BASEL II AND FINANCIAL PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

BY

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(MSc/Admin/12178/11-12)

BEING A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, AHMADU BELLO UNIVERSITY, ZARIA IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE DEGREE IN ACCOUNTING AND FINANCE.

DEPARTMENT OF ACCOUNTING, FACULTY OF ADMINISTRATION,
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MAY 2015

DECLARATION

I hereby declare that this dissertation entitled "***Basel II and Financial Performance of Deposit Money Banks in Nigeria***" has been carried out by me in the Department of Accounting, Ahmadu Bello University, Zaria, under the supervisions of Dr. Ibrahim Hassan and Dr. M.S. Tijjani. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this dissertation was previously presented for another degree or diploma at this or any other institution.

Surajudeen Babatunde OLATUNDE
MSc./Admin/12178/2011-2012

____
Date

CERTIFICATION

This dissertation entitled "***Basel II and Financial Performance of Deposit Money Banks in Nigeria***" by Surajudeen Babatunde OLATUNDE meets the regulations governing the award of the degree of Master of Science in Accounting and Finance of the Ahmadu Bello University, Zaria and is therefore approved for its contribution to knowledge and literary presentation.

Dr. Hassan Ibrahim	____________	___________
Chairman, Supervisory Committee	Signature	Date
Dr. M.S. Tijjani	____________	___________
Member, Supervisory Committee	Signature	Date
Dr. A.B. Dogarawa	____________	___________
Head of Department	Signature	Date
Professor Kabir Bala	____________	___________
Dean, School of Postgraduate Studies	Signature	Date

DEDICATION

All that I am today and intend to be I dedicate to Allah, the Arbiter, the Cherisher, the Omnipresent and Omniscience, who taught man what he knows not, and who has been my succour for ages and my protection right from when I was conceived in my mother's womb till this present moment of my life.

Nimotallahi Atole, Nurat Awero, Abdullateef Ajagbe and Tawakalitu Aduke have been the earliest, strongest and most driving forces of my life. Without them, I may not have accomplished this academic feat. To my wife (*Amina*) and children to come as well as those who wish to have education but have no wherewithal to do so, I say you are not forgotten!

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ABSTRACT

The main thrust of Basel II framework is to ensure that banks maintain adequate liquidity and higher capital buffers that will match their operations in the course of financial intermediation. In spite of this thrust, unanimity does not exist among bankers, financial regulators, scholars and researchers on the ability of Basel II to prevent future banking crisis and the effects it may have on the profitability of banks. While the protagonists lauded it to be a remarkable financial reform, the critics rebutted it to be a formidable regulatory reform that will affect the financial performance of banks adversely. In view of this divergence, this study examined the impact of Basel II on financial performance of deposit money banks (DMBs) in Nigeria. Secondary data were collected over a period of 5 years from the annual reports and accounts of 8 sampled DMBs. A correlational research design was adopted while a parametric analytic technique of the OLS multiple regressions with panel data methodology was used to analyze the data. The results of the study, using STATA 10 as a statistical tool, revealed that capital adequacy ratio (CAR) strongly and negatively influences returns on assets (ROA) of the DMBs under study at 5% level of significance with a t-value of -2.32.On the other hand, the study found that the liquidity coverage ratio (LCR) has strong and positive impact on the ROA of the DMBs at 1% level of significance with a t-value of 3.91while the asset quality ratio(AQR) used as a variable notation for the credit risk has no significant impact on the ROA of the sampled DMBs as its p-value of 0.198 is not statistically significant at 10%. Based on these findings, the study recommended that the financial regulators should continue to enforce capital adequacy ratio on banks even if it squeezes their financial performance. This is because the standard can restrain obnoxious risk-taking on the part of banks and help promote banking sector stability and resilience to shocks. Also, due to the fact that the LCR has positive and significant impact on the financial performance of the sampled DMBs in Nigeria, the study recommended that the improvement and maintenance of proper LCR by the financial regulators and the banks' management in Nigeria can give rise to improvement in financial performance of the DMBs in Nigeria.

