of sales transactions on the performance of selected old and new generation banks in Nigeria?

1.4 Objectives of the study

The main objective of the study is to estimate the impact of e-banking innovations on the performance of selected banks in Nigeria. The specific objectives include:

1 To estimate the impact of Automated Teller Machines (ATMs) transactions on the performance of selected old and new generation banks in Nigeria.

2 To ascertain the impact of mobile banking transactions on the performance of selected old and new generation banks in Nigeria.

3 To determine the impact of point of sale (POS) machine transactions on the performance of selected old and new generation banks in Nigeria.

1.5 Research hypotheses

The following research hypotheses have been formulated in a null form for this study.

$H0_1$: Automated Teller Machines (ATMs) transactions do not impact significantly on the performance of selected old and New generation banks in Nigeria.

$H0_2$: Mobile banking transactions does not impact significantly on the performance of selected old and New generation banks in Nigeria.

$H0_3$: Point Of Sale (POS) machine transactions does not impact significantly on the performance of selected old and New generation banks in Nigeria.

1.6.1 Significance of the study

It is expected that the results from this study will offer policy recommendations to the government, financial analysts, financial authorities like the Central Bank of Nigeria on how best the financial system can be organized through Electronic banking innovations to promote the performance of banks in Nigeria. To the government and the central bank of Nigeria, findings from this study will help provide raw

information from which appropriate policies can be instituted in order to ensure the successful operation of the cashless policy in Nigeria. This study will also be of great benefit to the financial analysts as it will provide information necessary for the analysis of the success and or failure of the various reform policy in the financial sector. To the service providers, this study will help enumerate the successes achieved and the identified challenges encountered by bank customers when using the various payment channels in their transactions.

The study will equally contribute to the already existing literatures on the impact of electronic banking on the performance of banks in Nigeria. The findings of this research work will serve as a reference material for subsequent investigations in this area.

1.7 Scope of the study

This study adopts Non-probability sampling techniques using secondary data from six selected Deposit Money banks (DMBs)to achieve the said objectives of the study. These selection captured selected old and new generation banks in Nigeria from 2007-2016. This period is chosen because of the increase in awareness of e-banking innovations across the 24 Nigerian deposit money banks. The selected deposit money banks for this study include: First Bank of Nigeria Plc, United Bank for Africa Plc, Union Bank of Nigeria Plc, Zenith Bank Plc, Guaranty Trust Bank Plc, and Diamond Bank Plc. The six banks are chosen based on the fact that the first three represents the old generation banks and the last three represent new generation banks in Nigeria.

CHAPTER TWO

BANKING SYSTEM, BANK REFORM AND BANK PERFORMANCE IN NIGERIA: AN OVER VIEW

2.1.1 The banking system in Nigeria

The Nigerian banking environment is in the stage of fast expansion and development. Compared to the advanced banking system, Nigerian banking system may be seen as small but currently rated as one of the fastest growing sectors in the world (CBN, 2013).

The banking system can be categorized into three major eras based on its routines of changes: free-banking era, the era of emergence of the indigenous banks and the era of pre-colonial banking era.

The free banking system in Nigeria

The free banking era is around the period before the country independence in 1960.The era where there was free entry and exit in the banking system with little or no regulation. The banking system was dominated by foreign banks with few indigenously owned banks. These foreign banks their licenses abroad and reputably acted solely on behalf of their foreign based shareholders. According to (NBS, 2012) the period of the 17th century was a period of no banking business in Nigeria.

Era of the emergence of indigenous bank in Nigeria.

This relates to the period where the first indigenous owned banks was inaugurated in 1924.The bank was set up by four London-based Nigerian business men who on acquisition of an industrial and commercial bank in London decided to set up a branch of their bank in Lagos, Nigeria. The bank however could not be sustained as it collapsed six years after in 1930.Another indigenously owned banks were established a year after (1931) called the Nigerian Merchant bank. The banks were also liquidated six years after in 1936.The owners of the defunct industrial and commercial bank in London set up another bank in Nigeria tagged National Bank of Nigeria Limited in 1933. The bank operated for 8 years and collapsed in 1945 (CBN, 2010).During this period, another bank called the Agbomagbe bank was set up, followed by Nigerian Agricultural personnel, Farmers and DMBs in 1947 which collapsed in 1952 and in 1948 the African continental bank was established as an offshoot of a company with the name Lagos Properties Ltd. The failures of these banks have been attributed to issues of mismanagement, lack of patronage, capitalization fraud, huge amount of bad debt, non-performing loan and proliferation of bank branches amongst others (NBS, 2012). In a bid to address the series of failures the colonial government in 1948 set up a panel of enquiry into the causes of bank distress as well as the solution led by M.P.Paton.The Paton report of 1948 gave rise to what is now known as 1952 banking ordinance which amongst other things made provision for minimum capital requirement for bank ownership which of course led to more collapse as more indigenous banks failed to complied with the new capital base requirement.

The Era of pre-colonial Banking System in Nigeria.

The unique attribute of this era was that the new capital requirement forced a lot of banks especially the indigenous banks to shut down leaving only seven banks though the number increased to eight when the banquet de la Enrique du Occidental was established. Most of the banks became state owned as the requirement forced the surviving banks to seek financial support from regional government and or the regional marketing boards as the government became the major financiers of these banks.

The Era of banking legislation (1959-1970)

This period gave birth to the apex bank where by ‘’Central Bank of Nigeria was set up following the need to regulate and control the activities of banking operations in Nigeria. Under this operation, banks in Nigeria perform four basic functions; accept deposit, foreign exchange operations, payment services, marketing of securities and other financial products. The CBN was inaugurated based on the enacted law for the provision of the 1952 banking ordinance which includes the minimum paid up capital, reserves requirements, legal tender limits and the minimum liquidity. The power of the CBN to regulate activities was stepped up in 1969 when the banking law was inaugurated especially in three areas; liquidity, capitalization and reporting quality (CBN, 2012).

Financial system committee era (1976-1985)

To cope with the emerging challenges of the Nigeria financial system, the government in 1976 set up the financial review committee to review the activities of the Nigeria capital market and proffer recommendation as to way of capital market development the recommendations of this committee gave birth to the securities and exchange commission decree of 1970 No.71 which superseded the capital issues commission in 1979.This saw remarkable stability in the banking system giving rise to rural development, trust for the banking system by the populace and savings mobilization.

The Era of banking deregulation (1986-1992)

This time witness various changes in the macro-economy environment of the country’s economy. It was the period of Structural Adjustment Programme (SAP) of the government. Based on the after effect of the defects in the arrangement of credit and the intermediation process, the government presented an extensive variety of changes in banking from 1986, as a component of the general deregulation of the economy. As a major aspect of the change plan, the legislature privatized its interest in the saving money segment and more banks developed at the middle of this period. For example in 1992, a sum of 121 banks comprising of 66 commercial banks and 55 Merchants banks were in operations (Adegbite, 2007). Rivarly got to be intense, in this manner lifting the level of effectiveness. The expanded rivalry for stone made space for new items to be brought into the business sector. The level of innovation in the business got to

be upgraded denoting the envoy of electronic banking system in the way improving the level of monetary intermediation in the economy (Hesse, 2007).

Nevertheless, in the middle of this period, two specific DMBs were presented. i.e the peoples bank of Nigeria and the community banks in order to bridge the gaps in financing the country. The administrative and supervisory system was fortified as it denoted the conception of NDIC in 1988 through NDIC Decree of 1988 and CBN as well as BOFIA Decrees of 1991 in order to avert bank disappointment and guarantee contributors trust in the sector.

The era of bank distress (1993-2002)

This period witnessed the rise of illiquid and terminally distraught banks in the framework. The level of money related convenience to banks by the administrative bodies expanded for the most part. The administrative powers progressively embraced holding activities as an administrative choice for the troubled banks and endeavors' were made as bank acquisitions were supported at the middle of the period. In spite of the measures put up and the endeavors to clean the framework, the frequency of distressed banks proceeded unabated. The authorities urged banks to participate in incredible recapitalization and mergers. Additionally, some type of acquisitions occurred amid this period. A portion of the banks obtained by the CBN were likewise recapitalized, rebuilt and permitted to begin operations. Effort were likewise made amid this stage by the NDIC to lessen the level of non –performing credits, lending, misrepresentation and insider misuse in the banking, through the failed banks and financial malpractices Decree of 1994.This to a great extent succeeded in resting a measure of rational soundness in the framework. The era really captured the change of names of 19 banks in preparation for the universal banking system.

The Bank consolidation era (2004-2009)

Prior to the reforms started in 2004, the Nigerian banking sector was still weak and fragmented, often financing short-term arbitrage projects rather than productive private investments. In response to reversing this trend, the Central bank of Nigeria (CBN) on July 6th, 2004 announced certain reforms in the banking sector. The reform was divided into two phases. The first phase was designed to ensure a diversified, strong and reliable banking sector, which would ensure that depositors' money is safe. The second phase involves encouraging the emergence of regional and specialized banks. The policy thrust at inception, was to grow the banks and position them to play pivotal roles in driving development across the sectors of the economy.

During this period, apart from the traditional managing of account function, paying or gathering cheeks drawn by or paid by individual's procurement of money, DMBs were made to access one or a blend of the following: clearing house exercise, capital market exercise, marketing of insurance

administrations. The essence of this period centered on abolishing the distinction between deposit money banks and merchant banks in terms of their operations. Under this new plan, a bank consequent upon its old permit will be given another permit that would empower it to completely manage its accounts. As a result, banks were consolidated through mergers and acquisitions, raising the capital base from N2 billion to a minimum of N25 billion, which reduced the number of banks from 89 to 25 in 2005, and later to 24 (Balogun, 2007).

The banking system of Nigeria took a revolutionary turn after the banking sector reform of 2004.The reforms included a restructuring of commercial bank assets, strengthening the shareholders equity as well as enhancing banks efficiency. This eventually lead to the increase in banks branches which rose from 2282 to 4500 after the exercise, the aggregate assets of Nigerian banks increased from N3209 billion in 2004 to N6555 billion in 2006 and the Capital Adequacy Ratio (CAR) which is an indicator for adequate liquidity witnessed an increase from 15.2 percent in 2004 to 21.6 percent in 2006 (CBN, 2014).This can be shown on the table below period.

Table 2.1 Banks Characteristics in Nigeria

GROUP	SURVIVING BANK	SHAREHOLDERS FUND	COMPONENT INSTITUTIONS	NO.IN GROUP
1	First Bank	58.996	First Bank of Nigeria Plc,FBN Merchant Bankers Ltd, MBC	3
2	First Inland	26.386	IMB, First Atlantic Bank, Inland Bank,NUB	4
3	FCMB	25.342	First City Monument Bank, Cooperative Development Bank, Niger-American Merchant Bank, Midas.	4
4	Union Bank	106.97	Union Bank of Nigeria Plc, broad bank,UTB, Union Merchant Bankers	4
5	Wema Bank	26.230	Wema bank, National Park.	2
6	Unity Bank	29.425	Intercity Bank, First interstate, Tropical, commercial, Pacific Societe Bancaire, Centre Point, NNB, Bank of the North, New Africa bank Ltd.	9
7	ETB	28.41	ETB, Devcon	2
8	Fidelity Bank	25.596	Fidelity, FSB intercontinental,MA	3
9	IBTC/Chartered	33.494	Regent, IBTC Chartered	3

10	Intercontinental bank	57.25	International, Global, Equity, Gateway	4
11	Oceanic Bank	35.505	Oceanic bank, international Bank	2
12	Platinum Habib	28.491	Platinum, Habib	2
13	Sterling Bank	25.31	NAL, Trust Bank of Africa, INBM, Magnum Trust, NBM	4
14	UBA Plc	47.624	UBA, Standard Trust,NBM	3
15	Spring Bank	41.29	Citizens, Guardian Express, ACB, Omega, Trans International, Fountain Trust	6
16	Access Bank	28.894	Access, Marina International, Capital Bank	3
17	Afri Bank	25.085	Afribank, Afribank Merchant Bankers	2
18	Citibank-NIB	33.375	Citibank,Nigeria international Bank	2
19	Diamond Bank	34.970	Diamond Bank, Lion Bank, Africa International	3
20	Skye Bank	31.469	Prudent, EIB, Bond, Reliance, Coop Bank	5
21	Zenith Bank	95.324	Zenith	1
22	Stanbic Bank	28.386	Stanbic Bank	1
23	Standard Chartered	33.760	Standard Chartered	1
24	Eco Bank	25.763	Eco bank	1
25	GTB	36.420	GTB	1

Total number of merging banks 75				
Failed banks 14				
Pre-consolidation total 89				

Source: Barros & Caporale (2012).

This period captured the presentation of the Nigerian Automated Clearing System and also confirmed the quantities of DMBs in clearing house to seven with different banks serving as specialist of these seven banks. It was during this period that the legislative rebuilt the viable and improvement banks to make profits, actualize their set goals and be more proactive on e-banking innovations, for instance the Nigerian Bank for Commerce and industry (NBCI) and Nigeria Industrial Development Banks (NIDB) converged to form the bank of Industry (BOI).Likewise People Banks, FEAP and The Nigerian Agricultural and Co-operative bank Converged to form the Nigerian Agricultural Cooperative and Rural Development Bank (NACRDB).

2.2.5 Performance of the Nigerian banking industry.

One of the indicators of performance for commercial banks is profitability and commercial banks in Nigeria have reported a sustained increase in profit over the decade though in some years the profit have been increasing in a decreasing rate which positioned the Nigeria Banks as the second most profitable banking system in Africa (Omotunde, Sunday & John-Dewole,2013).The performance review of banks on Profit After Tax (PAT) margin based on 2013 financial review of commercial banks revealed that Guaranty trust bank has the highest positive PAT value at 39.46 percent. Zenith bank comes second at a PAT margin of 26.56 percent and third by First bank of Nigeria at 24.22 percent. Wema bank had the least PAT value at 1.82 percent.

In the same review of commercial bank, Omotunde et al, (2013) registered that Zenith bank emerged the industry leader, declaring N110.59 billion as profit before tax (PBT) , Guaranty trust bank recorded a PBT of N107.09 billion and came second in the trend, while First bank of Nigeria came third with PBT of N91.346 billion. And the fourth position was United Bank for Africa with N56 billion in profits after tax, followed by access bank in the fifth position with a PBT of N44.9 billion and Diamond bank with N32.1 billion as profit after tax in the sixth. Stanbic IBTC recorded N32.1 billion as PAT to come seventh. First City Monument Bank came eighth with PBT of N18.2 billion, Skye bank followed with N17.13 billion and Eco bank Nigeria which declared a profit before tax of N10.53 billion came tenth.

Next was sterling bank with N9.31 billion and it was followed by fidelity Bank, Union Bank and Wema bank with profits after tax as N9.08 billion, N4.2 billion and N1.9 billion as profit after tax respectively.

Another review of commercial banks assets in 2014 revealed that Nigeria has one of the fastest growing financial sector services with a mix of local and international banks, brokerage houses, asset management company of Nigeria (AMCON), private equity funds, insurance firms, stock brokers and investment banks. On total assets of banks with Central bank of Nigeria as the National banking regulator, the following banks were ranked as the best profitable and richest banks in Nigeria in terms of their total assets to operate.

Zenith bank of Nigeria came first with the total asset of N3.189 trillion, First Bank of Nigeria came second with the total asset of N3.172 trillion, Guaranty trust bank (GTB) came third position with the asset of N2.102 trillion. Access bank of Nigeria emerged fourth position with the total asset of N1.9 trillion. Diamond bank declared fifth with the total asset of N1.519 trillion, Eco-bank came sixth with the total asset of N1.32 trillion followed by Union bank of Nigeria with the total asset of N1.049 trillion , Fidelity bank, Sterling bank and First City Monument Bank have with their total assets of,N1.043 trillion,N707 billion and N614.2 billion respectively.

Performance of the banking system can also be analyzed using some other performance indicators. Data as indicated in table 2.2 showed that number of deposit money banks in the pre e-banking period rose from 20 in 1980 to 58 in 1990. This was accompanied by an increase in the number of bank branches rising from 740 in 1980 to 1,939 in 1990. Number of deposit money banks further increased to 65 in 1994 and thereafter fell consistently to 54 in 2000 and then rose to 90 in 2003. By 2005, number of deposit money banks fell to 25 following the recapitalization reform of the banking system. During the same period, number of bank branches increased from 1,855 in 1991 to 2,407 in 1997 and then fell to 2,193 in 2000. By 2005, number of deposit money banks branches increased to 3,245 in 2004.

Statistics as presented in table 2.2 showed that number of deposit money banks declined from 25 in 2006 to 24 in 2010 in the e-banking era. The reduction in the number of banks was due to the consolidation of the recapitalization reform of 2005. During the e-banking era, number of deposit money bank branches rose from 3.233 in 2006 to 5,809 in 2010. During this era, the number of deposit money banks remained at 24 but the number of deposit money bank branches declined from 5,809 in 2010 to 5,526 in 2014.

Table 2.2: Number and branches of commercial Banks in Nigeria

Period	Number of Banks	Total Bank Branches
1980	20	740
1981	20	869
1982	22	991
1983	25	1,108
1984	27	1,249
1985	28	1,297
1986	29	1,367
1987	34	1,483
1988	42	1,665
1989	47	1,855
1990	58	1,939
1991	65	2,023
1992	65	2,275
1993	66	2,358
1994	65	2,403
1995	64	2,368
1996	64	2,407
1997	64	2,407
1998	54	2,185
1999	54	2,185
2000	54	2,193
2001	90	2,193
2002	90	3,010
2003	90	3,247
2004	89	3,492
2005	25	3,245
2006	25	3233
2007	24	4200
2008	24	4952
2009	24	5436
2010	24	5809

2011	24	5454
2012	24	5564
2013	24	5639
2014	24	5526

Source: CBN Statistical Bulletin (various years)

Table 2.3 also presents statistics on the performance of the banking sector in Nigeria As shown in table 2.3, commercial banks assets rose consistently from N16,340.4 million in 1980 to N82,957.8 million in 1990. Commercial bank assets further increased to N1,568,838.7 million in 2000 and in 2005, commercial banks assets increased to N4,515,117.6 million. During the same period, commercial banks credit to private sector increased from N6,234.23 million in 1980 to N33,547.70 million in 1990 and further increased consistently to N530,373.30 million in 2000 and by 2005, commercial banks credit to private sector increased to N1,838,389.93 million. Commercial banks total credit rose from N6,349.10 million in 1980 to N26,000.10 million in 1990 and then to N508,302.20 million in 2000 and in consistently to N1,976,711.20 million in 2005. During the same era, commercial banks deposit rose from N10,009.10 million in 1980 to N38,777.30 million in 1990 and further increased to N775,932.30 million in 2000 and in 2005, commercial bank deposit increased to N2,155,159.83 million.

Further examination of data in table 2.3 showed that commercial banks assets increased from N7,172,932.1 million in 2006 to N17,331,559.02 million in 2010. During the same time, commercial banks credit to private sector increased from N2,290,617.76 million in 2006 to N10,157,021.18 million in 2010. Statistics also showed that commercial banks total credit rose from N2,524,297.90 million in 2006 to N7,706,430.50 million in 2010. During the same period, commercial banks deposit increased from N3,379,275.71 million in 2006 to N10,610,171.91 million in 2010. Deposit money banks assets further increased from N19,396,633.8 million in 2011 to N27,481,532.65 million in 2014. During the same period, commercial banks credit to private sector increased from N10,660,071.84 million in 2011 to N17,128,980.00 million in 2014. During the cashless policy era also, commercial banks total credit increased from N7,312,726.00 million in 2011 to N12,889,421.10 million in 2014. During the cashless era also, commercial banks deposit increased from N12,131,470.43 million in 2011 to N22,378,983.93 million in 2014.

Table 2.3: Commercial banks assets, credit to private sector, total credit & deposits.