TABLE OF CONTENTS

CHAPTER THREE: RESEARCH METHODOLOGY

CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS OF RESULTS

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

LIST OF TABLES

APPENDIX

CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

The need to strengthen regulatory standards of banks against systemic crisis, which negatively affects the investors' confidence and financial system at large by the supervisory and financial regulatory authorities, has been reinforced by the Basel Committee on Banking Supervision (BCBS) through its release of a new regulatory capital standard called Basel II in 2004. Basel II is the second Capital Accord of the BCBS, which requires higher capital buffer for banks to accommodate credit as well as operational and market risks in the business of financial intermediation. Its objectives among others include eliminating regulatory arbitrage by getting risk weights right and align regulation with best practices in risk management. It provides banks with incentives to enhance risk measurement and management capabilities and seeks to align regulatory capital of banks with economic risk. It sets regulatory benchmark of capital for three categories of risks, which are credit, operational and market risks; and unlike its predecessor called Basel I, the capital charges of the Basel II standard are based on asset quality rather than on asset type. With a broader objective of halting the erosion of capital standards in the international banking system, Basel II was released as a substitute for the first Capital Accord of 1988, which was approved and adopted by the Governors of the Group of 10 countries in July 1988 under the auspices of the Bank for International Settlements.

Recently, the importance of implementing the Basel II framework by banks has been reiterated following the recognition by the financial regulators that the liquidity is as important to the financial stability of the banks as are capital requirements. To strengthen the regulation and supervision of the internationally active banks and address the financial innovation, which had occurred in recent years, the BCBS published a Revised Capital Framework, called Basel II in June 2004. According to the BCBS (2015), Basel II better reflects the types of risks banks face in an increasingly market-based credit intermediation process. It ensures sustained improvements in the risk measurement, control of internationally active banks and deepens the soundness and stability of the international banking system against the fundamental risks banks take. The main thrust of Basel II therefore is to address the financial innovation, which had occurred in recent years.

Meanwhile, to assess banking sector's ability to absorb unanticipated adverse shocks arising from financial and economic stress in recent times, three financial soundness ratios have become more applicable by the financial regulators and international banking rating agencies under Basel II. These ratios are the Capital Adequacy Ratio (CAR), the Liquidity Coverage Ratio (LCR), and the Asset Quality Ratio (AQR) of banks.

The Capital Adequacy Ratio (CAR) is one of the financial soundness ratios commonly used by the financial regulators to assess sound banking practices and financial performance of banks. It is a financial regulatory ratio introduced to improve banking sector's ability to absorb unanticipated adverse shocks and to ensure that banks cover a sufficient percentage of total assets with their own funds. It is used to restrict procyclicality by limiting the build-up of leverage in banks. The CAR is fully loss absorbent on a going-concern basis and serves as part of a bank's regulatory capital. It shows the extent the bank equity holder can absorb losses without being forced into liquidation and enables banking industry to take full advantage of its profitable growth opportunities. From the Central Bank's point of view, the CAR is the core measure of a bank's financial strength and it enables the Central Bank of Nigeria (CBN) to categorize banks into well-capitalized banks, under-capitalized banks, significantly under-capitalized banks, critically under-capitalized banks and insolvent banks in Nigeria. As a regulatory ratio, the CAR is measured as the addition of the Tier 1 and Tier 2 capital divided by the total (risk-weighted) assets of the banks. Under the Basel II framework, the CAR has a regulatory benchmark of 8%. However, the effect of CAR and financial performance of banks from the extant literature has so far produced diverging results. While the studies of Swamy (2011) and Dietrich & Wanzenried (2009) have found a positive relationship between the CAR and profitability of banks, those of Saona (2011) and Elsayed (2013) have shown a negative relationship. This situation necessitates the reexamination of the CAR as a financial soundness ratio in this study.

Similarly, the Liquidity Coverage Ratio (LCR) is another financial soundness ratio that is applied in the assessment of the banking institutions soundness and financial performance. Following the financial innovation and global market developments, which transformed the nature of liquidity risk of banks in recent years, the BCBS (2008) observed that the contraction of liquidity in certain structured product and interbank markets, as well as an increased probability of off-balance sheet commitments coming onto banks' balance sheets, have led to severe funding liquidity strains for some banks and central bank intervention in some cases. In a bid to address these events and ensure that internationally active banks have up to 30 days of high quality liquid assets to meet short-term institution specific and systemic stresses in the banking sector, the BCBS introduced the LCR. This ratio is aimed at enhancing banks' ability to cope with the short-run liquidity risk as well as exposure to a run on a bank's wholesale liabilities. As a metric of determining the soundness of the banking sector, the LCR is measured as the ratio of High Quality Liquid Assets (HQLAs) to the Total Assets of banks or the Net Cash Outflows over a 30-day horizon. The Bank for International Settlement (2014) requires this ratio to be at least 60%. Although, Ötker-Robe and Pazarbasioglu (2010), demonstrated in previous study that the LCR has significant impact on the profitability of the Asian and European banks, the study of Giordana and Schumacher (2012) in contrast showed that this ratio does not have significant impact on the profitability of banks in Luxembourg. Given these diverging results, this study is also encouraged to extend frontier of knowledge on this ratio.