Period	Commercial Bank Assets (N'm)	Commercial Banks Credit to Private Sector (N'm)	Commercial Banks TotalCredit (N'm)	Commercial Banks Deposit (N'm)
1980	16,340.4	6,234.23	6,349.10	10,009.10
1981	19,477.5	8,570.05	8,582.90	10,676.90
1982	22,661.9	10,668.34	10,275.30	12,018.90
1983	26,701.5	11,668.04	11,093.90	13,938.50
1984	30,066.7	12,462.93	11,503.60	15,734.80
1985	31,997.9	13,070.34	12,170.20	17,597.10
1986	39,678.8	15,247.45	15,701.60	18,137.60
1987	49,828.4	21,082.99	17,531.90	23,086.70
1988	58,027.2	27,326.42	19,561.20	29,065.10
1989	64,874.0	30,403.22	22,008.00	27,164.90
1990	82,957.8	33,547.70	26,000.10	38,777.30
1991	117,511.9	41,352.46	31,306.20	52,408.70
1992	159,190.8	58,122.95	42,736.80	76,073.50
1993	226,162.8	127,117.71	65,665.30	112,407.40
1994	295,033.2	143,424.21	94,183.90	144,097.40
1995	385,141.8	180,004.76	144,569.60	182,385.60
1996	458,777.5	238,596.56	169,437.10	220,332.20
1997	584,375.0	316,207.08	385,550.50	280,028.90
1998	694,615.1	351,956.19	272,895.50	326,964.80
1999	1,070,019.8	431,168.36	322,764.90	516,772.80
2000	1,568,838.7	530,373.30	508,302.20	775,932.30
2001	2,247,039.9	764,961.52	796,164.80	975,525.30
2002	2,766,880.3	930,493.93	954,628.80	1,209,747.30
2003	3,047,856.3	1,096,535.57	1,210,033.10	1,417,060.00
2004	3,753,277.8	1,421,664.03	1,519,242.70	1,778,713.00
2005	4,515,117.6	1,838,389.93	1,976,711.20	2,155,159.83
2006	7,172,932.1	2,290,617.76	2,524,297.90	3,379,275.71
2007	10,981,693.6	3,668,657.82	4,813,488.80	5,255,939.84
2008	15,919,559.8	6,920,498.75	7,799,400.10	8,252,891.78

2009	17,522,858.25	9,102,049.11	8,912,143.10	9,601,809.65
2010	17,331,559.02	10,157,021.18	7,706,430.50	10,610,171.91
2011	19,396,633.8	10,660,071.84	7,312,726.00	12,131,470.43
2012	21,288,144.39	14,649,276.46	8,150,030.27	14,245,082.68
2013	24,301,213.88	15,778,305.23	10,005,594.33	16,699,056.16
2014	27,481,532.65	17,128,980.00	12,889,421.10	22,378,983.93

Source: CBN Statistical Bulletin (various years)

Uncertainty in Nigeria banking industry

There has been a surge in fraudulent activities on electronic banking (e-banking) channels in recent times. This includes financial crimes through internet banking, Automated Teller Machine (ATM) and Point of Sales (POS) terminals. These are captured by the central bank of Nigeria (CBN) publications, Nigeria Deposit Insurance Corporation (NDIC), Nigerian Electronic Fraud forum (NEFF), Nigeria Interbank Settlement System (NIBSS) and the deposit money banks (DMBs) point to the increasing cases of financial crimes committed through the alternative payment systems, especially since the launch of the cashless policy in 2012. While financial crime through e-fraud poses a global challenge, it is worrisome that the trend is generating rapid increase in Nigeria, barely two years after the introduction of the cashless policy which de-emphasizes cash-based transactions. It is also happening at a time the authorities are working hard to expand bank services and reduce the large number of the unbanked in our country. Naturally, innovations comes with positive and negative thought , and by implications, e-fraud being a negative one causes huge losses which is a deterrent to improving the users confidence and adoption of Nigeria's cashless strategies.

At the Nigerian Electronic Fraud Forum (NEFF) general meeting of the year held first quarter of 2016, from January to September 2014 the CBN Governor. Godwin Emefiele disclosed that losses suffered by DMBs in the last 14 years (2000-2015) due to fraud related cases was about N203 billion. While noting the plight of the banks in finding solution to the rising incidence of e-fraud, we must point out that the trend has severe consequences for the financial industry in the country, and would impact negatively on the bank-customer relationship which is anchored on trust. Banking as the word implies, basically is an activity that thrives on trust and integrity which must not tolerate a breach of any kind. Though reports of the banks for the 2014 business year show impressive performance which points to better days ahead if the right monetary policy choices are adopted.Worried about the spate of electronic fraud in the nation's financial services industry are amplified by Nigeria's gradual transition into a cashless economy, the central bank of Nigeria (CBN) has repositioned payments system policy in order to

be more responsive to challenges. It is important that all the needed monetary policies are put in place to make banks play their roles as financial intermediaries in economic development.

2.2.6 E-banking system in Nigeria

As part of effort to improve the Nigerian payment landscape, the government through the central bank of Nigeria has in the recent times stepped-up the campaign for banks to invest heavily in other low-cost branchless channels such as automated teller machines (ATMs), point of sale (POS), internet banking, and mobile banking. In order to facilitate and accelerate the use of modern electronic payments channels, the cashless policy was implemented. The increased response of banks to e-banking in Nigeria coupled with the supervisory role of Central Bank of Nigeria led to the setting up of Technical Committee on e-banking in 2003, which also led to the formulation of guideline on e-banking based on the report submitted by the committee in 2003. The formulation of guidelines on e-banking led to the emergence of e-banking in Nigeria.

The Central Bank of Nigeria (CBN) recently introduced a new policy Cash less Policy as part of ongoing reforms to address currency management challenges in Nigeria, as well as enhance the national payments system. The guidelines for the implementation of cashless policy in Nigeria were formulated in December, 2011 but its formal operation began in 1st January, 2012. The pilot run of the policy started on January 1, 2012 in Lagos State. The service charges were with held till 30 March of the same year to allow for seamless migration from the manual to electronic devices. The second stage of the pilot run started in Rivers , Anambra, Abia, Kano State, Ogun and the Federal Capital Territory on 1 July 2013 while the whole states of the federation implemented the program in July 31, 2014.

The cashless policy of the CBN is designed to provide mobile payment services, breakdown the traditional barriers hindering financial inclusion of millions of Nigerians and bring low cost, secure and convenient financial services to urban, semi-urban and rural areas across the country. As may be aware the Nigerian economy is heavily cash-oriented in the transaction of goods and services. This huge cash transaction increases the operational costs of the banking sector, which is passed on to the customers in the form of higher service charges and high lending rates. These operational costs are significant due to the high cost incurred in cash management, currency sorting, cash movements and frequent printing of currency notes.

The recent reforms in the Nigerian financial system have resulted in significant performance of the various payment channels. The volume of inter-bank fund transfer as shown in table 2.3 below, rose consistently from 11,309 million in 2005 to 492,953 million in 2011 before falling moderately to 486,930 million in 2012. By 2013, the volume interbank transfer fell to 398,138 million. On the other hand, the

value of inter-bank fund transfer rose initially from ₦5600.6 million to ₦73,227.0 million in 2008 but fell significantly to ₦64,351.0 million in 2009 before rising rapidly to ₦115,862.72 million in 2012. By 2013, the value of interbank transfer declined to N101,616.00 million (CBN, 2013).

Table 2.4: Volume and Value of Inter-Bank Fund Transfer (N' Million)

Year	Interbank –Volume (Absolute number)	Interbank-Value (N' Million)
2005	11,309.00	5,600.60
2006	92,908.00	11,942.60
2007	143,816.00	64,726.70
2008	220,586.00	73,227.00
2009	289,535.00	64,351.00
2010	373,248.00	92,955.00
2011	492,953.00	117,246.52
2012	486,930.00	115,862.72
2013	398,138.00	101,616.00
2014	459,340.33	111,575.08

Sources: 1. CBN Annual Reports, 2008

2. CBN Statistical Bulletin, 2014

As also depicted in table 2.4, the ratio of interbank value to population was 0.004 per cent in 2005, it increased to 0.008 percent in 2006 and further to 0.48 percent in 2008. After declining to 0.04 percent in 2009, the ratio of interbank value to population increased consistently to 0.06 per cent in 2011 but fell to 0.06 per cent in 2013 and rose again to 0.06 percent in 2014. The increase in the ratio of the value of interbank to population reflects the increasing use of modern payment channels, which makes interbank transactions possible in recent years. The increasing trend of interbank transactions also reflects high degree of financial inclusion via the use of modern payment channels in Nigeria.

Statistics as presented in table 2.4 showed that the volume of ATMs rose from 12.5 million in 2006 to 60.1 million in 2008. The volume of ATMs further increased from 60.1 million in 2008 to 109.2 million in 2009 but fell sharply to 60.1 million in 2010. The volume of ATMs thereafter increased sharply to 347.6 million in 2011 and further to 375.5 million in 2012 but fell briefly to 295.3 million in 2013. By

2014, the volume of ATMs rose to 400.1 million. Statistics in table 4.6 revealed that the value of ATMs rose from N63.2 billion in 2006 to N399.7 billion in 2008 and further increased to N548.60 billion in 2009. The value of ATMs fell sharply to N399.71 billion in 2010 but thereafter rose rapidly N1,561.74 billion in 2011. The value of ATMs further increased from N1,984,66 billion in 2012 to N3,679.88 billion in 2014.

Table 2.5: Volume and Value of ATM and POS Transactions

	Automated Teller Machine		Point of Sale	
Period	Volume (in Millions)	Value (N' Billion)	Volume (in Millions)	Value (N' Billion)
2006	12.5	63.2	0.8	20.2
2007	15.7	131.6	0.4	6.4
2008	60.1	399.7	1.2	16.1
2009	109.2	548.60	0.9	11.03
2010	60.1	399.71	1.1	12.72
2011	347.6	1,561.74	2.1	31.02
2012	375.5	1,984.66	2.6	48.01
2013	295.3	2,828.94	9.4	161.02
2014	400.1	3,679.88	20.8	312.07

Sources: 1. CBN Annual Reports, 2008

2. CBN Statistical Bulletin, 2014

Statistics as also presented in table 2.5 revealed that the volume of point of sales declined from 0.8 million in 2006 to 0.4 million in 2007 but rose to 1.2 million in 2008. The volume of point of sales however fell to 0.9 million in 2009 before rising consistently from 1.1 million in 2010 to 9.4 million in 2013 and rapidly to 20.8 million in 2014. In the same vein, the value of POS declined from N20.2 billion in 2006 to N6.4 billion in 2007. The value of POS thereafter increased rapidly to N16.1 billion in 2008 but fell again to N11.03 billion in 2009. The value of POS thereafter increased from N12.72 billion in 2010 to N48.01 billion in 2012. The value of POS then increased rapidly from N 161.02 billion in 2013 to N312.07 billion in 2014 (CBN,2014).

Table 2.6: Volume and Value of e-Card Transaction

Year	Volume of e-Card Transaction (Million)	Value of e-Card Transaction (N' billion)
2006	13	86.00

2007	17.7	148.70
2008	66.1	441.60
2009	114.6	645.00
2010	195.5	1,072.88
2011	355.3	1,671.40
2012	382.6	2,095.70
2013	323.4	3,180.10
2014	353.8	3,895.12

Sources: 1. CBN Annual Reports, 2008 & 2014

2. CBN Statistical Bulletin, 2014

The volume and value of e-card transaction also grew tremendously. As shown in table 2.6, the volume of e-card transaction increased rapidly from 13 million in 2006 to 382.6 million in 2012. By 2014, the volume of e-card transaction stood at 353.8 million. In similar manner, the value of e-card payments rose sharply and consistently from ₦86.0 billion in 2006 to ₦2,095.70 billion in 2012. The increase in the e-payment was attributed to several factors, including increased deployment of ATMs by the deposit money banks, the adoption of bulk salary payments by many institutions, increased usage of debit cards and increased public awareness. By 2014, the value of e-card transaction increased to N3,895.12 billion (CBN, 2014).

Table 2.7: Volume and Value of Web (Internet) and Mobile Payment Transactions

	Web (Internet)		Mobile Payment	
Period	Volume (Absolute No)	Value (N' Billion)	Volume (in millions)	Value (N' Billion)
2006	0.2	3.00	0.4	0.10
2007	0.9	10.6	0.7	0.10
2008	1.6	25.1	3.2	0.70
2009	2.7	84.15	1.8	1.27
2010	1.6	25.05	1.2	6.70
2011	1.9	59.61	3.6	19.00
2012	2.3	31.57	2.3	31.50
2013	2.9	47.32	15.8	142.80
2014	5.6	74.04	29.2	346.47

Sources: 1. CBN Annual Reports, 2008

2. CBN Statistical Bulletin, 2014

As shown in table 2.7, the volume of web-based (internet) transaction increased initially rapidly from 0.2 million in 2006 to 1.6 million in 2008 and further increased to 2.7 million in 2009 before falling consistently to 1.6 million in 2010. The volume of internet transaction further rose from 1.9 million in 2011 to 5.6 million in 2014. The value of web-based transaction also followed the same trajectory. In absolute term, the value of internet transaction rose from N3.0 billion in 2006 to N25.1 billion in 2008 and thereafter rose sharply to N84.15 million in 2009. The value of internet transaction declined to N25.05 billion in 2010 before rising consistently to N74.04 billion in 2014 (CBN, 2014).

Meanwhile, the volume of mobile payments showed mixed results, while the value of mobile telephone transactions showed consistency. In absolute term, the volume of mobile payments through mobile telephone rose from 0.4 million in 2006 to 3.2 million in 2008 but fell consistently to 1.2 million in 2010. The volume of mobile transaction rose to 3.6 million in 2011 but fell to 2.3 million in 2012. The volume of mobile transaction rose sharply from 15.8 million in 2013 to 29.2 million in 2014. The value of mobile payments increased consistently from N0.10 billion in 2006 to N1.27 billion in 2009 and increased further to N18.98 billion in 2011. The value of mobile transaction increased further from 142.80 billion in 2013 to N346.47 billion in 2014 (see table 2.7). The increase in the use of mobile payment system was due to the increase in the number of banks offering the services and increased public confidence in e-payments.

CHAPTER THREE
LITERATURE REVIEW

3.1 Conceptual literature

Electronic banking: Sadr (2013) defined electronic banking as rapid spread of services that enables customers to access and use computer to access account specific information and also conduct transactions from any location. Now, compared to the traditional system of banking, banks provide fast information delivery from customer to customer making it obvious that variations exist between services offered by electronic enable banks and non-banks (singhal & Padhmanabhanm, 2008). It is noted that in 2005, Electronic banking innovation was considered fastest growing commercial activity on the internet and this has improved banking transactions for global competitiveness in the 21st century (Udeze, Okafor, Nwafor & Abarikwu, 2013). Precisely, electronic banking innovations have eased and fastened banking transactions, lowered cost of banks operations, improved profits maximization (Saleh &Alipour, 2010). Electronic banking has also made it possible for banks to go beyond the borders of their locality, transform strategic behavior within the banking industry and make cashless policy a reality (Chavan 2013).

Electronic banking is a form of information technology in the banking system that is changing the form and structure of service delivery in the banking system thus turning out to be a significant element in the development of banking sector (Auta,2010).This has made it possible for money used inform of ATM cards, credit cards, debit cards, smart cards, Electronic cheques which are important avenues for exchange systems leading to a paradigm shift in marketing practices as well as high performing banking system (Christopher, Mike, Visit & Amy, (2006).For instance, ATM and Deposit machines allow bank customers to carry out banking operations and transactions beyond banking hours while internet and mobile banking platforms can help users check account balances and make transaction payments and withdrawals without visiting the banking halls (Menson, 2010; Ngango, Mbabazize & Shukla,2015) which is gradually and systematically leading to cashless societies. With the emergence of mobile telecommunication and internet services in the country, the financial system has bubbled with flurry of products and services including the use of e-cards through POS and ATMs as well as other e-banking facilities.

Automated Teller Machine (ATM): These are computerized telecommunications devices that provide clients of a financial institution with access to financial transactions in a public place. According to Idowu (2005), the introduction of automated teller machines serves as the beginning and the foundation of electronic banking in Nigeria. He further stressed that ATMs is basically a cash dispenser as well as a unique of 24/7 service facility, that is, the machine unattended (mounted either outside or inside the banking hall) which allows the client to transact limited business without referring to any bank staff

except in case of problem and difficulty round the clock (Adewuyi, 2011). An ATM allows a customer to withdraw cash from his bank account by entering a Personal Identification Number (PIN) after the insertion of a card into the machine and having the amount of the withdrawal immediately debited to the account of the customer (Adewuyi, 2011).

Credit Cards: These are plastic cards encoded with electromagnetic identification. The card is incorporated with circuit on which value is loaded. Customers can use the card to carry out transactions on the ATMs deployed by the issuing banks at strategic locations as well as point of sale terminals with designated signs of the producer of such card. These cards debit cash from the owner of the account's holder in respect to transactions for goods and services. It comes in various forms such as Visa, Master Card or Verve (Adewuyi, 2011).

Point Of Sale (POS) terminal: This is a computerized replacement for a cash register.POS system can include the ability to record and track customer orders, process credit and debit cards, connect to other systems in a network, and manage inventory. A positive relationship is expected on the coefficient of POS since POS terminal attributed to reduce the cost of banks transactions, access to credit and reduces the cost of setting bank infrastructure such as bank branches as a case may be.

Bank Size (BSZ): Thisrepresents the economies and diseconomies of scale associated with firm size. According to the financial intermediation theory, banks can only make profit as a result of the degree of economies of scale. For example larger banks that engaged on oligopoly can enjoy low transaction cost and retained high profit (Flamini, McDonald & Schumacher, 2009).Also these banks would have access to larger levels of loans, product diversification and market assess compared to smaller banks (Guru, Staunton & Balashanmugam, 2000).

Inflation Rate (INF): This is a persistent and sustained increase in the general price level in an economy. The extent to which inflation impact negatively or positively on the profitability of deposit money banks depends on the rational expectations. That is, whether the inflation is anticipated or unanticipated. If the rate is anticipated it may be that the bank can plan ahead by adjusted interest rate to increase faster than cost thus impacting positively on profit where as unanticipated inflation rate could lead to increase in cost due to imperfect interest rate adjustment (Kehinde & Adejuwon, 2011).

Interest Rate (LR): When an economy experience meltdown, it leads to reduction in credit facility, investment and bank profit caused by increased in interest rate. The reverse is always the case during economic booms, there would be rise in demand for credit as well as increase in interest rate spread which would give rise to bank profit. Thus, a positive relationship is expected between Interest rate and bank profit.

Bank Verification Number (BVN): Bank verification Number according to the researcher refers to the universal number that shows individual customers details on daily transactions.

Online Banking:(**ONB**) Online banking in the context of this study refers to the access banks gives to customers to manage their individual account based on their personal ID number (PIN) to buy products by means of Personal computers or phone via internet.

Nigeria Electronic Fund Transfer (NEFT): The easiest way of transferring fund via ATMs or Personal Computer. Any exchange of trust started by electronic means from an electronic terminal, phone, PC and ATM.

3.2 Theoretical literature

3.2.1 Innovations diffusion theory

This theory was first developed and popularized by Rogers in 1962 in his book entitled 'Diffusion of Innovation' published in 1962. This theory is an attempt to explain how, why and the rate at which new ideas and technology spread across cultures. According to the theory, diffusion is the process through which aninnovationis communicated through certain channels over time among the participants in a social system. The theory identified four main elements influencing the spread of a new idea to include the innovation itself, communication channels, time, and a social system. This process according to the theory depends heavily on the level of human capital development. In line with the human capital theory, the higher the level of human capital, the faster the process of innovation transfer and adoption.

According to the diffusion of innovation theory, the process of adopting a new idea, product, behavior or technology (that is, innovation) does not necessarily occur simultaneously in a social system but that it is a process whereby some people are more readily disposed to adopting the innovation than others. It has been found by many researchers that people who adopt an innovation early have different characteristics than people who adopt it later time.

The diffusion of innovation theory has also been applied to explain the adoption of technology from the innovation point of view. By focusing his periscope on the attributes of a technology, Rogers (1995) argued that technology diffusion process comprises four aspects, namely an innovation or new technology itself, the social system, the communication channels of the social system, and time horizon. In order to properly explain the observed adoption behaviour, Rogers focused attention on the first three

aspects. Specifically, Rogers (1995) identified and explained adoption behaviour of technology users by the following five characteristics.

1. Relative Advantage: This is the extent to which an innovation is regarded as being better than the idea, program, or product it seeks to replace.
2. Compatibility: This explains how an innovation is consistent with the established values, experiences, and needs of the potential adopters.
3. Complexity - How difficult the innovation is to understand and/or use.
4. Triability: This is the degree to which the innovation can be tested or experimented with before a commitment to adopt is made.
5. Observability: This refers to the extent to which the innovation provides significant results. Thus, the innovation that is relatively less observable diffuses more slowly than the one that is more observable.

However, since its formulation, the diffusion of innovation theory has been applied in so many areas, including the financial system. For instance, the revolution in information and communication technology has resulted to financial innovation which led to the proliferation of new financial instruments, products and services, and new forms of organization structure in the financial system. Financial innovation by way of new financial instruments such as Automated Teller Machines (ATMs), internet banking, mobile banking, Point of Sales (POS) evolved as a result of diffusion of innovation in the form of information and communication technology (ICT) into the financial system.

Several criticisms have been leveled against the diffusion of innovation theory. First, despite the fact that this theory has been applied in so many varied forms, it has been found that it lacks cohesion and become stagnant and become very difficult to apply with consistency to new problems (Damanpour, 1996). Second, it is also argued that diffusion is difficult to measure quantitatively because human beings and human networks are complex and as such what causes innovation of adoption is difficult to measure (Damanpour, 1996). Thirdly, it is further argued that diffusion of innovation theory can never account for all variables, and therefore might miss critical predictors of adoption. This variety of variables has also led to inconsistent results in research, reducing heuristic value (Plsek & Greenhalgh, 2001).

3.2.2 Theory of constraint

Although the theory of constraints was postulated in an attempt to explain manufacturing it has now been used in the services sector to engender quality service delivery. Theory of constraint is one of the most widely recognized methods of continuous improvement and optimization within the service

industry (Siha, 2009). The theory has been adopted by organizations such as GM Motors, Ford Corporation (Motorola, unilever who have adopted the theory in increase flow of production, inventory reduction, quality defects reduction, cycle time and lead time. The theory of constraint (TOC) is traceable to the work of Goldratt (1984) based on 'optimized production schedule'' which hypotheses that constraint in any system would distort the maximum performance of the system in relation to its objectives.

Specifically, constraints establish the limits of performance for any system (Institute of management Accounting 2010). For the service and manufacturing sector, the goal is usually 'Profit maximization' both presently and in the future and constraint will prevent the service or manufacturing industry from achieving this goal. Thus, management of firms and organization are advised to aggressively manage and follow the trend of these constraints if their goal (profit) would be realized (CastanoI, Moreira, Sousa and Meneses, 2010).

The concepts of TOC rests on the assumption that firms face challenges that limit the achievement of maximum performance. The TOC thus enable firm to locate the weakest element of processes that happen with the internal and external structure of the firm as constraints. Goldratt (1990) thus suggest a five step process for defining and documenting the organizational processes.

1. Identify the system's constraint
2. Decide how to exploit the system's constraints
3. Subordinate everything else to this decision
4. Elevate the system's constraint
5. If any of the system's constraint has been violated, go back to step 1

Goldratt (1990) identified several measurements that would enable a firm to determine the impact of day to day actions on its goals which include throughput, inventory and operating expenses. Throughput as the word implies relates to the way in which system generate revenue through sales of its products or services, inventory relates to expenditures on assets and capital items needed to run the business effectively while operating expenses is all the money spent in a bid to acquire throughput. Thus, to increase returns on investment which the firm can represent it as follow:

$$ROI = \frac{(T\text{-}OE)}{I} \quad (1)$$

Where

T=Throughput

OE= Operating Expenses

I= Inventory

According to Goldratt, the primary objective of every organization is to make profit. The goal can be achieved by increasing ROI, which can be accomplished by increasing T and decreasing OE. Considering the philosophy of the study, profit then or maximum ROI can only be attained by focusing on system constraints. This focus is realized through five steps suggested by Goldratt and Cox (1992):

1. Identification of the constraints specific to the system.
2. Exploitation of these identified constraints
3. Prioritize challenges with constraints coming on top before non-constraints
4. Elevate the constraint(s) and finally (5) beginning the process as a cycle by returning to step 1 (Sullivan, Reid, and Cartier,2007)

In relation to banking, it could be stated that ‘’the theory of constraints can be used to identify candidate processes for incremental as well as radical transformations’’. The concepts outlined by the TOC can be used effectively to identify the organizational goal, locate the constraints to achieving maximum performance and develop practical measurement to facilitate process improvement. Constraints in banks are frequently found to be policies and procedures rather than capacity or equipment. Finally, measures of throughput, operating expenses and inventory are important for the application of TOC which have been identified for banks (Branorski, Madan & Motwani, 1997).

The banking industry in Nigeria revaluated its options and discovered that only 10 percent of its client’s base accounted for 90 percent of its expenses. The focus thus became how to eliminate costs by attending to those 10 percent. Competitiveness, high growth levels and increased sophistication in world systems and sub-systems thus forced the banking sector to revaluate techniques and innovations to improve its efficiency, profitability and overall performance. In recent years, advances in banking related technology has reduced the need for physical location and banking transactions are now being conducted from remote location using personal computers and ATMs.

3.2.3 Transactions Cost Innovative Theory

The transaction cost innovation theory pioneered by Niehans (2006) advocated that the dominant factor of financial innovation is the reduction of transaction cost, and in fact, financial innovation is the response of the advance in technology which caused the transaction cost to reduce. The reduction of transaction cost can stimulate financial innovation and improvement of financial service. It states that financial innovation reduces transaction costs. Transaction costs Innovation theory is also relevant in this context: for instance, the use of Internet-connected Information Technology (IT) can substantially reduce a firm’s transaction costs as it enables efficient coordination, management and use of information. Mobile, Internet-connected IT may further lower transaction costs as it provides also off-site access to the firm’s internal database and other relevant sources of information. Consequently, reduction of operation costs

through agency banking, internet banking and mobile banking may influence growth in profitability for the bank.

3.2.4 Technology Acceptance Model (TAM)

This theory was developed by Davis in 1986. The model was formally developed from the research conducted by Davis (1989) on technological issues. The result of this research led to the development of the Technology Acceptance Model (TAM). This model seeks to establish the relationship between individuals' behavioural and the use of Information and Communication Technology (ICT). It is argued that the behaviour of individual influences his attitude towards adopting new technology. However attitude and perceived usefulness are both determined by ease of use. (Pedersen et al 2002) maintains that adopting the TAM model is based on knowing end-users requirements with respect to how easy and friendly the technology is presented.

According to technology acceptance model, one's actual use of a technology system is influenced directly or indirectly by the user's behavioural intentions, attitude, perceived usefulness of the system, and perceived ease of the system. TAM also proposes that external factors affect intention and actual use through mediated effects on perceived usefulness and perceived ease of use (Davis, 1989).

The argument against technology acceptance model is that it focuses more on the technology/technical aspect of technology but silent on other factors affecting technological acceptance such as socialization behaviour of individuals. The technological acceptance model has an application in the banking industry in that it explains the acceptability of technological innovation in the financial system. Because of this, the theory is considered suitable for this study in explaining the acceptance of electronic and cashless payments options such as Automated Teller Machines (ATMs), Point of Sales (POS), Internet banking and mobile banking.

3.3 EMPIRICAL LITERATURE

This section reviews empirical works of other scholars and peer reviewed on the impact of e-banking on banking sector performance in Nigeria and abroad. The first section of this review focuses on studies conducted in other economies while the second section reviews studies done in Nigeria.

3.3.1 Foreign studies

Kato, Otuya, Owunza and Nato (2014) examined the impact of mobile banking on the performance of commercial banks in Kenya.. The sampled commercial banks for this study included standard chartered Bank, Barclays Bank, National Bank of Kenya, Kenya Commercial Bank, Co-operative Bank, Diamond

Trust Bank, Equity Bank, Equatorial Commercial Bank and Family Bank in Kakamega Town. Date for this study was obtaining using a well constructed questionnaire. The inferential statistics such as Pearson's Product Moment Correlation coefficient and multiple regression analysis were employed in examining the relationship among the variables in the specified equation. The results of the correlation analysis revealed that there was a positive association between commercial banks performance and interbank transfer, cash withdrawal, balance, inquiry, bill payment and information inquiry. The result of this study was consistent with the result obtained by Kosmidou and Zoponidis (2008) which found that there was a significant relationship between banking sector methodologies and productivity and efficiency in the banking sector. The results of the regression analysis revealed that cash withdrawal, Balance inquiry, Bill payment and interbank transfer have positive relationship with commercial banks performance in Kenya. In real terms, a unit increase in cash withdrawal led to an increase in commercial banks performance by 0.020, ceteris paribus. Similarly, a unit increase in bank inquiry led to an increase in bank performance by 0.267, other variables held constant. Furthermore, a unit increase in bill payment resulted to an increase in commercial banks performance by 0.554, other factors remaining the same. Meanwhile, a unit increase in interbank transfers led to an increase in commercial bank performance by 0.361, holding all other explanatory variables constant. However, the result showed that information inquiry has negative relationship with commercial banks performance. This means that a unit increase in information inquiry led to a decrease in commercial banks performance by 0.067, other factors remaining the same.

Aduda and Kingoo (2012) investigated the relationship between electronic banking and the performance of commercial banks in the financial system of Kenya employing data for the period stretching from 2006 to 2010. The authors employed the Pearson's product moment correlation coefficient and the regression analysis in examining the relationship between electronic bank and the performance of commercial banks. Analysis of the descriptive statistics revealed that total assets of the banks rose from 52410.07 million Kshs in 2006 to 121662.28 million Kshs in 2010, averaging 82902.57 millions Kshs. In the same period, profit after rose from 957.53. million Kshs in 2006 to 2390.15 million Kshs in 2010.

Analysis of the descriptive statistic also showed that there was an increase in the number of ATMs there installed from 85 in 2006 to 115 in 2010. Number of debit cards issued by banks to customers rose from 1154829 in 2006 to 1553999 in 2010. Lastly, return on assets rose from 0.018 in 2006 to 0.020 in 2010. The results of the correlation analysis revealed that there was positive and high degree of relationship (r = 0.631) between expenditure on ICT investment (e – banking) and returns on assets in Kenya. The result also showed that there was positive and high degree of correlation (r = 0.715) between number of debit cards issued to customers and returns on assets of the commercial banks in Kenya. However, the correlation analysis showed that number of automated teller machines (ATMs) was negatively related to returns on assets during the evaluation period. Similar to the correlation results, the result of the regression analysis showed that there was a positive and significant relationship between investments in e-banking and return on assets. This means that a 1 percent increase in e-banking investment led to an increase in return on assets by 4.209 percent, ceteris paribus. In the same vein, the results showed that number of debit cards issued to customers has positive and significant relationship with return on assets. In real terms, a 1 percent increase in the number of debit cards issued to customers led to an increase in return on assets by 1.435 percent, other things, remaining the same. Contrary to a priori expectation number of automated teller machines (ATMs) installed by banks has negative relationship with return on assets. This means that a 1 percent increase in the number of ATMs installed by banks brought about a decrease in bank performance by 5.313 percent, ceteris paribus. In conclusion, the study revealed that electionic banking has brought closer to the people banking services and hence improves financial inclusion.

Okiro (2013) assessed the influence of mobile and internet banking on the performance of financial institutions in Kenya. A total number of 61 financial institutions were selected for this study from which 30 of them were finally sampled using the stratified sampling techniques. Data for this study were collected using a well designed questionnaire. The collected data were analysed employing both qualitative and quantitative statistical tools. The qualitative method used was content analysis which quantitative tools such as tables, pie-charts, and graphs were used in analyzing the quantitative data. The

result of this study showed that there has been increased turnout of customers since the introduction of mobile banking in Kenya. On the performance of the financial institutions, the study revealed that the application of mobile banking has significant impact on the performance of banking institutions in Kenya. In absolute term, about 80% of the respondents held that the application of mobile banking has impacted significantly on the performance of banking performance in Kenya.

In their study, Al-Smadi and Al-wabel (2011) examined the influence of e-banking, on the performance of banks in Jordan, employing analyzed data spanning from 2000 to 2010. The study used returns on equity as the dependent variable while the independent variable was electronic banking, a dummy variables which took value 1 if banks have adopted e-banking and value 0 if they have not adopted e-banking. Other control variables captured alongside e-banking included the size of banks, the level of capital, credit risk, liquidity level, expenses management, inflation rate and economic growth. The results of regression analysis showed that the adoption of electronic banking has significant negative effect on the performance of banks in Jordan. The implication of this result was that the adoption of e-banking has not led to improvement of banking performance in Jordan during the evaluation period. In the similar manner, the results showed that expenses management liquidity level and inflation rate have negative relationship with bank performance in Jordanian economy. On the other hand, the results showed that bank size capital level of banks credit risk and growth rate of gross domestic product have positive impact on bank performance in Jordan. The study therefore recommended that the Jordanian banks should intensity efforts at promoting to use of e-banking channels customers of banks. The paper also recommended that marketing strategies aimed at encouraging customers to used e-banking resources should be implemented.

Salehi (2010) investigated the impact of electronic banking on the overall economic performance in emerging economics, with particular reference to Iranian economy. This study employed data obtained from two sources, from secondary serves were gotten from internet textbooks and published journals. Second set of data were obtained from a well constructed questionnaire by the author. A total number of

600 respondents were sampled using simple random sampling technique. The study employed chi-square statistics in testing the relevant hypotheses. The results of the study found that adoption of e-banking has benefited bank customers greatly as it has helped overcome the hindrance associated with the traditional banking system. Also, the application of the electronic banking has led to an increase in the volume of transactions in the Iranian banks. Further analysis of the results showed that the introduction of electronic banking has led to an increase in the number of people using ATMs or conducting their business transactions, finally, the results of this study showed that, the adoption of e-banking such as creation of new markets, reduction in operational costs and administrative cost, etc.

Carlson et al (2001) for US based commercial banks regressed profitability (ROE) on a set of bank specific and control variables and found e-banking to be negatively correlated with performance of microfinance institutions in Australia. The result of the study did not find significant association with the performance as well as risk management variable. Thus, the study concluded that internet banking was not significantly and positively correlated with performance and operation risk of the banks.

Furthermore, Onay,Ozsoz & Helvacioglu (2008) conducted a study for the Turkish economy based on the effects of internet banking on profitability of Turkish commercial banks. The results confirmed the findings on time lag indicating that e-banking did not cause positive effects on bank profit until after two years and on impact e-banking was negatively correlated with profit.

3.3.2 Domestic studies

Chiemeke, Evwiekpaefe and Chete (2006) undertook a study to investigate the impact of the adoption of electronics banking in Nigeria. The results of this study showed that factors such as insecurity, poor electricity supply and inadequate operations facilities were identified as the major factors limiting the smooth adoption of internet banking in Nigeria. The results also revealed that the internet banking is relatively basic in Nigeria and are being offered by banks having information sixes.

In another study, Agboola (2006) examined the impact of e-banking and electronic payment system in Nigeria. The results of this study revealed that there has been significant migration of people

away from holding cash to automated transactions, there by leading to the reduction in the volume of cash in circulation. The results of the study also found that the application of e-payment system in Nigeria banks relationship, resulted to high level of customers, loyalty and ensured that banks maintained a larger market share. The study further identified factory inhibiting the smooth application of e-banking in Nigeria to include poor tele-communication services, dwindling power supply situations, high operational costs, prevalence of fraudulent activities etc.

Auta (2010) investigated the impact of electronic banking in the Nigeria economy, using data that were collected for the period of three months beginning from the second week of January, 2010 to the fourth week of March, 2010. Data for this study were collected from 25 banks operating in Nigeria during the period using a well – structured questionnaire administered in Abuja and Lagos. A total of 750 respondents were sampled utilizing simple random sampling techniques. Data collected were evaluated and analyzed using the statistical package for social sciences (SPSS) within the framework of principal component factor analysis. The results based on the principal component factor analysis showed that various factors enhancing the adoption of electronic banking in Nigeria included factor accessibility and find transfer. On the impact of e-banking, the study revealed that the adoption of e-banking has promoted convenience and flexibility in banking operations. The study also identified other transaction benefits related to e-banking adoption, lower transaction costs, speedy transfers, easy means of checking transaction statements and details, provision of fund transfer facilities and better ways to manage cash.

Itah and Ene (2012) undertook a study on impact of cashless banking on banks' profitability in Nigeria. The study used proxies for cashless banking such as Automated teller machine (ATM), Point of sale (POS), and web based transaction (WBT) to examine its impact on the aggregate return on equity (ROE) of deposit money banks in Nigeria, through an ordinary least square (OLS) multiple regression method of analysis. The result showed that ATM and POS are positively related to ROE, while WBT related negatively to ROE. This is as a result of high rates of bank charges on online deposits and as a

result, most customers do not patronize the product. Non-usage of the WBT for online deposits had created a negative impact on profitability of Nigerian banks.

Adewoye (2013) empirically studied the impact of mobile banking on service delivery in the Nigerian Commercial Banks through the use of questionnaire. He found out that the introduction of e-banking services has improved banking efficiency in rendering services to customer. His findings showed that mobile banking has improved banks service delivery in a form of transactional convenience, savings of time, quick transaction alert and save of service cost which has recuperate customer's relationship and satisfaction.

In another study, Oyewole, El-Mauda, Abba and Arikpo (2013) carried out a study on e-banking and bank performance in Nigeria. Panel data comprised annual audited financial statements of eight banks that have adopted e-banking and retained their brand name banking between 2000 and 2010 as well as macroeconomic control variables were employed to investigate the impact of e-banking on return on asset (ROA), return on equity (ROE) and net interest margin (NIM). Result from pooled OLS estimations indicate that e-banking begins to contribute positively to bank performance in terms of ROA and NIM with a time lag of two years while a negative impact was observed in the first year of adoption. It was recommended that investment decision on electronic banking should be rational so as to justify cost and revenue implications on bank performance.

Wali, Wright and Reynolds (2014) examined the impact of the cashless system on user's perception and retail marketing performance in Nigeria retail sector, using survey instrument (questionnaire) and randomly selected 550 samples as to generate data on the impact of cashless systems on user' perception and retail marketing performance in Nigeria. The study revealed that the adoption of cashless policy impacted on marketing performance of retail outlets in Nigeria. Specifically, the study revealed that the use of point of sale terminal (POS) as an instrument of cashless policy has strong and positive relationship with profitability and sales volume of retail outlet. The study further found that the

use of E-cash wallet influences customers purchase intention as well as impact on customers repeat purchase behaviour.

Ogunlowore and Oladele (2014) empirically investigated the impact of electronic banking on the satisfaction of customers using GTB bank, Lagos as a case study. A total respondent of 100 respondents were sampled using a carefully structured questionnaire. Data obtained were analyzed using descriptive measures such as simple tables and percentages. The formulated hypotheses were validated using the chi-square statistical measure. The empirical result from the chi-square analysis revealed that electronic banking has significant relationship with customer satisfaction in GTB bank in particular and the general banking customers in general. The result also revealed that the introduction of electronic banking has enhanced bank profitability level. Finally, the results showed the application of electronic banking has increased the market share of banks in Nigeria. the study recommended that there is utmost need for the bank management to utilize the electronic banking resources so as to enhance the effectiveness and efficiency of banks.

Oloyede, Azeez and Aluko (2015) assessed the benefit of e-commerce and e-banking to the Nigerian economy. In particular, the study examined the impact of e-commerce and e-banking on economic growth in Nigeria, sampling 100 respondents selected from banks and the general public. The study employed non-parametric statistics measure such as chi-square in testing the formulated hypothesis. The results of the test established that e-commerce and e-banking have significant positive impact on the Nigerian economy. This, it does by enhancing a better transaction exchange and reduced time wasting and slowness associated paper business transactions. The results also showed that electronics commerce and electronic banking has led to easy access to global market leading to a huge gain from such global integration. Further examination of the results showed that the application of electronic commerce and electronic banking has ensured the promotion of effectiveness and efficiency in business transactions in Nigeria. Lastly, the results revealed that the adoption of e-commerce and e-banking has resulted to the overall economic growth in Nigeria. The authors recommended that the government should provide

adequate infrastructures such as telecommunication and power infrastructures so that the gain from e-banking and e-commerce currently experienced could be sustained.