Furthermore, the Asset Quality Ratio (AQR) is another important financial soundness ratio commonly used by the financial authorities to assess the credit risk level and effective risk management of banks. According to Gaston and Song (2014) credit quality inadequacies and their resulting losses have always been one of the primary causes of bank failures. Despite the ongoing regulatory reforms six years after the global financial crisis as well as rounds of organized stress testing, deleveraging and balance sheet repair exercises, loan loss provisioning and asset quality still remain key issues for banks. Debelle (2015) explained that asset quality ratio of banks merits particular attention given its vital role in ensuring the safety and soundness of the banking system and following the collapse of many renowned world financial institutions in 2007-2009 and the recent market turmoil, which had exposed significant risk management weaknesses at banking institutions. As an indicator of risk measure, the AQR measures the level and size of the credit risk associated with the business operations and the risk management practices of banks. It shows not only the quality of loans, which provide earnings for banks, but also the quality of banks' assets, solvency level, as well as the capacity of banks to absorb losses. It can be measured as the ratio of the non-performing loans to the total loans or as the ratio of the loan loss provisions to the total loans of banks.

In its Financial Stability Report (2009), the Central Bank of Nigeria (CBN) reported that there is a cause of concern on the issue of the asset quality of the DMBs in Nigeria and that the credit risk threatens the stability of the Nigerian financial system and remains the most significant risk faced by the DMBs in Nigeria. Thus, there is a major challenge of inadequate risk management framework for identifying and controlling the risks associated with the activities of DMBs in Nigeria (CBN FSR, 2009). Following the above development and the mandate of the CBN to ensure adequate risk management framework for identifying the activities of the DMBs in Nigeria, the CBN appointed the Net Present Value Corp as the Basel II consultant to guide the Nigerian banking industry in its implementation. Also in its desire to see that banks adhere to international best practices in risk management and adopt globally acceptable framework like that of the BCBS in Nigeria, the CBN in December 2013, through two circulars, announced the implementation of the Basel II framework and officially put its adoption date by the Nigerian banks to be January 1 2014.

Meanwhile, despite the Basel II objective of aligning banks' regulatory capital with the risk management of banks and its relevance to the Nigerian banking industry, its ability to contain and address future systemic banking crisis has been quizzed by financial analysts in recent times. During its drafting process and recent financial crisis, financial experts have raised concerns on whether the improvements in risk sensitivity of capital ratios to be guided by Basel II can worth the cost and be likely realized in practice. Policy analysts, banking representatives, supervisory agencies and researchers have equally debated over whether Basel II can be a panacea to future financial crisis and the effect it may have on the financial performance of banks.

While the financial analysts have argued that the push by the CBN for the DMBs to begin adopting and implementing Basel II requirements in Nigeria could amount to a regulatory action that might affect the DMBs' financial performance adversely, the panelists at the CIBN 7th Annual Banking and Finance Conference held on 10 to 11 September 2013 by

Nigerian and International experts drawn from banking, finance, legal, academic, government and real sectors have unequivocally resolved that the CBN, the Nigeria Deposit Insurance Corporation (NDIC) and other safety net participants should promote and ensure the implementation of Basel II in Nigeria without delay. This, according to them, will ensure more safety of the depositors' funds and engender more confidence in the Nigerian banking system.

An attempt to contribute to this argument empirically therefore prompts this study. The study is conducted to examine the impact of Basel II on financial performance of DMBs in Nigeria given the fact that the Nigerian banks, as parts of the global financial institutions cannot be exempted from the potential opportunities and challenges, which the implementation and adoption of Basel II standard may bring to the global banking system. Moreover, the fact that Basel II standard is designed to enhance banks' ability to cope with short-run liquidity risk and make banks cushion the effect of the credit risks, which have been a source of worry to many stakeholders in the banking system globally, also makes this study worthwhile.

1.2 Statement of the Problem

The introduction of Basel II as well as its implementation by banks in recent times has aroused the interest of the academic researchers, bankers, regulatory authorities and financial analysts. Concerns have been raised that the new Basel II Capital Accord will change the way banks analyze credits. According to Andre (2009) the recent credit crisis, which exposed significant weaknesses in the risk assessment frameworks of banks has raised serious concern at the global level; while in the Nigerian banking sector, the CBN Financial Stability Report (2009) shows that there is a major challenge of inadequate risk management framework for identifying and controlling the risks associated with the activities of the DMBs in Nigeria. A review of extant literature on Basel II also indicates that controversy exists among financial scholars and academic researchers on the cyclical nature of the Basel II and the impact it may have on the financial performance of banks. Likewise, unanimity does not exist among financial experts and policy analysts over whether Basel II can contain systemic banking crisis and be a panacea to the future financial crisis.

While the protagonist have applauded the introduction and adoption of Basel II by banks because of the views that it can bring substantial increase in the quality of capital and liquidity positions of banks, improve banks' financial performance, strengthen the risk management of banks, and be a panacea to the future financial crisis, the critics have refuted such views. They retort that Basel II can never be a panacea for the future financial crisis because of its procyclical nature. They insist that in an imperfect credit market environment, a risk-based capital requirement tends to be procyclical since risk is countercyclical. Furthermore, they rebut and contend that the introduction and adoption of Basel II by banks can neither improve banks' financial performance nor contain the systemic banking crisis given the moral hazard factors and obnoxious risk-taking behaviour of banks.

In the heat of this argument, researchers like Barrios and Blanco (2003), Weber and Darbellay (2008), Kashyap, Stein and Hanson (2010) and Miles, Yang and Marcheggiano (2011) have argued that the overall effect of Basel II on financial performance of banks may be inconsequential, while other researchers like Jokivuolle and Peura (2004); Zicchino (2005); Otker-Robe and Pazarbasioglu (2010) and Angelini *et al.* (2011) have maintained that there will be significant costs in the implementation of the capital buffers and liquidity requirements of Basel II because it has tendency to limit banks' ability to do maturity transformation, which is a core function of banks. Looking at the tempo of this argument, this study perceived that the issue of Basel II has been on the front burner in international community, but while this issue has been vehemently debated by researchers in the advanced countries, the matter seems to attract little or no attention among researchers in Nigeria. Following this, and having observed a conspicuous absence of local studies on the impact of Basel II on financial performance of DMBs in Nigeria this study was conducted to fill this literature gap.

1.3 Research Questions

To extend frontier of knowledge on the impact of Basel II and financial performance of DMBs in Nigeria, the following research questions have been raised:

i. To what extent does Capital Adequacy Ratio affect the financial performance of Deposit Money Banks in Nigeria?

ii. How does Liquidity Coverage Ratio influence the financial performance of Deposit Money Banks in Nigeria?

iii. What is the impact of Asset Quality Ratio on the financial performance of Deposit Money Banks in Nigeria?

1.4 Objectives of the Study

The main objective of this study is to examine the impact of Basel II on financial performance of DMBs in Nigeria. Specifically, the study sought to:

i. Ascertain the extent to which Capital Adequacy Ratio affect Return on Assets of Deposit Money Banks in Nigeria.

ii. Determine the degree to which Liquidity Coverage Ratio influences Return on Assets of Deposit Money Banks in Nigeria.

iii. Examine the impact of Asset Quality Ratio on Return on Assets of Deposit Money Banks in Nigeria.

1.5 Research Hypotheses

To achieve the objectives of this study, the following hypotheses have been formulated:

i. Ho_1: Capital Adequacy Ratio has no significant effect on Return on Assets of Deposit Money Banks in Nigeria.

ii. Ho_2: Liquidity Coverage Ratio has no significant influence on Return on Assets of Deposit Money Banks in Nigeria.

iii. Ho_3: Asset Quality Ratio has no significant impact on Return on Assets of Deposit Money Banks in Nigeria.