Suberu, Afonja, Akande and Adeyinka (2015) studied the effect of cashless policy, saving and bank credit on Nigerian deregulated economy. Data were collected from secondary sources. The ordinary least square econometric technique was used to analyze the data. Findings from this study revealed that the marginal productivity coefficient of bank credit to the domestic economy is positive but insignificant. The implication is that banks credit did not affect the productive sectors sufficiently for the latter to impact significantly on the Nigerian economy. In view of this, the paper recommended that banks should be willing to give both short and long-term loans for productive purposes as there would be more available funds with introduction of cashless policy, as this will eventually lead to economic growth. Also the regulatory body (CBN) should adopt a direct credit control that will be beneficial to the productive sector of the economy.

Igbara, Egbrenini, Fabian and Daasi (2015) examined the impact of cashless policy on small scale business in Ogoni land of River state, Nigeria. The study used 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; it was also found out that small scale businesses statistically do not rely on heavy capital outlay; couple with the fact that provision of services is their main business activity that makes bank transaction, ATMs usage and online banking is of less or no significance since their transaction is grossly hinged on “cash and carry basis”; the findings from the study also suggest that operators of small scale business have zero tolerance to ICT usage in both the operations and transactions of their businesses; and this constitute a major challenge to

the adoption of cashless policy in the study area and generally, there was a negative significant influence of the introduction of cashless policy on the operations and growth of small scale businesses in Ogoni land.

Oleabhiele and Omuruyi (2015) conducted a study on cashless Nigeria: suitability, sustainability and constraints. Secondary data and Survey research was conducted with questionnaire as data collection instrument. Statistical findings from respondents show that cash-less Nigeria would ensure accurate payments and revalue our currency especially the kobo. Availability of robust infrastructure which is perceived to be a huge constraint can sustain the policy. Cash-less Nigeria would be generally inclusive if adequate awareness is systematically engineered in order for all stakeholders to fully participate. Hence, it was therefore recommended, among others, that infrastructures should be improved upon to ensure easy operation of the policy in Nigeria.

Alao, Sapon and Sorinola (2015) undertook a study on cashless policy and customers' satisfaction in Ogun state, Nigeria. Data was collected with a well structural 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. Also, the study revealed that cashless policy contributed significantly to customers' satisfaction through electronic channels.Finally, the study concluded that the cashless policy is customer friendly and progressive. Hence, it was therefore recommended, among others, that infrastructures should be improved upon to ensure easy operation of the policy in Ogun state.

Oyewole, Abba, Gambo, & Arikpo (2013) who examined E-banking and bank performance in Nigeria using annual reports for 8 Nigeria commercial banks for 11 years 2000-2010.The panel analysis consisting of both macroeconomic and bank variables showed similar results with that of Aduda and Kingoo (2012) for Kenya. The study established that e-banking does not contribute to profitability within two years and a negative impact was found in the first year of adoption between e-banking and profitability.

3.4 Gaps in literature and value added

This study will deviate from the existing studies in terms of theoretical framework and methodology of the study. It is noted that the previous studies failed to anchor their studies on relevant theoretical framework and methodology to show how e-banking impact on banks performance in Nigeria.

To the best of our knowledge and with thorough research, we have not come across any study that investigated the impact of e-banking innovations on bank performance in Nigeria using SURE model. In summary, studies on the impact of e-banking innovations on banks performance seem to find mixed evidence. Nevertheless, one interesting feature of the study is that most recent studies tend to discover positive and significant effects compared to earlier works indicating a connection between experience of usage, consistency and adoption of performance.

In the context of Nigeria, majority of the study shed light on the importance of e-banking with some using survey analytical technique. (Olanipekun, Nasir & Sajuyigbe, 2012; Alabar, 2012; Odumeru,2013; Esezobar, 2012; Ajayji, 2014; Adeyemi, Ola & Oyewole, 2014).Most of the studies did not provide quantitative econometric evidence as to the relevance of e-banking innovations and its performance prospects for commercial banks in Nigeria. The purpose of this study is to fill the gap by estimating the impact of e-banking innovations quantitatively using SURE model regression of some old and new generation banks in Nigeria.

CHAPTER FOUR

METHODOLOGY

4.1 Theoretical framework

The theoretical background of this study is anchored on the diffusion of innovation theory. This theory is an attempt to explain how, why and the rate at which new ideas and technology spread across societies. According to the diffusion of innovation theory, the process of adopting a new idea, product, behavior or technology (that is, innovation) does not necessarily occur simultaneously in a social system but that it is a process whereby some people are more readily disposed to adopting the innovation than others. Thus, people who adopt an innovation early have different characteristics than people who adopt at a later time. This theory identified and explained adoption behaviour of technology users by the following five characteristics.

i. Relative Advantage: This is the extent to which an innovation is regarded as being better than the idea, program, or product it seeks to replace.
ii. Compatibility: This explains how an innovation is consistent with the established values, experiences, and needs of the potential adopters.
iii. Complexity - How difficult the innovation is to understand and/or use.
iv. Triability: This is the degree to which the innovation can be tested or experimented with before a commitment to adopt is made.
v. Observability: This refers to the extent to which the innovation provides significant results. Thus, the innovation that is relatively less observable diffuses more slowly than the one that is more observable.

Since its formulation, the diffusion of innovation theory has been applied in so many areas, including the financial system. For instance, the revolution in information and communication technology has resulted to financial innovation which led to the proliferation of new financial instruments, products and services, and new forms of organization structure in the financial system. Financial innovation by way of new financial instruments such as Automated Teller Machines (ATMs), internet banking, mobile banking, Point of Sales (POS) evolved as a result of diffusion of innovation in the form of information and communication technology (ICT) into the financial system.

Furthermore, according to the diffusion of innovation theory, financial innovation usually leads to the proliferation of new financial instruments, products and services, and new forms of organization structure in the financial system. Thus, financial innovation by way of electronic banking through the use of Automated Teller Machines (ATMs), internet banking, mobile banking, Point of Sales (POS) evolved as a

result of diffusion of innovation in the form of information and communication technology (ICT) into the financial system. The proliferation of financial products leads to efficiency and performance of the banking system.

4.2 Model specification

Since the focus of this study is to examine how e-banking innovations have impacted on the performance of commercial banks in Nigeria, the study adopts return on asset as an indicator of bank performance. Bank performance is measured by return on assets, defined as the ratio of bank net income or profit to its total assets value. E-banking variables captured in this study included Automated Teller Machines (ATM), Point of Sales (POS), and Mobile Banking (MB). A part from e-banking payment channels, macroeconomic factors are also known to affect the performance of deposit money banks. For this reason, the study captures macroeconomic variables like bank size, private investment and inflation.

From the determinant factors identified above, the empirical model for this study can be expressed functionally as:

$$ROA = f(ATM, POS, MOB, SIZE, PIV, INFL) \quad 4.1$$

Where:

ROA = return on assets, measuring performance of deposit money banks.

ATM = value of Automated Teller Machines transactions

POS = value of Point of Sales transactions

MOB = mobile banking transactions

SIZE = bank size, represented by total assets of the banks

PIV = private investment in Nigeria.

INFL = inflation rate, measuring macroeconomic instability

Econometrically, equation 4.1 can be expressed in its linear form as:

$$ROA_{it} = \beta_0 + \beta_1 ATM_{it} + \beta_2 POS_{it} + \beta_3 MOB_{it} + \beta_4 SIZE_{it} + \beta_5 PIV_{it} + \beta_6 INFL_{it} + \mu \quad 4.2$$

Where:

β_0 to β_6 are the parameters to be estimated

μ= Stochastic error term

t= time dimension of the variables

This study employs the Seemingly Unrelated Regression Equations (SURE) in the modeling of equations for this study. A seemingly unrelated regression equation (SURE) according to Roger Moon, Ghosh et al (2006) is a system of equations comprising several individual relationships that are linked by the fact that

their disturbances are correlated. The SURE model can be expressed analytically by considering a model comprising of M multiple regression equations of the form:

$$y_{ti} = \sum_{j=1}^{ki} x_{tij}\beta_{ij} + \varepsilon_{ti}, t = 1,2,...,T; i = 1,2,...,M; j = 1,2,....,K_i \quad 4.3$$

Where: y_{ti} is the t^{th} observation on the i^{th} dependent variable which is to be explained by the i^{th} regression equation, X_{tij} is the i^{th} observation on j^{th} explanatory variable appearing in the i^{th} equation, β_{ij} is the coefficient associated with X_{tij} at each observation and ε_{ti} is the i^{th} value of the random error component associated with equation of the model.

The M system of equations can be expressed in a compact way as:

$$Y_i = X_i\beta_i + \varepsilon_i, \; I = 1,2,\ldots,M \quad 4.4$$

Where: y_i is (T x 1) vector with element y_{ti}; X_i is (T x K_i) matrix whose columns represent the T observations on an explanatory variable in the i^{th} equation; β_i is a (K_i x 1) vector with elements β_{ij}; and ε_i is a (T x 1) vector of disturbances.

The M equations can be further expressed as:

$$\begin{bmatrix} y_1 \\ y_2 \\ . \\ . \\ . \\ y_3 \end{bmatrix} = \begin{bmatrix} X_1 & 0 & \ldots\ldots\ldots\ldots & 0 \\ 0 & X_2 & \ldots\ldots\ldots\ldots & 0 \\ . & . & & . \\ . & . & . & . \\ . & . & . & . \\ 0 & 0 & \ldots\ldots\ldots\ldots & X_M \end{bmatrix} \begin{bmatrix} \beta_1 \\ \beta_2 \\ . \\ . \\ . \\ \beta_3 \end{bmatrix} + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \\ \\ \\ \varepsilon_3 \end{bmatrix} \quad 4.5$$

Or

$$Y = X\beta + \boldsymbol{\varepsilon} \quad 4.6$$

Where the order of Y is (TM x 1), X is (TM x K*), β is (K* x 1), ε is (TM x 1) and $K^* = \sum_i K_i$

4.3 Description and justification of variables

Dependent variable

Return on Assets (ROA): Return on assets is the ratio of annual net income to average total assets of a business during a financial year. It measures efficiency of the business in using its assets to generate net income. It is a profitability ratio that has been adopted by most empirical literature (Ogbulu & Ndugwu, 2002). Return on assets (ROA) assesses how efficiently a bank is managing its revenues and expenses, and also reflects the ability of the management of the bank to generate profits by using the available financial and real assets (Jahan, 2012).

$$\text{Return on assets (ROA)} = \frac{\text{Annual net income}}{\text{Average total assets}}$$

Net income is the after tax income which can be found on income statement of companies. Average total assets are calculated by dividing the sum of total assets at the beginning and at the end of the financial year by 2.

Independent variables

Automated Teller Machine (ATM): These are computer-enhanced telecommunication machines that permit bank customers to have accessibility cash and perform financial transactions, usually situated in public places and in the enclosure of banks. Automated teller machine (ATMs) is captured in this study by value of ATMs transactions in the studied banks in Nigeria. An increase in the number of ATMs leads to an increase in the volume and value of transactions. The increase in the volume and value of ATM transaction enhances the payment system in turn, which leads to banking sector performance. Thus, the coefficient of ATMs is expected to be positive in relation to banking performance.

Mobile Banking (MOB): This is the process whereby formal banking transactions are carried out through the use of telephone and mobile phones. Mobile banking allows its customers to conduct some financial transactions remotely using a mobile device such as a mobile phone or tablet. Mobile banking is represented by value of mobile banking transactions in the sampled banks for this study. An increase in the volume and value of mobile banking transactions enhance payment system and hence increase in bank performance. Therefore, the coefficient of mobile banking variable is expected to be positive.

Point of Sale (POS) terminal: This is a machine used to accept cards for payment of goods and services. POS terminal allows a cardholder to have a real-time online access to funds and information in his/her bank account through debit or cash cards. POS system can include the ability to record and track customer orders, process credit and debit cards, connect to other systems in a network, and manage inventory. Point of sale terminal is represented in this study by value of point of sale transactions. A positive relationship is expected on the coefficient of POS since POS terminal reduces the cost of banks transactions, access to credit and reduces the cost of setting bank infrastructure such as bank branches as a case may be.

Control Variables

Bank Size (Size): This represents the economies and diseconomies of scale associated with firm size. Bank size is captured in this study by bank assets. According to the financial intermediation theory, banks can only make profit as a result of the degree of economies of scale. For example larger banks that engaged on oligopoly can enjoy low transaction cost and retained high profit (Flamini, McDonald &

Schumacher, 2009). Also these banks would have access to larger levels of loans, product diversification and market assess compared to smaller banks (Guru, Staunton & Balashanmugam, 2002).

Private investment: This is the purchase of a capital asset that is expected to produce income, appreciate in value, or both generate income and appreciate in value. This type of investment is undertaken by the private individuals mainly for profit motives. It is argued that an increase in accumulation of capital stock increases the overall investment level in the country including investment in financial sector. Thus, an increase in capital formation leads to an increase in investment and hence an increase in banking sector performance. The coefficient of private investment is expected to be positive.

Inflation (INF): This is consistent and sustained increase in the general level of prices in the country. The extent to which inflation impacts on the profitability of deposit money banks depends on the rational expectations. It is ambiguous. It may be negative or positive. That is, whether the inflation is anticipated or unanticipated. If the rate is anticipated it may be that the bank can plan ahead by adjusting interest rate which increases it faster than cost thus impacting positively on profit. If inflation rate is unanticipated, it could lead to increase in cost due to imperfect interest rate adjustment and hence reduces profit (Kehinde & Adejuwon, 2011). For this study, we expect inflation rate to have a negative effect on profit of the banks. This is because high inflation rate discourages savings as the value of money is reduced. People will prefer to spend their cash rather than save. A reduction in saving reduces the ability of banks to mobilize deposit which can be lent out and earn profit from interest charged. Thus, inflation is expected to exert a negative impact on bank performance.

Table 3.3: Tabular representation of the variables used and their measurements

Variables	**Measures**
Performance (ROA)	Net income/total assets
ATM	Value of ATM transactions
POS	Value of POS transactions
MOB	Value of mobile banking transactions
SIZE	Logarithm of Bank total assets
PIV	Logarithm of private investment in Nigeria
INFL	Rate of change of CPI

Source: Researcher's computation, 2017

4.4 Justification of the model

The SURE model is a particular case of simultaneous equations model involving structural equations with jointly dependent variable and distinct exogenous variables and in which neither current nor logged endogenous variables appear as explanatory variables in any of the structural equations.

There are two main motivations for use of SURE. The first one is to gain efficiency in estimation by combining information on different equations. The second motivation is to impose and/or test restrictions that involve parameters in different equations. The assumption of the model is that error terms ε_{ir} are independent across time, but may have cross-equation contemporaneous correlations.

Furthermore, the SURE model differs from the multivariate regression model in the sense that it takes account of prior information concerning the absence of certain explanatory variables from certain equations of the model. Such exclusions are highly realistic in many economic situations.

4.5 Estimation technique

The SURE model for this study shall be estimated using the Feasible Generalized Least Squares (FGLS) method. The Feasible Generalized Least Squares (FGLS) estimator is used to estimates the coefficients of a multiple linear regression model and their covariance matrix in the presence of no spherical innovations with an unknown covariance matrix. This is a two-step method where in the first step, the ordinary least squares regression is ran and the residuals from this regression are used to estimate the elements of matrix. In the second step, the generalized least squares regression is run using the variance matrix. The feasible generalized least squares (FGLS) estimator has the properties of being asymptotically unbiased, efficient, consistent, maximum likelihood estimator, and variance-covariance

matrix of estimates is correct, and therefore the estimates of the standard errors are unbiased and consistent.

4.6 Panel Unit Root Test

Based on the various conditions that characterized the different panel unit root tests, under the general assumption of Cross-Sectional independence as applicable to first generation panels, the Im-Persaran-Shin (IPS) test would be used in verifying the presence of unit root in the panel series. This test controls the assumption of the Levin-Lin-Chu test, that ρ_i must be the same for all series under the alternative hypothesis. The hypothesis to be tested is given as

H_0: The panel series has a unit root

H_1: The panel series has no unit root

The test statistics is given below as:

$T = \rho_i$

4.7 **The Correlation Matrix Test**

The Correlation matrix test is conducted to choose either OLS or SURE estimation methods. Also Simultaneous covariance testing is employed to investigate whether there are correlations between SURE errors. For the simultaneous covariance test, r(ij) values are calculated. Firstly variance-covariance and correlation matrices are calculated from the errors obtained from the SURE method.

H_0: OLS method is appropriate- There is no relationship between models' errors

H_1: SURE method is appropriate- There is a relationship between models' errors

4.8.1 Estimation Procedure

If SURE estimation is confirmed appropriate, therefore SURE model is estimated and analyzed to show the relationship between the dependent variable and the independent variables.

4.8.2Post Estimation Tests (Second-order test)

The post estimation tests are conducted to ascertain the reliability of results obtained from the estimated result: These tests are Statistical and Econometric second order using both T-statistic and Durbin Watson to show the statistical significance of the parameter estimates and autocorrelation of the estimated model.

4.8.3 Test of Hypotheses

The hypotheses of the study are tested with t-statistics to either accept or reject the null hypotheses of the

study. The t-statistic test is employed to test for the statistical significance of estimates.

4.9 Data sources and Software

To examine efficiently and factually the effects of e-banking innovations on bank performance in Nigeria, the study made use of banking variables and macroeconomic data from secondary sources. Data would be collected from Central Bank of Nigeria Publications, National Bureau of Statistics Publication and the sampled commercial banks' annual report and statement of accounts. Most proxies would be obtained from the sources mentioned above and from corporate websites of the selected firms and the various statements and accounts of the Stock Exchange Commissions of Nigeria. The data obtained would be analyzed using E-view 9.0

CHAPTER FIVE

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

This chapter focuses on the findings of the study based on the regression analysis used in estimating the stated model. The findings highlights on bank's profitability, electronic banking innovation factors, macroeconomic factors and bank specific factors that influenced the profitability of deposit money banks in Nigeria. The findings will be discussed based on its implications for policy, capital restructuring in line with relevant empirical literature.

5.1 Summary of the sampled banks Descriptive statistics

The summary of the individual banks descriptive statistics is presented on Table 5.1.1 - 5.1.6 on the appendix. The tables shows the Summary of the descriptive statistics-mean, median, mode, maximum, minimum and standard deviation for the dependent and independent variables for the six sampled banks for ten years (2007-2016).The mean value shows the average values of ROA,ATM,POS,MOB,SIZE,PIV and INF for the Six banks captured in the study.

From the tables, it is shown that the average profit for the banks as indicated by ROA was recorded by GTB which is 2.60, UBA recorded a minimum value of 1.25 and FBN recorded maximum value of 3.46 and the standard deviation of return on assets stood at 3.36.This implies that Nigeria banks can convert N1 asset to about 3.36 kobo .That is the banks were able to generate 3.36kobo for every N1 they employed into their banking operation.

For electronic banking indicators, the descriptive statistics indicates that UBA recorded the maximum value for ATM as 2.39billion with a minimum value from First bank of Nigeria as 1.68billion and the mean values for ATM, POS and MOS used as indicated by the values of banks investment in the Nigerian inter-banks settlement system were 3.56 billion,7.78 billion and 7.89 billion respectively.

Furthermore, First bank of Nigeria recorded the maximum value of POS as 2.74billion with minimum value of 1.93billion from Diamond bank PLC.

Similarly, First bank of Nigeria recorded the maximum value of 3.02billion for MOB and a minimum of 2,000,000 billion from Union bank of Nigeria.

The mean value of percentage of bank size indicated by the total asset of the banks as0.066 percents which 6.645billionwith a minimum value of 5.89 from Union bank of Nigeria and a maximum value of 9.84 from GTB with an average standard deviation of 6.34.PIV relates to the private investment which shows the level of investment at the private sector for the period under study. The PIV's mean value for banks

was N1.19billion.On average the Nigerian inflationary trend during the period was 6.3 percent with a minimum value of 5.4percent and maximum value of 12.3percent.

The Jarque-Bera statistics showed that the distribution for all the variables captured in the model were normally distributed since the values of jarque-bera calculated at 7 degree of freedom is less than its critical values as obtained from chi-square distribution tables.

5.2 Correlation Matrix Analysis

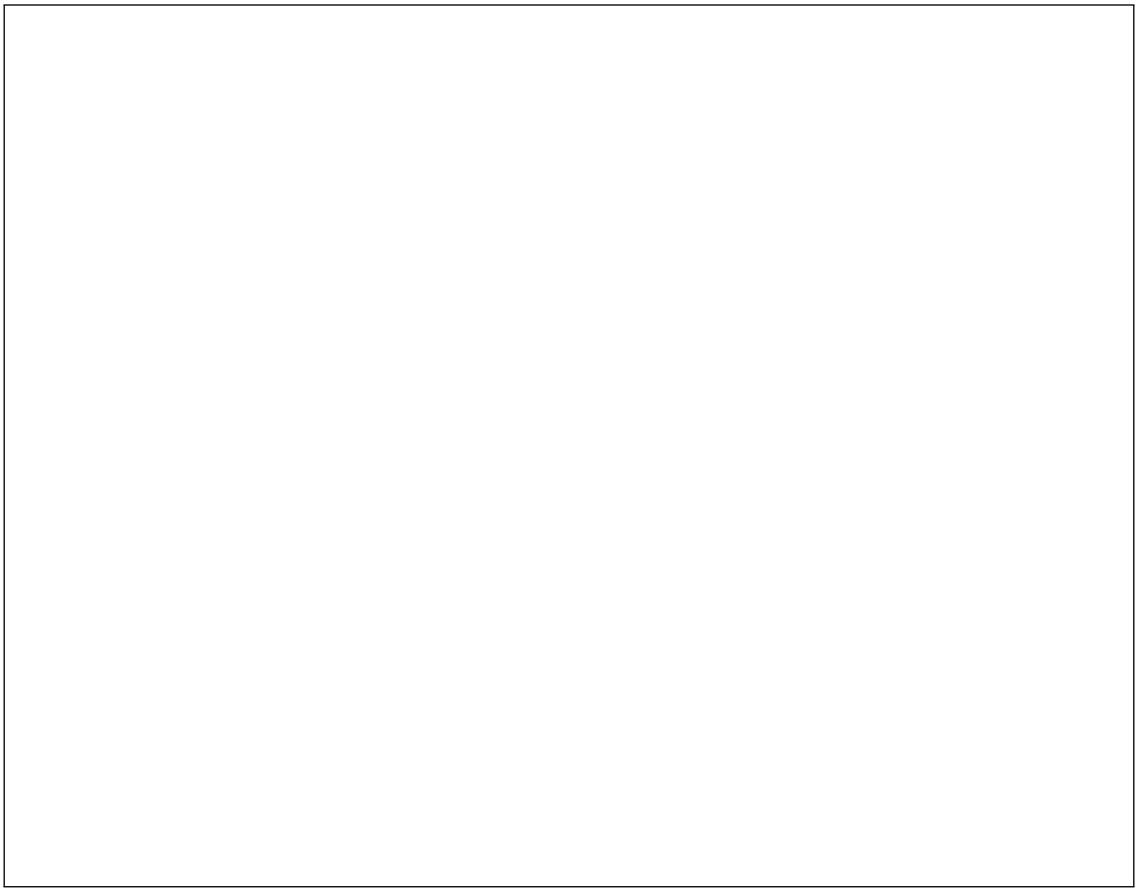
The table 5.2 below reports the degree of correlation among the variables of the model. Correlation value falls between -1 and +1.A correlation co-efficient of -1 indicates that the variables in question move in exact opposite direction and vice versa for a coefficient of +1.The table indicates that the correlation between ATM and ROA is 0.5770.This implies that ATM and ROA moves in the same direction. Similarly, the correlation between ROA and other indicators of e-banking like POS, MOB and SIZE recorded a positive relationship at 0.5937, 0.5956 and 0.4112 respectively. Among the variables, MOB recorded the highest correlation with ROA positive at 0.5956 and the lowest among the explanatory variables are INFL and PIV positively and negatively correlated at 0.3874 and -0.2840 respectively.

Table 5.2 CORRELATION MATRIX OF DEPENDENT AND INDEPENDENT VARIABLES

	ROA	ATM	POS	MOB	SIZE	PIV	INFL
ROA	1.0000	0.5770	0.5937	0.5956	0.4112	-0.2840	0.3874
ATM	0.5770	1.0000	0.9189	0.9132	0.4126	-0.5426	0.5436
POS	0.5937	0.9189	1.0000	0.9917	0.4670	-0.3943	0.6630
MOB	0.5956	0.9132	0.9917	1.0000	0.4667	-0.3837	0.6809
SIZE	0.4112	0.4126	0.4670	0.4667	1.0000	-0.2781	0.3591
PIV	-0.2840	-0.5426	-0.3943	-0.3837	-0.2781	1.0000	-0.1747
INFL	0.38747	0.5436	0.6630	0.6809	0.3591	-0.1747	1.0000

Source: Author's Interpolation with (E-views9), 2017

FIG.4 Correlation line graph between ROA and E-Banking indicators



Source: Author's Interpolation with (E-view 9), 2017

The correlation line graph above shows the relationship between ROA and E-banking indicators: The graph indicates that at a steady rate of return on asset, ATM cash transactions continue to fluctuate at very high rate overtime indicating that ATM has a positive impact on ROA across the sampled banks within the study period. The correlation line graph also indicates that at a steady rate of return on asset, POS and MOB cash transactions moves at the same range lower than ATM cash transactions indicating that POS and MOB have positive impacts on ROA across the sampled banks within the study period. Finally, the correlation line graph indicates that on a steady rate of return on asset (ROA) and BANK SIZE cash transactions moves on a steady state but on parallel direction with ROA indicating that BANKSIZE has a positive impact on ROA across the sampled banks within the study period.

TABLE 5.3 Unit Root Test at 5% Significance Level

	Levin, Lin and Chu Test				**Pesaran and Shin Test**				**Order**
	Levels		**Ist difference**		**Levels**		**1stdifference**		
	T-stat	P V	**T-stat**	**PV**	T-stat	P V	**T-stat**	**PV**	
ROA	-0.21631	0.4144	**-5.64362**	**0.0000**	1.14700	0.8743	**-2.01737**	**0.0218**	I(1)
ATM	1.14561	0.8740	**-2.84732**	**0.0022**	2.58283	0.9951	**-0.4077**	**0.3417**	I(1)
POS	-1.64057	0.0504	**-3.29433**	**0.0005**	-1.45695	0.0726	**-0.89181**	**0.1862**	I(1)
MOB	1.75543	0.9604	**-3.55364**	**0.0002**	1.41775	0.9219	**-0.05832**	**0.4767**	I(1)
SZE	1.25723	0.8957	**-22.4264**	**0.0000**	3.53508	0.9998	**-4.09890**	**0.0000**	I(1)
PIV	**0.0000**	**1.0000**			**-7.8E+12**	**0.0000**			I(0)
INF	49.9058	1.0000			8.76045	1.0000			1(0)

Source: Author's Computation (E-views 9.0), 2017

Test of hypotheses

H_0: The panel series has a unit root (not stationary)

H_1: The panel series has no unit root (stationary)

Decision Rule

Accept H_0if the probability value is more than 0.05 (at 5% level of significance)

Reject H_0 if the probability value is less than 0.05 (at 5% level of significance)

The result in table 5.3 showed the series used for the respective banks using both Levin-Lin-Chu test and the Persaran-Shin test. All the variables were integrated of order one except PIV and INF was found to be stationary at first difference.

5.3 THE CORRELATION MATRIX TEST

This test is conducted to show if SURE estimation method is appropriate for the study. The correlation matrix is calculated from the errors obtained from the SURE method.

Test of hypotheses

H_0: OLS method is appropriate- There is no relationship between models' errors

H_1: SURE method is appropriate- There is a relationship between models' errors

Decision Rule

Accept H_0 If the calculated chi-square value (X^2_{cal}) is less than the chi-square table value (X^2_{tab}) at 5% level of significance

Reject H_0 If the calculated chi-square value (X^2_{cal}) is greater than the chi-square table value(X^2_{tab}) at 5% level of significance

Table 5.4 RESIDUAL CORRELATION MATRIX

	ROA	Equation(2)	Equation(3)	Equation(4)	Equation(5)
ROA	1.000	-2.79E-16	-1.33E-16	4.25E-16	-3.26E-16
Equation(2)	-2.79E-16	NA	NA	NA	0.9990
Equation(3)	-1.33E-16	NA	NA	-1.000	0.9990
Equation(4)	4.25E-16	NA	-0.9990	1.000	-0.9990
Equation(5)	-3.26E-16	0.9990	0.9990	-0.990	1.000

Source: Author's Computation (E-view 9), 2017

$(r_{12})^2$ = $(-2.79E-16)^2$ = 7.78E-32

$(r_{13})^2$ = $(-1.33E-16)^2$ = 1.77E-32

$(r_{14})^2$ = $(4.25E-16)^2$ = 1.81E-31

$(r_{15})^2$ = $(-3.26E-16)^2$ = 1.06E-31

$(r_{25})^2$ = $(0.9990)^2$ = 9.98E-01

$(r_{35})^2$ = $(0.9990)^2$ = 9.98E-01

$(r_{45})^2$ = $(-0.9990)^2$ = 9.98E-01

$\sum r_{ij}$ = 2.990

Where

N: numbers of observations = 60

$\sum \mathbf{r_{ij}}$**:** sum of correlation matrix calculations

The chi-square value is calculated as follows

$\mathbf{n\sum r_{ij}}$ = 60 * 2.990 = **179.4**

Compare the calculated chi-square value with the chi-square table value with 3 degree of freedom at 95% significance level and chi-square tabulated value equal to 3.707

Chi-square value (X^2_{cal}) = 179.4

Chi-square table (X^2_{tab}) = 3.707

(With 6 degree of freedom and 95% significance level i.e. 0.05; 6)

(X^2_{cal})	>	(X^2_{tab})
179.4		3.707

Therefore, based on the above result, the null hypothesis can be rejected and concluded that the error terms in the model are correlated. And the model should be estimated using SURE Estimation technique.

5.4 Estimation technique

The SURE model been confirmed appropriate for this study was estimated using E-View9 software version. This package is selected because it is a user friendly computer application which provides sophisticated data analysis, regression and forecasting.

5.4 ANALYSIS OF EMPIRICAL RESULTS FOR BANKS

The estimated results of both old and new generations banks were analyzed based on three criteria; Economic criteria, Statistical criteria and Econometric criteria.

Table 5.4.1 The Estimated SURE model Result for New Generation Banks (Diamond Bank)

DEPENDENT VARIABLE (R0A)

VARIABLES	**COEFFICIENTS**	**Std. Error**	**T-TATISTICS**	**P_VALUE**
CONSTANT	-5.166044	3.5248	-1.465590	0.2804
Log(ATM)	0.357614	0.1559	2.293360	0.1488
Log(POS)	-0.148506	0.23479	-0.632485	0.5917
Log(MOB)	0.098114	0.1133	0.865888	0.4778
Log(PIV)	0.101406	0.02022	5.013861	0.0376
SIZE	2.29E-09	4.91E-10	4.674025	0.0429
INFL(-1)	-0.395887	0.102830	-3.849900	0.0613
R-squared	0.984975			
Adj. R-Squared	0.939899			
DurbinWatson Stat.	2.011888			

Source: Author's Computation (E-view 9), 2017

Analysis of Empirical Results for New Generation Banks

(Diamond bank)

The Estimated SURE model result for Diamond bank revealed that Log(ATM) , Log(MOB), Log(PIV) and BANK SIZE are positively related to return of assets which are consistent with apriori expectation because of their signs and magnitude while Log(POS) and INFL(-1) are negatively related to return on asset which does not conform to apriori expectation indicating that a unit increase in Log(ATM) , Log(MOB), Log(PIV) and SIZE will lead to a corresponding increase in ROA by (0.357614) units, (0.098114)units (0.101406) units and (2.29E-09) units respectively with a minimum standard error of 35 percent for Log(ATM), 11 percent for Log(MOB), 2 percent for Log(PIV).

In contrast, Log (POS) and INFL (-1) have a negative relationship with ROA implying that a unit increase in Log (POS) and INF (-1) will reduce return on asset by -0.148506 and -0.395887 respectively with a minimum standard error of 23 percent for Log(POS) and 10 percent for INFL(-1).

This result is in line with the study conducted by Mohammad and Saad (2010) in Iran using Chi-square method of analysis. Findings from the study indicates that adoption of e-banking has benefited bank customers greatly as it helped overcome the hindrance associated with the traditional banking system. But contrary with the study conducted by Al-Smadi (2011) in Jordan using ordinary least square(OLS) which revealed that e-banking has significant negative effect on the performance of banks.

The value of R-squared for the Diamond bank estimated SURE model result is pegged at 0.98 indicating that ATM, POS, MOB, SIZE, PIV and INFL explained about 98% systematic variation in the level of profit over the observed years in the Nigerian banks while the remaining 2% variation is explained by other determining variables outside the model.

The Durbin Watson value of 2.82 indicates present of autocorrelation in the model implying that the model is well behaved and specified and its findings can be used for policy formulation and forecasting in the banking industry.

Statistical Criteria

This deals with the test of significance of the estimated parameters; therefore in testing for statistical significance of the parameter estimates of the model, we employed t-statistic test to test for the statistical significance of estimates. And by using t-statistics, the following decision rules were formulated.

Decision Rule:

If t-value calculated is greater than t-value tabulated,

Reject (H0) null hypothesis but if otherwise do not reject null hypothesis and conclude that the parameter estimate is statistically or not statistically significant at a certain level of significance.

The t-tabulated at 5% level of significance

Thus, $t= \alpha/2 (n-1)$

$t =0.005/2 (38)$

$t= 0.025(38)$

$t= 2.04$

At 5% level, the statistical test conducted on log(ATM) shows that the parameters estimate is statistically significant since its t-value calculated (2.293360) is greater than t-value tabulated (2.04), indicating that log(ATM) is a major factor that influenced diamond bank's performance in Nigeria.

At 5% level, the statistical test conducted on log(PIV) shows that the parameters estimate is statistically significant since its t-value calculated (5.013861) is greater than t-value tabulated (2.04), indicating that log(PIV) is a major factor that contributed to diamond bank's performance in Nigeria.

At 5% level, the statistical test conducted on Bank size shows that the parameters estimate is statistically significant since its t-value calculated (4.674025) is greater than t-value tabulated (2.04),

indicating thatbank size is a major factor that that determined New generation bank performance in Nigeria.

Table 5.4.2 The Estimated Sure model Result for New Generation Banks (Guaranty trust bank)
DEPENDENT VARIABLE (R0A)

VARIABLES	COEFFICIENTS	Std. Error	T-STATISTICS	P_VALUE
CONSTANT	125.0471	55.25277	2.263183	0.1520
ATM	9.92E-12	0.002775	4.562638	0.0448
Log(POS)	-1.000435	0.128910	-7.760719	0.0162
Log(MOB)	0.30752	0.037072	10.27057	0.0093
Log(PIV)	0.012663	2.389568	-1.678047	0.2353
Log(SIZE)	-4.009807	2.18E-12	4.547292	0.0451
INFL(-1)	0.229970	0.040569	5.668674	0.0297
R-squared	0.936446			
Adj. R-Squared	0.745783			
DurbinWatson Stat.	2.121107			

Source: Author's Computation (E-view 9), 2017

Analysis of empirical results for new generation banks

(**Guaranty Trust Bank**)

The estimated SURE model result for GTB bank revealed that Log(PIV), Log(MOB), ATM and INFL(-1) are positively related to return of assets which are consistent with apriori expectation because of their signs and magnitudes while Log(POS) and Log(SIZE) are negatively related to return on asset which does not conform to apriori expectation indicating that a unit increase in Log(PIV), Log(MOB), ATM and INFL(-1) will lead to a corresponding increase in ROA by (0.012663) units, (0.380752)units (9.92E-12) units and (0.229970) units respectively with a minimum standard error of 1.2 percent for Log(PIV), 3 percent for Log(MOB), 21 percent for ATMand 4 percent for INFL(-1).In the same view, Log(POS and

Log(SIZE) have a negative relationship with return on asset which does not conform with the apriori expectation indicating that a unit increase in Log(POS) and Log(SIZE) will reduce return on asset by (-1.000435) units and (-4.009807) units with a minimum standard error of 12 percent for Log(POS), 23 percent for Log(SIZE). This result is in line with the study conducted by Oyewole (2013) in Nigeria using panel data method of analysiswhich revealed that e-banking contribute positively to bank performance in Nigeria with a time lag of two years while a negative impact was observed in the first year of adoption. But contrary with the study conducted by Carlson,(2001) in India using Univariate model of analysis which revealed that profitability and offering of internet does not have any significant relationship with risk profile of the bank in Nigeria.

The value of R-squared for Guaranty trust bank estimated SURE model result is pegged at 0.93 indicating that the explanatory variables explained about 93% systematic variation in the level of profit over the observed years in the Nigerian banks while the remaining 7% variation is explained by other determining variables outside the model.

The Durbin Watson value of 2.12 indicates present of serial autocorrelation in the model implying that the model is well behaved and specified and its findings can be used for policy formulation and forecasting in the banking industry.

Statistical Criteria

This deals with the test of significance of the estimated parameters; therefore in testing for statistical significance of the parameter estimates of the model, we employed t-statistic test to test for the statistical significance of estimates. And by using t-statistics, the following decision rules were formulated.

Decision Rule:

If t-value calculated is greater than t-value tabulated,

Reject (H0) null hypothesis but if otherwise do not reject null hypothesis and conclude that the parameter estimate is statistically or not statistically significant at a certain level of significance.

The t-tabulated at 5% level of significance

Thus, $t= \alpha/2 (n-1)$

$t =0.005/2 (38)$

$t= 0.025(38)$

$t= 2.04$

At 5% level, the statistical test conducted on log(PIV) shows that the parameters estimate is statistically significant since its t-value calculated (4.562638) is greater than t-value tabulated (2.04), indicating that log(PIV) is a major factor that influenced Guaranty trust bank's performance in Nigeria.

At 5% level, the statistical test conducted on log of mobile banking log(MOB) shows that the parameters estimate is statistically significant since its t-value calculated (10.27057) is greater than t-value tabulated (2.04), indicating that log(MOB) is a major factor that influenced Guaranty trust bank's performance in Nigeria.

At 5% level, the statistical test conducted on automated teller machine (ATM) shows that the parameters estimate is statistically significant since its t-value calculated (4.547292) is greater than t-value tabulated (2.04), indicating that ATM is a major factor that influenced Guaranty trust bank's performance in Nigeria.

At 5% level, the statistical test conducted on inflation for one year lag (INFL(-1)) shows that the parameters estimate is statistically significant since its t-value calculated (5.668674) is greater than t-value tabulated (2.04), indicating that inflation on one year lag is a major factor that influenced Guaranty trust bank's performance in Nigeria.