1.6 Scope of the Study

This study dwells on Basel II and financial performance of DMBs in Nigeria for a period of 5 years from 2009 to 2013. The timeframe of 2009 was selected for this study because it was a year after the outbreak of a huge credit crisis, when the financial market faced a credit crunch that led to a decline of production, sales and availability of funds for corporations (The New York Times, 2009). The period is also momentous because it coincided with the stress-testing period, in which the Central Bank of Nigeria examined the risk management framework and capital planning decisions of banks. The period of 2013, which is five years from 2009 is, however, considered relatively sufficient for examining the impact of Basel II on financial performance of DMBs in Nigeria. Equally falling within the scope of this study is one dependent variable, which is the financial performance of banks proxied using return on assets; and three independent variables, which are capital adequacy ratio, the liquidity coverage ratio and the asset quality ratio which represent proxies for Basel II.

1.7 Significance of the Study

This study is significant because it is aimed at providing empirical evidence on Basel II and financial performance of DMBs in Nigeria. Generally, the findings of this work will have significant implications on various banking industry policymakers and stakeholders such as the existing and prospective investors, financial analysts, financial researchers, banking management and financial regulatory authorities such as the Central Bank of Nigeria, the Financial Reporting Council of Nigeria, the Federal Ministry of Finance, and the Nigeria Deposit Insurance Corporation.

Since the goal of the financial system regulators remains the enhancement of the stability and resilience of the financial system to withstand unanticipated adverse shocks, the CBN as a financial regulator in Nigeria may be able to determine whether or not banks' activities in Nigeria are in tandem with this goal. Also, through the finding of this work, the CBN and other regulatory agencies can ascertain the extent to which the implementation of Basel II by DMBs in Nigeria affects their financial performance.

For the existing and prospective investors, the finding of this study is envisioned to help them in identifying the Nigerian banks that are potentially profitable and resilient to shocks while the bank managers or management can identify any adverse factors influencing bank financial performance and hedge against them. Finally, the policymakers may have insight on the cost-benefit analysis of implementing Basel II standard in the Nigerian-banking sector while the interest of the upcoming researchers may be provoked to carry further study on other issues relating to Basel II standard.

CHAPTER TWO
LITERATURE REVIEW

2.1 Introduction

This chapter appraises various conceptual and theoretical issues on Basel II and financial performance of banks. It reviews relevant literature on variables of the study and discusses past empirical studies and theoretical frameworks that underpin the study.

2.2 Concept of Basel II

Since its publication in June 2004, researchers and scholars of repute have perceived and described Basel II in different terms. According to Swamy (2011), Basel II is an evolution but not a revolution for banks. This is because it was developed from the existing Basel I framework. The Chartered Institute of Bankers of Nigeria (2013) described Basel II as a set of banking regulations put forth by the Basel Committee on Banking Supervision to forestall the erosion of capital of the internationally active banks in the international banking system. Obinna (2013) defined Basel II as a set of globally accepted agreements that provide recommendations on banking regulations vis-à-vis capital risk, market risk and operational risk. To Jenna (2013), Basel II refers to the Basel regulations, which are directed at helping banks absorb economic shocks and financial stress more easily. He averred that they are the regulations, which are aimed at improving risk management and governance of banks in terms of disclosure, reporting and transparency.

In a more official way, the Basel Committee on Banking Supervision (2010a) defined Basel II as a comprehensive set of reform measures developed to strengthen the regulation, supervision, and risk management of the banking sector. Its main aims are to improve banking sector's ability to absorb shocks arising from financial and economic stress, and to improve risk management, governance, transparency and disclosure of banks on and off balance sheet items.

In Agbaeze and Onwuka (2014) perspectives, the Basel II framework is the Bank for International Settlement new rules on capital, which is majorly Basel I plus new regulations based on lessons from the market crisis. In another perspective, Rajesh (2014) perceived Basel II as the latest “Accord”, which seeks to improve the banking sector’s ability to provide adequate internal controls and enhance banks’ transparency. Rajesh explained that Basel II agreements was triggered by the scandal of the BARING bank in London, in which a Baring Bank trader named Nick Leeson’s forgery and fraudulent activities led to the discovery of the inadequacy of the banks’ internal controls and market risk’s management in 1995. Amadi (2014) defined Basel II as a set of agreements that provide recommendations on banking regulations in regards to capital risk, market risk and operational risk accepted globally. Finally, the World Finance (2014) described Basel II to be a set of precautionary measures for banks so as to protect the economy from financial crisis similar to those of the previous years.