Table 5.4.3 The Estimated Sure model Result for New Generation Banks (Zenith bank)

DEPENDENT VARIABLE (R0A)

VARIABLES	COEFFICIENTS	Std. Error	T-STATISTICS	P_VALUE
CONSTANT	8.40E+09	5.55E+09	1.513506	0.2693
Log(ATM)	1.01E+09	1.10E+08	9.191025	0.0116
Log(POS)	-4.710346	1.006341	-4.680664	0.0427
Log(MOB)	5.33E+08	8.0426950	6.626528	0.0220
Log(PIV)	0.357491	0.056390	6.339571	0.0240
SIZE	0.438812	0.169542	2.588214	0.1225
INFL(-1)	-0.0000107	3.41E-05	-3.148421	0.0878
R-squared	0.997			
Adjusted R-squared	0.991			
Durbin Watson Stat.	1.77			

Source: Author's Computation (E-view 9), 2017

Analysis of Empirical Results for New Generation Banks

(Zenith bank)

The estimated SURE model result for Zenith bank revealed that Log(ATM(-1)), PIV, MOB and INFL(-1) are positively related to return of assets which are consistent with apriori expectation because of their signs and magnitudeswhile POS and SIZE are negatively related to return on asset which does not conform to apriori expectation indicating that a unit increase in Log(ATM(-1)), PIV, MOB and INFL(-1) will lead to a corresponding increase in return on asset by (1.01E+09) units, (5.33E+08)units, (0.357491) units and (0.438812) units respectively with a minimum standard error term of 11 percent for Log(ATM(-1)), 8 percent for PIV, 5 percent for MOB and 10 percent for INFL(-1). In the same view, Log(POS) and Log(SIZE) have a negative relationship with return on asset which does not conform with the apriori expectation indicating that a unit increase in Log(POS) and Log(SIZE) will reduce return on asset by (-

4.710346) units and (-0.000107) units with a minimum standard error term of 10 percent for Log(POS), 16 percent for Log(SIZE)**.**

This result is in line with the study conducted by Farouk (2013) in Nigeria using Survey data analysis which revealed that e-banking contribute positively to bank performance in Nigeria.

But contrary with the study conducted by Jahan,(2012) in Bangladesh using correlation matrix analysis which revealed that cost efficiency and off balance sheet have negative and significant impact on bank profitability.

The value of R-squared (0.99) for the Zenith bank estimated SURE model result is pegged at 99% indicating that ATM, POS, MOB, SIZE, PIV and INFL explained about 99% systematic variation in the level of profit over the observed years in the Nigerian banks while the remaining 1% variation is explained by other determining variables outside the model.

The Durbin Watson value of 1.77 indicates present of autocorrelation in the model implying that the model is well behaved and specified and its findings can be used for policy making formulation and forecasting in the banking industry.

Statistical Criteria

This deals with the test of significance of the estimated parameters; therefore in testing for statistical significance of the parameter estimates of the model, we employed t-statistic test to test for the statistical significance of estimates. And by using t-statistics, the following decision rules were formulated.

Decision Rule:

If t-value calculated is greater than t-value tabulated,

Reject (H0) null hypothesis but if otherwise do not reject null hypothesis and conclude that the parameter estimate is statistically or not statistically significant at a certain level of significance.

The t-tabulated at 5% level of significance

Thus, $t= \alpha/2 (n-1)$

$t =0.005/2 (38)$

$t= 0.025(38)$

$t= 2.04$

At 5% level, the statistical test conducted on Log(ATM(-1)) shows that the parameters estimate is statistically significant since its t-value calculated (9.191025) is greater than t-value tabulated (2.04), indicating that Log(ATM(-1)) is a major factor that influenced zenith bank's performance in Nigeria.

At 5% level, the statistical test conducted on private investment (PIV) shows that the parameters estimate is statistically significant since its t-value calculated (6.626528) is greater than t-value tabulated

(2.04), indicating that private investment (PIV) is a major factor that influenced zenith bank's performance in Nigeria.

At 5% level, the statistical test conducted on mobile banking(MOB) shows that the parameters estimate is statistically significant since its t-value calculated (6.339571) is greater than t-value tabulated (2.04), indicating that mobile banking(MOB) is a major factor that influenced zenith bank's performance in Nigeria.

At 5% level, the statistical test conducted on inflation (INFL(-1) shows that the parameters estimate is statistically significant since its t-value calculated (2.588214) is greater than t-value tabulated (2.04), indicating that inflation (INF(-1)) is a major factor that influenced zenith bank's performance in Nigeria.

TABLE 5.4.4 The Estimated Sure model Result for Old Generation Banks (United Bank for Africa) DEPENDENT VARIABLE (R0A)

VARIABLES	COEFFICIENTS	Std. Error	T-STATISTICS	P_VALUE
CONSTANT	8.93E+09	6.31E+09	1.414548	0.2928
Log(ATM(-1))	9.94E+08	1.35E+08	7.385487	0.0178
POS	-4.602681	1.145970	-4.016405	0.0568
PIV	0.360519	8.9775393	6.211937	0.0249
MOB	0.360519	0.064242	5.611919	0.0303
INFL	-0.395439	0.219353	-1.802748	0.2132
SIZE	-0.000162	4.11E-05	-3.932576	0.0590
R-squared	0.997148			
Adjusted R-Squared	0.988590			
Durbin Watson Stat.	1.916117			

Source: Author's Computation (E-view 9), 2017

Analysis of Empirical Results for New Generation Banks

(**United Bank for Africa**)

The estimated SURE model result for **United Bank for Africa** revealed that Log(ATM(-1)), PIV and MOB are positively related to return of assets which are consistent with apriori expectation because of their signs and magnitudes indicating that a unit increase in Log(ATM(-1)), PIV and MOB will lead to a corresponding increase in return on asset by (9.94E+08) units, (5.58E+08) units and (0.360519) units respectively with a minimum standard error term of 13 percent for Log(ATM(-1)), 8 percent for PIV and 6 percent for MOB. In the same view, POS, INFL and SIZE have a negative relationship with return on asset which does not conform to apriori expectation indicating that a unit increase in POS, INFL and SIZE will reduce return on asset by (-4.602681) units, (-0.395439) units and (-0.000162) units with a minimum standard error term of 11percent for POS, 20 percent for INFL and 41 percent for Bank SIZE**.**

This result is in line with the study conducted by Auta (2010) in Nigeria using Principal component factor analysis, which revealed that the adoption of e-banking has promoted convenience and flexibility in banking operations in Nigeria. But contrary with the study conducted by Akande,(2015) in Nigeria using Ordinary least square analysis which revealed that marginal productivity coefficient of bank credit to the domestic economy is positive but not significant impacting on bank profitability.

The value of R-squared (0.99) for UBA estimated SURE model result is pegged at 99% indicating that the explanatory variables explained about 99% systematic variation in the level of profit over the observed years in the Nigerian banks while the remaining 1% variation is explained by other determining variables outside the model.

The Durbin Watson value of 1.916 indicates present of autocorrelation in the model implying that the model is well behaved and specified and its findings can be used for policy formulation and forecasting in the banking industry.

Statistical Criteria

This deals with the test of significance of the estimated parameters; therefore in testing for statistical significance of the parameter estimates of the model, we employed t-statistic test to test for the statistical significance of estimates. And by using t-statistics, the following decision rules were formulated.

Decision Rule:

If t-value calculated is greater than t-value tabulated,

Reject (H0) null hypothesis but if otherwise do not reject null hypothesis and conclude that the parameter estimate is statistically or not statistically significant at a certain level of significance.

The t-tabulated at 5% level of significance

Thus, t= α/2 (n-1)

t =0.005/2 (38)

t= 0.025(38)

t= 2.04

At 5% level, the statistical test conducted on Log(ATM(-1)) shows that the parameters estimate is statistically significant since its t-value calculated (7.385487) is greater than t-value tabulated (2.04), indicating that Log(ATM(-1)) is a major factor that influenced the performance of united bank for Africa in Nigeria.

At 5% level, the statistical test conducted on private investment (PIV) shows that the parameters estimate is statistically significant since its t-value calculated (6.211937) is greater than t-value tabulated (2.04), indicating that private investment(PIV) is a major factor that influenced the performance of united bank for Africa in Nigeria.

At 5% level, the statistical test conducted on mobile banking (MOB) shows that the parameters estimate is statistically significant since its t-value calculated (5.611919) is greater than t-value tabulated (2.04), indicating that mobile banking(MOB) is a major factor that influenced the performance of united bank for Africa in Nigeria.

At 5% level, the statistical test conducted on POS shows that the parameters estimate is statistically significant since its t-value calculated (-4.016405) in absolute value is greater than t-value tabulated (2.04), indicating that POS is a major factor that influenced the performance of united bank for Africa in Nigeria.

At 5% level, the statistical test conducted on bank size(SIZE) shows that the parameters estimate is statistically significant since its t-value calculated (-3.932576) in absolute value is greater than t-value tabulated (2.04), indicating that bank size (SIZE) is a major factor that influenced the performance of united bank for Africa in Nigeria.

TABLE 5.4.5 The Estimated Sure model Result for Old Generation Banks (Union bank)
DEPENDENT VARIABLE (R0A)

VARIABLES	**COEFFICIENTS**	**Std.Error**	**T-STATISTICS**	**P_VALUE**
CONSTANT	8.40E+09	5.55E+09	1.513506	0.2693

Log(ATM(-1))	1.01E+09	1.10E+08	9.191025	0.0116
Log(POS)	-4.710346	1.006341	-4.680664	0.0427
PIV	5.33E+08	8.0426950	6.626528	0.0220
MOB	0.438812	0.056390	6.339571	0.0240
INFL(-1)	0.438812	0.169542	2.588214	0.1225
SIZE	-0.000107	3.41E-05	-3.148421	0.0878
R-squared	0.997			
AdjustedR-squared	0.991			
Durbin Watson Stat.	1.776			

Source: Author's Computation (E-view 9), 2017

The estimated SURE model result for **Union bank of Nigeria** revealed that Log(ATM(-1)), PIV, MOB and INFL(-1) are positively related to return of assets which are consistent with apriori expectation because of their signs and magnitudes indicating that a unit increase in Log(ATM(-1)), PIV, MOB and INFL(-1) will lead to a corresponding increase in return on asset by (1.01E+09) units, (5.33E+08) units, (0.438812) units and (0.438812)units respectively with a minimum standard error term of 55 percent for Log(ATM(-1)), 11 percent for POS and 5 percent for MOB. In the same view, POS, and SIZE have a negative relationship with return on asset which does not conform to apriori expectation indicating that a unit increase in POS, and SIZE will reduce return on asset by (-4.710346) units, and (-0.000107) units with a minimum standard error term of 10percent for POS and 34 percent for INFL.

This result is in line with the study conducted by Gambo (2013) in Nigeria using Ordinary least square analysis, which revealed that e-banking, contributed to bank performance in terms of return on assets with a time lag of two years.But contrary with the study conducted by Itah,(2012) in Nigeria using Ordinary least square analysis which revealed that ATM and POS are positively related to ROE while web based transaction(WBT) are negatively related to ROE.

The value of R-squared for Union bank estimated SURE model result is pegged at 99% indicating that the explanatory variables explained about 99% systematic variation in the level of profit over the observed years in the Nigerian banks while the remaining 1% variation is explained by other determining variables outside the model.

The Durbin Watson value of (1.77) indicates present of serial autocorrelation in the model which means that the model is well behaved and specified and its findings can be used for policy making formulation and forecasting in the banking industry.

Statistical Criteria

This deals with the test of significance of the estimated parameters; therefore in testing for statistical significance of the parameter estimates of the model, we employed t-statistic test to test for the statistical significance of estimates. And by using t-statistics, the following decision rules were formulated.

Decision Rule:

If t-value calculated is greater than t-value tabulated,

Reject (H0) null hypothesis but if otherwise do not reject null hypothesis and conclude that the parameter estimate is statistically or not statistically significant at a certain level of significance.

The t-tabulated at 5% level of significance

Thus, $t= \alpha/2 (n-1)$

$t =0.005/2 (38)$

$t= 0.025(38)$

$t= 2.04$

At 5% level, the statistical test conducted on Log(ATM(-1)) shows that the parameters estimate is statistically significant since its t-value calculated (9.191025) is greater than t-value tabulated (2.04), indicating that Log(ATM(-1)) is a major factor that influenced the performance of Union bank of Nigeria.

At 5% level, the statistical test conducted on private investment (PIV) shows that the parameters estimate is statistically significant since its t-value calculated (6.626528) is greater than t-value tabulated (2.04), indicating that private investment(PIV) is a major factor that influenced the performance of union bank of Nigeria.

At 5% level, the statistical test conducted on mobile banking (MOB) shows that the parameters estimate is statistically significant since its t-value calculated (6.339571) is greater than t-value tabulated (2.04), indicating that mobile banking(MOB) is a major factor that influenced the performance of Union in Nigeria.

At 5% level, the statistical test conducted on INFL(-1) shows that the parameters estimate is statistically significant since its t-value calculated (2.588214) is greater than t-value tabulated (2.04), indicating that inflation on one year lag(INFL(-1) is a major factor that influenced the performance of Union bank in Nigeria.

At 5% level, the statistical test conducted on Log(POS) shows that the parameters estimate is statistically significant since its t-value calculated (-4.680664) in absolute value is greater than t-value tabulated (2.04), indicating that Log(POS) is a major factor that influenced the performance of union bank of Nigeria.

TABLE 5.4.6 The Estimated Sure model Result for Old Generation Banks (First bank of Nigeria) DEPENDENT VARIABLE (R0A)

VARIABLES	**COEFFICIENTS**	**Std. Error**	**T-STATISTICS**	**P_VALUE**
CONSTANT	-6.04E+09	1.62E+09	-3.737974	0.0647
Log(ATM)	0.007768	0.001810	4.291159	0.0502
Log(POS)	0.131288	0.048637	2.699355	0.1142
Log(MOB(-1))	-0.249340	0.065288	-3.819075	0.0622
SIZE	1.621500	0.338394	4.791750	0.0409
PIV	-6.37E-05	2.28E-05	-2.794306	0.1078
INFL(-1)	-5.87E+08	1.34E+08	-4.372144	0.0485
R-squared	0.987512			
Adjusted R-Squared	0.950049			
Durbin Watson Stat.	2.801695			

Source: Author's Computation (E-view 9), 2017

The estimated SURE model result for **First bank of Nigeria** revealed that ATM, POS and SIZE are positively related to return of assets which are consistent with apriori expectation because of their signs and magnitudes indicating that a unit increase in ATM, POS and SIZE will lead to a corresponding increase in return on asset by (0.007768) units, (0.131288) units and (1.621500) units respectively with a minimum standard error term of 0.1 percent for ATM, 4 percent for POS and 30 percent for SIZE.

In the same view, MOB (-1), PIV and INFL(-1) have a negative relationship with return on asset which does not conform to apriori expectation indicating that a unit increase in MOB, PIV and INFL(-1) will

reduce return on asset by (-0.249340) units, (-6.37E-05) and (-5.87E+08) units with a minimum standard error term of 6 percent for MOB,22 percent for PIV and 13 percent for INFL.

This result is in line with the study conducted by Agboola (2006) in Nigeria using survey data Analysis, which revealed that there have been significant migration of people away from holding cash to automated transactions, there by leading to the reduction in the volume of cash in circulation. But contrary with the study conducted by Al-wabel,(2011) in Jordan using Ordinary least square analysis, which revealed that the adoption of electronic banking has significant negative effect on the performance of banks in Jordan.

The value of R-squared (0.98) for the First bank of Nigeria estimated SURE model result is pegged at 98% indicating that ATM, POS, MOB, SIZE, PIV and INFL explained about 98% systematic variation in the level of profit over the observed years in the Nigerian banks while the remaining 2% variation is explained by other determining variables outside the model.

The Durbin Watson value of 2.80 indicates present of autocorrelation in the model implying that the model is well behaved and specified and its findings can be used for policy making formulation and forecasting in the banking industry.

Statistical Criteria

This deals with the test of significance of the estimated parameters; therefore in testing for statistical significance of the parameter estimates of the model, we employed t-statistic test to test for the statistical significance of estimates. And by using t-statistics, the following decision rules were formulated.

Decision Rule:

If t-value calculated is greater than t-value tabulated,

Reject (H0) null hypothesis but if otherwise do not reject null hypothesis and conclude that the parameter estimate is statistically or not statistically significant at a certain level of significance.

The t-tabulated at 5% level of significance

Thus, $t= \alpha/2 (n-1)$

$t =0.005/2 (38)$

$t= 0.025(38)$

$t= 2.04$

At 5% level, the statistical test conducted on ATM shows that the parameters estimate is statistically significant since its t-value calculated (4.291159) is greater than t-value tabulated (2.04), indicating that ATM is a major factor that influenced the performance of First bank of Nigeria.

At 5% level, the statistical test conducted on point of sale (POS) shows that the parameters estimate is statistically significant since its t-value calculated (2.699355) is greater than t-value tabulated (2.04), indicating that (POS) is a major factor that influenced the performance of first bank of Nigeria.

At 5% level, the statistical test conducted on bank size (SIZE) shows that the parameters estimate is statistically significant since its t-value calculated (4.791750) is greater than t-value tabulated (2.04), indicating that bank size is a major factor that influenced the performance of first bank of Nigeria.

At 5% level, the statistical test conducted on inflation on one year lag (INFL(-1)) shows that the parameters estimate is statistically significant since its t-value calculated (-4.372144) in absolute value is greater than t-value tabulated (2.04), indicating that INFL(-1) is a major factor that influenced the performance of first bank of Nigeria.

Test of hypotheses

Decision rule:

If t-value calculated is greater than t-value tabulated, Reject (H0) null hypothesis but if otherwise do not reject null hypothesis and conclude that the parameter estimate is statistically or not statistically significant at a certain level of significance.

The t-tabulated at 5% level of significance

Thus $t\ \alpha/2\ (n-1)\ t = 0.005/2\ (38)\ t = 0.025(38)\ t = 2.04$

Hypothesis one

Since ATM t- calculated values for diamond bank, Guaranty trust bank, Zenith bank of (2.293360,4.562638, 9.191025 respectively)and the t-calculated values for United bank for Africa, Union bank and First bank of Nigeria are (7.385487, 9.191025, 4.291159) greater than> t-tabulated values of (2.04) we conclude that the estimated is significant at 5% level, we therefore do not reject the null hypothesis which states that Automated Teller Machines (ATMs) transactions do not impact significantly on the performance of selected old and New generation banks in Nigeria.

Hypothesis two

Since Mobile banking transactions t- calculated values for Guaranty trust bank and Zenith bank of (10.27057 and 6.626528 respectively) and the t-calculated values for United bank for Africa and Union bank of (5.611919 and 6.339571, respectively) is greater than > t-tabulated values of (2.04) we conclude that the estimated is significant at 5% level, we therefore do not reject the null hypothesis which states that

Mobile banking transactions does not impact significantly on the performance of selected old and New generation banks in Nigeria.

Hypothesis Three

Since Point of Sale transactions t- calculated values for Guaranty trust bank and Zenith bank of (-7.760719, -4.680664 respectively)in absolute value and the t- values calculated for United bank for Africa, Union bank and First bank of Nigeria are (-4.016405, -4.68067, 2.699355) in absolute value is greater than > t-values tabulated of (2.04) we conclude that the estimated is significant at 5% level, we therefore do not reject the null hypothesis which states that Point of Sales (POS) transactions do not impact significantly on the performance of selected old and New generation banks in Nigeria.

CHAPTER SIX

SUMMARY, RECOMMENDATION AND CONCLUSION

6.1 Summary of findings

This study employed data on selected old and new generation banks to estimate the impact of electronic banking innovation and banks performance in Nigeria using Seemingly Unrelated Regression Equation (SURE) Model. Data used for analysis were sourced and compiled by Electronic Payment system office, Central Bank of Nigeria Abuja, 2016.The SURE model was used to validate hypotheses as captured in the content of the work. According to SURE model estimation technique, diagnostic test was conducted using both Levin-Lin-Chu test and Persaran- Shin test to show difference order of integration of which variables were integrated of order 1(1) and 1(0).

Findings from the study revealed that Diamond bank electronic banking via ATM, MOB, PIV and SIZE had a positive and statistical significant impact on ROA but POS and INFL had a negative and insignificant impact on Return of Asset bank performance in Nigeria. This could be attributed to high cost on Information technology and low level of ICT awareness. Findings from the study revealed that Guaranty trust bank electronic banking via ATM, MOB, PIV and INFL had positive and significant impact influencing banks performance in Nigeria, but POS and SIZE had negative and insignificant impact influencing banks performance in Nigeria. This could be attributed to decay infrastructural facilities, high inflationary gap and low level of ICT awareness.Findings from the study revealed that Zenith bank electronic banking via ATM, MOB, SIZE and PIV had a positive and significant impact influencing bank performance in Nigeria, this could be attributed to efficient management practices and access to infrastructural facilities in the bank at every point in time, but POS and INFL had negative and insignificant impact influencing bank performance in Nigeria. This findings justified the comparative analysis between Old and New generation banks that because of the level of ICT compliance in new generation banks, e-banking indicators and other macro-economic variables contributed positively to New generation Bank's performance than Old generation banks. Findings from the study revealed that United bank for Africa electronic banking via ATM, MOB and PIV had a positive and significant impact on return on asset but POS, INF and SIZE had negative and insignificant impact influencing bank performance in Nigeria. This could be attributed to epileptic power supply, high inflation rate and low level of savings to activate POS from time to time. Findings from the study revealed that Union electronic banking via ATM, PIV, MOB and INFL had a positive and significant impact on banks performance in Nigeria but POS and SIZE had a negative and insignificant impact on Return on asset. This could be attributed to high cost of power supply, and low level of savings to invest. Findings from the study

revealed that First bank of Nigeria electronic banking via ATM, POS and SIZE had a positive and significant impact on banks performance in Nigeria but MOB, PIV and INFL had negative and insignificant impact influencing bank performance in Nigeria. This could be attributed to inadequate power supply, high inflationary gap, and lack of savings culture to invest, no access to fund to activate other facilities from time to time.

The value of R-squared for both old and new generation banks indicates that the data used for the study has a good fit for the model.

The Durbin Watson values for both old and new generation banks indicates that there is no presence of serial positive autocorrelation in the model implying that the model is well behaved and specified and its findings can be used for policy formulation and forecasting in the banking industry.

6.2 Policy recommendations

Therefore, based on the empirical results the following policy recommendations are made;

The positive and significant impact of ATM on old and new generation banks performance in Nigeria calls for the continued and proper management of resources to keep banks on a balanced growth path in order to make more profits but the negative and insignificant impact of SIZE and INFL on returns on asset calls for improvement in power supply and regulation on the general price level in Nigeria.

The positive and significant impact of Mobile banking(MOB)on old and new generation banks performance in Nigeria calls for further intensification of efforts to increase the assets of banks in Nigeria.

The positive and significant impact of POS on returns on asset for old and new generation banks in Nigeria calls for efficient management and utilization of funds to stay in business.

Therefore, based on the findings, Zenith bank being one of the new generation banks justified new generation banks as more ICT compliance and impacted positively to banks performance in Nigeria than old generation banks.

6.3 Conclusion

The use of e-banking is wide spread in banks and most financial institutions nowadays. The internet has really changed the dimensions of competition in the retail banking sector. New distributive channels used in rendering services to customers are being achieved. Bankers and banks customers have adopted e-banking because of acceptance of the new innovative information technology of which customers in Nigeria are not exempted. The notion that e-banking would significantly impact on return on asset

(profitability) has been established in this study which means that e-banking is an integral part of the participating bank's business strategies to make profits.

The finding from this study presented significant progress toward understanding the nature of e-banking and its perceived impact on commercial banks in Nigeria. Findings revealed that in sum, Automated teller machine, point of sale, mobile banking and bank size were positive and statistically significant factors contributing to old and new generation banks performance in Nigeria compared to other e-banking indicators. This finding is interesting but not surprising because of the rate of usage of these factors and structural changes that affected banks performances in Nigeria. The Finding is in contrast to the study conducted by Hernando and Nieto (2006) that found a negative effect deposit growth on return on equity for Spanish banks using GLS Estimation.

Summarily, the study has shown that electronic banking innovations impact on the overall banking performance and the impact is significant. Again, the major determinants of banks performance among the variables captured in the study are automated teller machine, point of sale, mobile banking and bank size.

Electronic banking innovation impact on the overall banking performance and the impact is significant. The major determinants of banks performance among the variables captured in the study are automated teller machine, point of sale, mobile bankingand bank size.

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APPENDIX

SUMMARY OF LITERATURE REVIEW

Author(s)	Objective of study	Country(s)	Methodology	Main findings
Kato, Otuya, Owunza and Nato (2014)	Examined the impact of mobile banking on the performance of commercial banks in Kenya	Kenya	Pearson's Product Moment Correlation coefficient and multiple regression analysis	The results of the correlation analysis revealed that there was a positive association between commercial banks performance and interbank transfer, cash withdrawal, balance, inquiry, bill payment and information inquiry.
Aduda and Kingoo (2012)	Investigated the relationship between Electronic banking and the performance of commercial banks in the financial system.	Kenya	Pearson's product moment correlation coefficient and multiple regression analysis	The study revealed that electionic banking has brought closer to the people banking services and hence improves financial inclusion.
Okiro (2013)	Assessed the influence of mobile and internet banking on the performance of financial institutions in Kenya	Kenya	Tables, pie-charts, and graphs were used in analyzing the quantitative data	The result of this study showed that there has been increased turnout of customers since the introduction of mobile banking in Kenya.
Al-Smadi and Al-wabel (2011)	Examined the influence of e-banking, on the performance of banks	Jordan	Ordinary Least Square (OLS) multiple	The results of regression analysis showed that the adoption of electronic banking has significant negative effect on the performance

	in Jordan		regression method of analysis	of banks in Jordan.
Salehi (2010)	Investigated the impact of electronic banking on the overall economic performance in emerging economics, with particular reference to Iranian economy.	Iran	Survey Analysis under Chi-Square Statistics	The results of the study found that adoption of e-banking has benefited bank customers greatly as it has helped overcome the hindrance associated with the traditional banking system
Onay,Ozsoz & Helvacioglu (2008)	Investigated the impact of internet banking on profitability of Turkish commercial banks.	Turkish	Correlation Analysis	The results confirmed the findings on time lag indicating that e-banking did not cause positive effects on bank profit until after two years and on impact e-banking was negatively correlated with profit
Kato, Otuya, Owunza and Nato (2014)	Investigated the constraints or challenges of promoting mobile banking in Namibia	Namibia	Graphs and Tables were used for analysis	Findings indicated that the key constraints are connectivity and interperability followed by regulations, fees, customers education and data sharing.
Jahan.M (2012)	Identified the major determinants of Bank profitability in Bangladesh	Bangladesh	Descriptive statistics and Correlation Matrix Analysis	Findings revealed that cost efficiency and off balance sheet have negative and significant impact on bank profitability.
Chiemeke, Evwiekpaefe and Chete	Investigated the impact of the adoption of	Nigeria	Survey Analysis	The results also revealed that the internet banking is relatively basic in Nigeria and are being offered by

(2006)	electronics banking in Nigeria.			banks having information sixes.
Agboola (2006)	Examined the impact of e-banking and electronic payment system in Nigeria.	Nigeria	Survey Analysis	The results of this study revealed that there has been significant migration of people away from holding cash to automated transactions, there by leading to the reduction in the volume of cash in circulation.
Auta (2010)	Investigated the impact of electronic banking in the Nigeria economy.	Nigeria	Principal component factor analysis	The study revealed that the adoption of e-banking has promoted convenience and flexibility in banking operations.
Itah and Ene (2012)	Investigated the impact of cashless banking on banks' profitability in Nigeria.	Nigeria	Ordinary Least Square (OLS) multiple regression method of analysis	The result showed that ATM and POS are positively related to ROE, while WBT related negatively to ROE.
Adewoye (2013)	Investigated the impact of mobile banking on service delivery in the Nigerian Commercial Banks through the use of questionnaire	Nigeria	Survey Analysis	Findings showed that mobile banking has improved banks service delivery in a form of transactional convenience, savings of time, quick transaction alert and save of service cost which has recuperate customer's relationship and satisfaction.
Oyewole, El-Mauda, Abba and Arikpo (2013)	Analyzed E-banking and bank performance in Nigeria	Nigeria	Panel data Analysis	Result from pooled OLS estimations indicate that e-banking begins to contribute positively to bank performance in terms of ROA and NIM with a time lag of two

				years while a negative impact was observed in the first year of adoption.
Wali, Wright and Reynolds (2014)	Examined the impact of the cashless system on user's perception and retail marketing performance in Nigeria retail sector	Nigeria	Survey Analysis	The study revealed that the adoption of cashless policy impacted on marketing performance of retail outlets in Nigeria
Ogunlowore and Oladele (2014)	Investigated the impact of electronic banking on the satisfaction of customers using GTB bank, Lagos as a case study	Nigeria	Survey Analysis	The empirical result from the chi-square analysis revealed that electronic banking has significant relationship with customer satisfaction in GTB bank in particular and the general banking customers in general
Oloyede, Azeez and Aluko (2015)	Assessed the benefit of e-commerce and e-banking to the Nigerian economy.	Nigeria	Survey Analysis	The results showed that electronics commerce and electronic banking has led to easy access to global market leading to a huge gain from such global integration.
Suberu, Afonja, Akande and Adeyinka (2015)	The effect of cashless policy, saving and bank credit on Nigerian deregulated economy.	Nigeria	The ordinary least square econometric technique	Findings from this study revealed that the marginal productivity coefficient of bank credit to the domestic economy is positive but insignificant.
Igbara, Egbrenini, Fabian and Daasi (2015)	Examined the impact of cashless policy on small scale business in Ogoni land of River state, Nigeria	Nigeria	Survey Analysis	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.
Oleabhiele and Omuruyi (2015)	Cashless Nigeria: suitability, sustainability and constraints	Nigeria	Survey Analysis	Statistical findings from respondents show that cash-less Nigeria would ensure accurate payments and revalue our currency especially the kobo.
Alao, Sapon and Sorinola (2015)	Cashless policy and customers' satisfaction in Ogun state, Nigeria.	Nigeria	Survey Analysis	The findings of the study reveal that cashless policy contributed significantly to customers' satisfaction in Ogun State.
Adewuyi, (2011)	To examined the impact of information communication technology (ICT) on bank performance in Nigeria..	Nigeria	Survey Analysis	Findings revealed that The adoption of ICT in banking contributed to bank profitability in Nigeria.
Balogun, E.(2007)	The paper aimed at assessing post consolidation effect of the banking sector recapitalization in Nigeria	Nigeria	Survey Analysis	Findings revealed that Banking sector recapitalization on construction industry has an effect on payback period on loans acquired.
Carlson(2001)	To examined the impact of internet banking on banks' performance and risk.	India	Univariate model of Analysis was used	Findings revealed that profitability and offering of internet does not have any significant relationship with risk profile of the banks.
Castanol(2010)	The study seeks to demonstrates that the steps and principles of the TOC can also be applied to non profit services	USA	Graphs and Tables were used for Analysis	Findings revealed that a novel definition of these measurement for the step by step principles of the theory of constraints.
Chavan,J.	To examines the	India	Survey	Findings revealed that E-banking

(2013)	impact of information and communication technology on bank performance		Analysis	impacted positively on bank profitability in India.
Flamini(2009)	The paper seeks to investigate the determinants of bank profitability in Sub-Shara Africa	Guinea Bissua	Survey Analysis	Findings revealed that bank specific and macroeconomic risk factors are the most important explanations for banks high returns
Rashed,K.2015	The study examined the influence of sound banking system in the growth framework in Pakistan.	Pakistan	Pakistan	Finding revealed that foreign entry in the financial market of Pakistan had a positive and healthy influence on the performance and profitability of the domestic banking sector.
Guru(2002	The study investigated the determinants of commercial bank profitability in Nigeria	Nigeria	Ordinary Least Square (OLS) multiple regression method of analysis	Findings revealed a positive relationship between bank size measured in terms of total asset on banks profitability in Nigeria.
Jahan (2012)	The study investigated capital strength, credit risk ownership structure and banksize in Bangladesh	Bangladesh	Ordinary Least Square (OLS) multiple regression method of analysis	Findings revealed that capital strength has positive and significant impact on profitability in Bangladesh.
Kehinde(2011)	The study examined the impact of the Nigeria money	Nigeria	Ordinary Least Square (OLS)	Findings revealed that firms working capital and profitability have a significant impact on the

	market instruments on the liquity of banks in Nigeria		multiple regression method of analysis	money market instrument.
Nkoro & Uko(2013)	The study examined the impact of financial sector development on economic growth in Nigeria	Nigeria	Co-integration and ECM Method of Analysis was used	Findings revealed that there is a positive effect of financial sector development on economic growth in Nigeria.
Ogbulu & Ndugwu (2002)	The study investigated the profitability performance of Nigerian banks following the full adoption of electronic banking system.	Nigeria	Ordinary Least Square (OLS) multiple regression method of analysis	Findings revealed that the adoption of E-banking has not significantly improved the return on assets (ROA) of Nigerian Banks.
Omotunde, Sunday & John-Dewole (2013)	The study aimed at using fiscal and monetary policy to improves cashless policy performance of the economy.	Malaysia	Ordinary Least Square (OLS) multiple regression method of analysis	Findings revealed that there is high degree of collinearity and perfect fitness among variables used in the model.
Pedersen et al (2002)	The study examined the impact of mobile commerce technology on banks performance in Nigeria	Nigeria	Tables and Graphs Analysis	Findings showed that mobile commerce impacted positively on banks performance in Nigeria
Salehi & Alipour (2010)	The study examined E-banking as a	Nigeria	Survey Analysis	Findings revealed that e-banking services has a positive and

	catalyst for Economic development.			significant impact in supporting the financial services of Iran.
Singhal & Padhmanabhan m (2008)	The study aimed at investigating the impact of internet banking on banks profitability in Nigeria	Nigeria	Survey Analysis	Findings based on respondents revealed that internet banking has a positive and significant relationship on bank performance in Nigeria.
Davis (1989)	The study investigated the impact of technology acceptance model impacted on information technology.	Japan	Graphs Analysis	Findings showed that TAM model is a better approach for adoption of information technology.
Udeze, Okafor, Nwafor & Abarikwu (2013)	The study evaluated the impact of information and communication technology as a catalyst of financial institutions in Nigeria.	Nigeria	Bivariate Data model was used.	Findings revealed that the development of ICT will enhance financial institutions transaction in Nigeria.
Adegbite (2007)	The study investigated the determinants of informal savings mobilization in Nigera	Nigeria	Ordinary Least Square (OLS) multiple regression method of analysis	Findings revealed that informal savings has a positive significant relationship bank performance in Nigeria.
Sadr (2013)	The study investigated the effect of E-banking	Nigeria	Panel Data Analysis	Findings revealed that e-banking impacted positively on the profitability of some selected banks

	on Bank profitability in some Selected Asian Countries.			in Asain Countries.
Christopher, Mike, Visit & Amy, (2006)	The study examined the contribution of E-banking to banks performance in banking	New Zealand	Logit Model was used for analysis	Findings revealed a positive and significant relationship between E-banking and return on assets in New Zealand
Akhalumeh (2011)	The study examined the relationship between banks performance and cashless policy in Nigeria	Nigeria	Survey Analysis	Findings revealed that 60% of the respondents strongly agreed that cashless policy contributed to the return on Assets of banks in Nigeria.
Hassan, Aliyu and Farouk(2013)	The study investigated the impact of e-banking products and bank performance in Nigeria	Nigeria	Survey Analysis	Findings showed that there is a positive and significant relationship between e-banking product and banks performance in Nigeria.
Oyewole, Abba, Gambo and Arikpo (2013)	The study investigated the impact of E-banking on bank performance in Nigeria	Nigeria	Ordinary Least Square (OLS) multiple regression method of analysis	Result from pooled data estimation indicates that e-banking begins to contribute positively to bank performance in terms of return on assets with a time lag of two years..
Mbutor (2013)	The study examined the effects of financial inclusion on poverty reduction in Nigeria rural communities.	Nigeria	ARDL Method of Analysis was used	The findings of this study showed that financial services at the rural area boast the small and medium scale business thus reducing poverty rate in rural communities.

Onwuegbuchi (2007)	To evaluate the relationship between Perception of corporate Citizenship and Organizational Commitment toward banks profitability in Nigeria.	Nigeria	Survey Analysis	Findings revealed that there is a positive and significant relationship between perception of corporate citizenship and organizational commitment on bank profits in Nigeria.
Edith (2008)	The study examined the effects of E-banking on banks profit in Cameroun.	Cameroun	Survey Analysis	Findings revealed that there is a high and positive correlations between e-banking and return on assets among banks in Cameroun
Akingbola,2006	The study examined the role ICT on service delivery in the Nigeria banking firm.	Nigeria	Survey Analysis	Findings revealed that ICT has made greater impact on the productivity of banks.
Okoro (2014)	The study examined the impact of e-payment instruments on financial intermediation Efficiency of the Nigeria Economy.	Nigeria	Ordinary Least Square (OLS) multiple regression method of analysis	The result revealed that the higher the usage of the selected e-payment instruments the better the intermediary efficiency of the Nigerian Economy.

BANKS CHARACTERISTICS IN NIGERIA

GROUP	SURVIVING BANK	SHAREHOLDERS FUND	COMPONENT INSTITUTIONS	NO.IN GROUP
1	First Bank	58.996	First Bank of Nigeria Plc,FBN Merchant Bankers	3

			Ltd, MBC	
2	First Inland	26.386	IMB, First Atlantic Bank, Inland Bank,NUB	4
3	FCMB	25.342	First City Monument Bank, Cooperative Development Bank, Niger-American Merchant Bank, Midas.	4
4	Union Bank	106.97	Union Bank of Nigeria Plc, broad bank,UTB, Union Merchant Bankers	4
5	Wema Bank	26.230	Wema bank, National Park.	2
6	Unity Bank	29.425	Intercity Bank, First interstate, Tropical, commercial, Pacific Societe Bancaire, Centre Point, NNB, Bank of the North, New Africa bank Ltd.	9
7	ETB	28.41	ETB, Devcon	2
8	Fidelity Bank	25.596	Fidelity, FSB intercontinental,MA	3
9	IBTC/Chartered	33.494	Regent, IBTC Chartered	3
10	Intercontinental bank	57.25	International, Global, Equity, Gateway	4
11	Oceanic Bank	35.505	Oceanic bank, international Bank	2
12	Platinum Habib	28.491	Platinum, Habib	2
13	Sterling Bank	25.31	NAL, Trust Bank of Africa, INBM, Magnum Trust, NBM	4
14	UBA Plc	47.624	UBA, Standard Trust,NBM	3
15	Spring Bank	41.29	Citizens, Guardian Express, ACB, Omega, Trans International, Fountain Trust	6

16	Access Bank	28.894	Access, Marina International, Capital Bank	3
17	Afri Bank	25.085	Afribank, Afribank Merchant Bankers	2
18	Citibank-NIB	33.375	Citibank,Nigeria international Bank	2
19	Diamond Bank	34.970	Diamond Bank, Lion Bank, Africa International	3
20	Skye Bank	31.469	Prudent, EIB, Bond, Reliance, Coop Bank	5
21	Zenith Bank	95.324	Zenith	1
22	Stanbic Bank	28.386	Stanbic Bank	1
23	Standard Chartered	33.760	Standard Chartered	1
24	Eco Bank	25.763	Eco bank	1
25	GTB	36.420	GTB	1
Total number of merging banks				75
Failed banks				14
Pre-consolidation total				89

Source: Barros & Caporale (2012).

SAMPLE SIZE OF THE COMMERCIAL BANKS

S/N	Bank	Constituents	Capita base (N'billion)
1	FBN	First bank of Nigeria Plc, FBN Merchant Bankers Ltd, MBC.	44.62

2	Union Bank	Union Bank of Nigeria Plc, Broad Bank, UTB, Union Merchant bankers	58
3	UBA Plc	UBA, Standard Trust Bank, CTB	50.00
4	Zenith bank	Zenith bank	38.00
5	GTBank	Guaranty Trust Bank	34.00
6	Diamond Bank	Diamond Bank	33.35

Source: Compiled from CBN press release (3/1/06.Financial Standard (16/1/06). And the cowry Asset Management Limited, 2009, P.7

TABLE 5.1.1 Descriptive Statistics for the Sampled Banks

FIRST BANK OF NIGERIA

	ROA	ATM	POS	MOS	SIZE	PIV	INFL
Mean	1.95E+09	1.11E+11	8.29E+09	9.05E+09	6.77E+09	1.19E+12	6.359000
Median	2.01E+09	1.03E+11	2.13E+09	1.52E+09	6.42E+09	15.41359	5.850000
Maximum	3.46E+09	2.38E+11	2.74E+10	3.02E+10	8.51E+09	5.95E+12	12.30000
Minimum	6.39E+08	1.68E+10	5.74E+08	90000000	6.21E+09	12.08816	5.140000
Std. Dev.	1.04E+09	8.83E+10	1.07E+10	1.20E+10	8.57E+08	2.50E+12	2.140698
Skewness	0.012463	0.239222	0.986002	0.825112	1.470721	1.500062	2.427271
Kurtosis	1.640383	1.487230	2.295409	1.947178	3.278268	3.250290	7.365935
Jarque-Bera	0.770491	1.048909	1.827187	1.596530	3.637297	3.776413	17.76166
Probability	0.680283	0.591878	0.401080	0.450109	0.162245	0.151343	0.000139
Sum	1.95E+10	1.11E+12	8.29E+10	9.05E+10	6.77E+10	1.19E+13	63.59000
Sum Sq. Dev.	9.76E+18	7.02E+22	1.03E+21	1.30E+21	6.61E+18	5.63E+25	41.24329
Observations	10	10	10	10	10	10	10

5.1.2 UNION BANK DESCRIPTIVE STATISTICS RESULT

	ROA	ATM	POS	MOB	SIZE	PIV	INFL
Mean	1.32E+09	9.54E+10	7.26E+09	6.35E+09	7.25E+09	1.19E+12	6.359000
Median	1.35E+09	8.73E+10	1.96E+09	1.17E+09	7.27E+09	15.41359	5.850000
Maximum	1.88E+09	1.98E+11	2.41E+10	2.37E+10	8.58E+09	5.95E+12	12.30000
Minimum	6.74E+08	1.87E+10	2.37E+08	2000000.	5.89E+09	12.08816	5.140000
Std. Dev.	4.65E+08	7.39E+10	9.28E+09	8.89E+09	7.65E+08	2.50E+12	2.140698
Skewness	-0.225960	0.209274	0.925635	1.035242	0.100161	1.500062	2.427271
Kurtosis	1.574628	1.412343	2.199743	2.479984	2.791077	3.250290	7.365935
Jarque-Bera	0.931632	1.123266	1.694838	1.898882	0.034907	3.776413	17.76166
Probability	0.627623	0.570277	0.428519	0.386957	0.982698	0.151343	0.000139
Sum	1.32E+10	9.54E+11	7.26E+10	6.35E+10	7.25E+10	1.19E+13	63.59000
Sum Sq. Dev.	1.94E+18	4.92E+22	7.75E+20	7.11E+20	5.27E+18	5.63E+25	41.24329
Observations	10	10	10	10	10	10	10

5.1.3 UBA DESCRIPTIVE STATISTICS RESULT

	ROA	ATM	POS	MOB	SIZE	PIV	INFL
Mean	3.10E+09	1.14E+11	7.98E+09	7.37E+09	6.57E+09	1.19E+12	6.359000
Median	1.78E+09	1.09E+11	2.08E+09	1.26E+09	6.26E+09	15.41359	5.850000
Maximum	7.28E+09	2.39E+11	2.54E+10	2.56E+10	8.65E+09	5.95E+12	12.30000
Minimum	1.25E+08	2.16E+10	2.58E+08	3000000.	6.02E+09	12.08816	5.140000
Std. Dev.	2.96E+09	8.87E+10	1.01E+10	1.00E+10	8.21E+08	2.50E+12	2.140698
Skewness	0.393292	0.211431	0.862442	0.906796	1.908391	1.500062	2.427271
Kurtosis	1.411634	1.454344	2.051051	2.123595	5.269968	3.250290	7.365935
Jarque-Bera	1.309009	1.069943	1.614887	1.690501	8.216906	3.776413	17.76166
Probability	0.519699	0.585686	0.445997	0.429450	0.016433	0.151343	0.000139
Sum	3.10E+10	1.14E+12	7.98E+10	7.37E+10	6.57E+10	1.19E+13	63.59000
Sum Sq. Dev.	7.88E+19	7.08E+22	9.16E+20	9.09E+20	6.07E+18	5.63E+25	41.24329
Observations	10	10	10	10	10	10	10

5.1.4 DIAMOND BANK DESCRIPTIVE STATISTICS RESULT

	ROA	ATM	MOB	POS	PIV	INFL	SIZE
Mean	3.94E+09	1.02E+11	8.04E+09	7.98E+09	1.19E+12	6.359000	8.76E+09
Median	2.69E+09	9.36E+10	1.32E+09	2.08E+09	15.41359	5.850000	8.94E+09
Maximum	1.06E+10	2.09E+11	2.83E+10	2.54E+10	5.95E+12	12.30000	9.65E+09
Minimum	5.94E+08	1.88E+10	30000000	1.93E+08	12.08816	5.140000	7.20E+09
Std. Dev.	3.62E+09	7.94E+10	1.10E+10	1.01E+10	2.50E+12	2.140698	7.97E+08
Skewness	0.712786	0.185553	0.907614	0.861479	1.500062	2.427271	-1.036544
Kurtosis	2.090375	1.385840	2.136820	2.050229	3.250290	7.365935	2.830157
Jarque-Bera	1.191530	1.143014	1.683389	1.612771	3.776413	17.76166	1.802725
Probability	0.551141	0.564674	0.430980	0.446469	0.151343	0.000139	0.406016
Sum	3.94E+10	1.02E+12	8.04E+10	7.98E+10	1.19E+13	63.59000	8.76E+10
Sum Sq. Dev.	1.18E+20	5.68E+22	1.09E+21	9.17E+20	5.63E+25	41.24329	5.72E+18
Observations	10	10	10	10	10	10	10

5.1.5 GUARANTY TRUST BANK DESCRIPTIVE STATISTICS RESULT

	ROA	ATM	POS	MOS	PIV	SIZE	INFL
Mean	2.60E+09	1.10E+11	8.42E+09	8.69E+09	1.19E+12	9.33E+09	6.359000
Median	2.49E+09	1.01E+11	2.18E+09	1.45E+09	15.41359	9.29E+09	5.850000
Maximum	3.29E+09	2.29E+11	2.64E+10	2.99E+10	5.95E+12	9.84E+09	12.30000
Minimum	1.94E+09	1.93E+10	4.52E+08	50000000	12.08816	8.90E+09	5.140000
Std. Dev.	4.31E+08	8.67E+10	1.05E+10	1.17E+10	2.50E+12	3.19E+08	2.140698
Skewness	0.336472	0.228115	0.842607	0.888408	1.500062	0.302943	2.427271
Kurtosis	2.175622	1.436640	2.011029	2.092615	3.250290	1.821981	7.365935
Jarque-Bera	0.471856	1.105101	1.590838	1.658510	3.776413	0.731178	17.76166
Probability	0.789838	0.575480	0.451392	0.436374	0.151343	0.693788	0.000139
Sum	2.60E+10	1.10E+12	8.42E+10	8.69E+10	1.19E+13	9.33E+10	63.59000
Sum Sq. Dev.	1.67E+18	6.77E+22	9.88E+20	1.24E+21	5.63E+25	9.17E+17	41.24329
Observations	10	10	10	10	10	10	10

5.1.6 ZENITH BANK DESCRIPTIVE STATISTICS RESULT

	ROA	ATM	POS	MOB	SIZE	PIV	INFL
Mean	3.94E+09	7.46E+09	6.72E+09	7.89E+09	1.19E+12	6.359000	1.21E+09
Median	2.69E+09	1.20E+09	6.36E+09	2.09E+09	15.41359	5.850000	1.17E+09
Maximum	1.06E+10	2.47E+10	8.14E+09	2.58E+10	5.95E+12	12.30000	1.97E+09
Minimum	5.94E+08	80000000	6.18E+09	2.94E+08	12.08816	5.140000	7.35E+08
Std. Dev.	3.62E+09	9.81E+09	7.00E+08	1.01E+10	2.50E+12	2.140698	4.25E+08
Skewness	0.712786	0.789608	1.046101	0.919303	1.500062	2.427271	0.501158
Kurtosis	2.090375	1.945839	2.565136	2.167637	3.250290	7.365935	2.047138
Jarque-Bera	1.191530	1.502159	1.902672	1.697209	3.776413	17.76166	0.796909
Probability	0.551141	0.471857	0.386225	0.428012	0.151343	0.000139	0.671357
Sum	3.94E+10	7.46E+10	6.72E+10	7.89E+10	1.19E+13	63.59000	1.21E+10
Sum Sq. Dev.	1.18E+20	8.67E+20	4.41E+18	9.12E+20	5.63E+25	41.24329	1.62E+18
Observations	10	10	10	10	10	10	10

The estimated SURE model result for the six banks captured in the study

GTB

System: SURE
Estimation Method: Seemingly Unrelated Regression
Date: 03/04/18 Time: 08:04
Sample: 2008 2016
Included observations: 9
Total system (balanced) observations 9
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	125.0471	55.25277	2.263183	0.1520
C(2)	0.012663	0.002775	4.562638	0.0448
C(3)	-1.000435	0.128910	-7.760719	0.0162
C(4)	0.380752	0.037072	10.27057	0.0093
C(5)	-4.009807	2.389568	-1.678047	0.2353
C(6)	9.92E-12	2.18E-12	4.547292	0.0451
C(7)	0.229970	0.040569	5.668674	0.0297
Determinant residual covariance		0.001111		

Equation: LOG(ROA) = C(1) + C(2)*LOG(PIV) + C(3)*LOG(POS) + C(4)
*LOG(MOS) + C(5)*LOG(SIZE) + C(6)*ATM + C(7)*INFL(-1)
Observations: 9

R-squared	0.936446	Mean dependent var	21.69748
Adjusted R-squared	0.745783	S.D. dependent var	0.140265
S.E. of regression	0.070721	Sum squared resid	0.010003
Durbin-Watson stat	2.121107		

System: SURE Diamond Bank
Estimation Method: Seemingly Unrelated Regression
Date: 02/14/18 Time: 14:50
Sample: 2008 2016
Included observations: 9

Total system (balanced) observations 9
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-5.166044	3.524889	-1.465590	0.2804
C(2)	0.357614	0.155934	2.293360	0.1488
C(3)	-0.148506	0.234798	-0.632485	0.5917
C(4)	0.098114	0.113310	0.865888	0.4778
C(5)	0.101406	0.020225	5.013861	0.0376
C(6)	2.29E-09	4.91E-10	4.674025	0.0429
C(7)	-0.395887	0.102830	-3.849900	0.0613
Determinant residual covariance		0.014252		

Equation: LOG(ROA(-1)) = C(1) + C(2)*LOG(ATM) + C(3)*LOG(POS) + C(4)
*LOG(MOB) + C(5)*LOG(PIV) + C(6)*SIZE + C(7)*INFL(-1)
Observations: 9

R-squared	0.984975	Mean dependent var	21.45219
Adjusted R-squared	0.939899	S.D. dependent var	1.033000
S.E. of regression	0.253245	Sum squared resid	0.128266
Durbin-Watson stat	2.011888		

Zenith Bank
Dependent Variable: ROA
Method: Least Squares
Date: 02/15/18 Time: 20:58
Sample (adjusted): 2 10
Included observations: 9 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.40E+09	1.18E+10	0.713474	0.5496
LOG(ATM(-1))	1.01E+09	2.34E+08	4.332691	0.0494
POS	-4.710346	2.134772	-2.206486	0.1581
PIV	5.33E+08	1.71E+08	3.123775	0.0890
MOB	0.357491	0.119622	2.988503	0.0961
INFL(-1)	0.438812	0.359653	1.220096	0.3468
SIZE	-0.000107	7.24E-05	-1.484180	0.2760

R-squared	0.997774	Mean dependent var	4.31E+09
Adjusted R-squared	0.991097	S.D. dependent var	3.63E+09
S.E. of regression	3.43E+08	Akaike info criterion	42.19453
Sum squared resid	2.35E+17	Schwarz criterion	42.34793
Log likelihood	-182.8754	Hannan-Quinn criter.	41.86350
F-statistic	149.4243	Durbin-Watson stat	1.776592
Prob(F-statistic)	0.006663		

System: SURE zenith bank
Estimation Method: Seemingly Unrelated Regression
Date: 02/15/18 Time: 20:53
Sample: 2 10
Included observations: 9

Total system (balanced) observations 9
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	8.40E+09	5.55E+09	1.513506	0.2693
C(2)	1.01E+09	1.10E+08	9.191025	0.0116
C(3)	-4.710346	1.006341	-4.680664	0.0427
C(4)	5.33E+08	80426950	6.626528	0.0220
C(5)	0.357491	0.056390	6.339571	0.0240
C(6)	0.438812	0.169542	2.588214	0.1225
C(7)	-0.000107	3.41E-05	-3.148421	0.0878
Determinant residual covariance		2.61E+16		

Equation: ROA = C(1) + C(2)*LOG(ATM(-1)) + C(3)*POS + C(4)*PIV + C(5)
*MOB + C(6)*INFL(-1) + C(7)*SIZE
Observations: 9

R-squared	0.997774	Mean dependent var	4.31E+09
Adjusted R-squared	0.991097	S.D. dependent var	3.63E+09
S.E. of regression	3.43E+08	Sum squared resid	2.35E+17
Durbin-Watson stat	1.776592		

UBA BANK
System: SURE
Estimation Method: Seemingly Unrelated Regression
Date: 02/15/18 Time: 21:20
Sample: 2 10
Included observations: 9
Total system (balanced) observations 9
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	8.93E+09	6.31E+09	1.414548	0.2928
C(2)	9.94E+08	1.35E+08	7.385487	0.0178
C(3)	-4.602681	1.145970	-4.016405	0.0568
C(4)	5.58E+08	89775393	6.211937	0.0249
C(5)	0.360519	0.064242	5.611919	0.0303
C(6)	-0.395439	0.219353	-1.802748	0.2132
C(7)	-0.000162	4.11E-05	-3.932576	0.0590
Determinant residual covariance		3.35E+16		

Equation: ROA = C(1) + C(2)*LOG(ATM(-1)) + C(3)*POS + C(4)*PIV + C(5)
*MOB + C(6)*INFL + C(7)*SIZE
Observations: 9

R-squared	0.997148	Mean dependent var	4.31E+09
Adjusted R-squared	0.988590	S.D. dependent var	3.63E+09
S.E. of regression	3.88E+08	Sum squared resid	3.01E+17
Durbin-Watson stat	1.916117		

System: SURE UNION BANK
Estimation Method: Seemingly Unrelated Regression
Date: 02/15/18 Time: 21:40

Sample: 2 10
Included observations: 9
Total system (balanced) observations 9
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	8.40E+09	5.55E+09	1.513506	0.2693
C(2)	1.01E+09	1.10E+08	9.191025	0.0116
C(3)	-4.710346	1.006341	-4.680664	0.0427
C(4)	5.33E+08	80426950	6.626528	0.0220
C(5)	0.357491	0.056390	6.339571	0.0240
C(6)	0.438812	0.169542	2.588214	0.1225
C(7)	-0.000107	3.41E-05	-3.148421	0.0878
Determinant residual covariance		2.61E+16		

Equation: ROA = C(1) + C(2)*LOG(ATM(-1)) + C(3)*POS + C(4)*PIV + C(5)
*MOB + C(6)*INFL(-1) + C(7)*SIZE
Observations: 9

R-squared	0.997774	Mean dependent var	4.31E+09
Adjusted R-squared	0.991097	S.D. dependent var	3.63E+09
S.E. of regression	3.43E+08	Sum squared resid	2.35E+17
Durbin-Watson stat	1.776592		

First Bank
System: SURE
Estimation Method: Seemingly Unrelated Regression
Date: 02/15/18 Time: 23:20
Sample: 2008 2016
Included observations: 9
Total system (balanced) observations 9
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-9.72E+09	57410946	-169.2209	0.0000
C(2)	-0.048664	0.000509	-95.69485	0.0001
C(3)	-1.08E-05	6.98E-07	-15.39374	0.0042
C(4)	4.06E+08	2369701.	171.1601	0.0000
C(5)	-1.47E+08	2455891.	-59.90478	0.0003
C(6)	0.604982	0.004119	146.8923	0.0000
C(7)	0.001855	7.20E-05	25.77269	0.0015
Determinant residual covariance		8.78E+12		

Equation: ROA = C(1) + C(2)*POS + C(3)*PIV + C(4)*LNMOB + C(5)*INFL(
-1) + C(6)*SIZE + C(7)*ATM
Observations: 9

R-squared	0.999990	Mean dependent var	2.10E+09
Adjusted R-squared	0.999960	S.D. dependent var	9.91E+08
S.E. of regression	6284693.	Sum squared resid	7.90E+13
Durbin-Watson stat	2.290053		

First Bank
System: SURE

Estimation Method: Seemingly Unrelated Regression
Date: 02/15/18 Time: 23:37
Sample: 2008 2016
Included observations: 9
Total system (balanced) observations 9
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-6.04E+09	1.62E+09	-3.737974	0.0647
C(2)	0.007768	0.001810	4.291159	0.0502
C(3)	0.131288	0.048637	2.699355	0.1142
C(4)	-0.249340	0.065288	-3.819075	0.0622
C(5)	1.621500	0.338394	4.791750	0.0409
C(6)	-6.37E-05	2.28E-05	-2.794306	0.1078
C(7)	-5.87E+08	1.34E+08	-4.372144	0.0485
Determinant residual covariance		1.09E+16		

Equation: ROA = C(1) + C(2)*ATM + C(3)*POS + C(4)*MOB(-1) + C(5)*SIZE + C(6)*PIV + C(7)*INFL(-1)
Observations: 9

R-squared	0.987512	Mean dependent var	2.10E+09
Adjusted R-squared	0.950049	S.D. dependent var	9.91E+08
S.E. of regression	2.22E+08	Sum squared resid	9.82E+16
Durbin-Watson stat	2.801695		

System: SURE
Estimation Method: Seemingly Unrelated Regression
Date: 03/04/18 Time: 09:45
Sample: 2008 2016
Included observations: 9
Total system (balanced) observations 9
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-6.00E+09	1.63E+09	-3.691782	0.0662
C(2)	-6.39E-05	2.29E-05	-2.784238	0.1084
C(3)	0.129640	0.048964	2.647667	0.1179
C(4)	-0.247398	0.065704	-3.765312	0.0639
C(5)	-5.88E+08	1.35E+08	-4.357410	0.0488
C(6)	0.007807	0.001822	4.284861	0.0504
C(7)	1.616979	0.340386	4.750433	0.0416
Determinant residual covariance		1.11E+16		

Equation: ROA = C(1) + C(2)*PIV + C(3)*POS + C(4)*MOS(-1) + C(5)*INFL(-1) + C(6)*ATM + C(7)*SIZE
Observations: 9

R-squared	0.987326	Mean dependent var	2.10E+09
Adjusted R-squared	0.949304	S.D. dependent var	9.91E+08
S.E. of regression	2.23E+08	Sum squared resid	9.95E+16
Durbin-Watson stat	2.802135		

FIRST BANK SURE RESULT
System: SURE
Estimation Method: Seemingly Unrelated Regression
Date: 03/04/18 Time: 09:37
Sample: 2008 2016
Included observations: 9
Total system (balanced) observations 9
Linear estimation after one-step weighting matrix

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-59.46907	7.752664	-7.670792	0.0166
C(2)	-5.23E-11	5.27E-12	-9.931198	0.0100
C(3)	-2.29E-14	7.82E-15	-2.930361	0.0994
C(4)	-0.000141	0.039489	-0.003562	0.9975
C(5)	-0.131407	0.027707	-4.742688	0.0417
C(6)	3.298092	0.340601	9.683148	0.0105
C(7)	0.342592	0.023861	14.35791	0.0048
Determinant residual covariance		0.001086		

Equation: LOG(ROA) = C(1) + C(2)*POS + C(3)*PIV + C(4)*LOG(ATM) + C(5)
*INFL(-1) + C(6)*LOG(SIZE) + C(7)*LOG(MOS)
Observations: 9

R-squared	0.996443	Mean dependent var	21.33219
Adjusted R-squared	0.985771	S.D. dependent var	0.585940
S.E. of regression	0.069893	Sum squared resid	0.009770
Durbin-Watson stat	2.218340		