Considering shades of opinions above, this dissertation conceptualized Basel II to be a global banking guidelines devised by the BCBS for the purpose of preventing the erosion of banks’ capital standards in the international banking system so as to keep banks sound-and-safe globally.

Historically, Basel II is the second of the Basel Accords on banking regulation by the Basel Committee on Banking Supervision. The first Accord was the Capital Accord of 1988, which required banks to maintain capital requirements above the minimum stipulated level to create a cushion against insolvency and focused primarily on credit risks of banks. Basel I was, however, accused of being a one-size-fits-all model because it neither keeps pace with innovations of risk in the banking industry nor differentiates between different levels of risk that create opportunities for regulatory arbitrage. This and other reasons therefore led to Basel I revamping and the introduction of the Basel II in June 2004.

The Basel II as an instrument of prudential guidelines was introduced to address other risks, which are operation and market risks unlike Basel I, which focused on single risk. It stabilized the financial sector by enhancing banks' internal risk management methodologies through its three main pillars built on Basel I. Its first pillar modified the main capital requirements of Basel I and addressed three types of risks to which banks are exposed. Its second pillar ensured supervisory review process where banks focus on internal assessment while its third pillar encouraged disclosure and market discipline, which ensure transparency in the banking system and assist investors as well as clients in differentiating between prudent and more risky banks.

Like its predecessor, Basel II was also found to be ineffective tool of ensuring safety and soundness of the banking sector because it failed to provide adequate shelter for banks in terms of risks inherent in the procyclical nature of the economies, which house highly leveraged firms and complex financial instruments. The financial crisis of 2007 demonstrated its inefficiency and the need for a tighter regulation for the financial sector.

Consequently, the Basel Committee on Banking Supervision announced the new International regulatory document called the Basel III in December 2010. The document entitled "A Global Regulatory Framework for More Resilient Banks and Banking System" is released to strengthen global capital and liquidity standards. It has the main objective of promoting a more resilient banking sector and improving the banking sector's ability to absorb shocks arising from financial and economic stress and thus reduce the risk of spillover from the financial sector to the real economy. However, this study concentrates on the Basel II framework which is being currently implemented by banks in the Nigerian banking sector.

2.2.1 Rationales for Banking Regulation

The spirit of bank regulation is deep-seated in the concern towards the social and economic costs that result in the event of bank failures and systemic crises (Swamy, 2011). The goal of banking regulation has been to ensure a safe-and-sound banking, protect the interest of the depositors in particular, and promote healthy and stable investment environment in general.

Despite this goal, opinions are polarized as to the extent to which there should be regulation in economic and financial activities. In the words of Adam (2005), the economist disagreed world over on the level of government intervention in economic and financial activities. While some believed that, many regulations are necessary in order to protect the depositors' funds, others opined that banks might be overregulated (Short & O'Driscoll, 1983). In the literature of financial reporting, Bello (2005) explained that the ideologies of two schools of thought called the "Leftist" and the "Rightist" have divided the market place into free or unregulated market environment and the regulated market environment.

According to him, the Leftist is a school of thought whose ideology stemmed from the laissez-faire theory that supported free market in which private entities like banks could operate unregulated and without government intervention. The Leftist anchored their arguments of free operation on rationales such as the agency theory, private contracting opportunities, competitive capital market, and signaling incentives. On the other hand, the Rightist is a school of thought whose ideology originated from the public interest theory, normative positive theory and economic theory of regulation. This school of thought advocated for prudential regulation of corporate entities like banks and hosted their rationales for regulation on various arguments such as the market failure argument, capital market argument, cost of reporting, as well as social costs.

Of these rationales, Swamy (2011) averred that the prime rationale for bank regulation is market or bank failures frequently arising due to externalities, market power, and asymmetry of information between the buyers and sellers. Other notable theoretical rationales for banking regulation as evidenced by previous studies include: the need to curb banks' profit-seeking behaviour in an uncertain decision making environment (Minsky, 1975), the issue of ownership structure and the management behaviour (Jensen & Meckling, 1976), the obnoxious risk-taking behaviour of banks as well as conflict of interest that may arise when banks diversify their activities (Saunders, 1985). Others are the need to prevent and curb systemic risk of bank contagion, which may spill over to other sectors and countries (Kaufman, 1996), the moral hazard factor (Demirguc-Kunt & Detragiache, 2002); financial engineering and rapid credit expansion leading to asset bubbles (Yellen, 2009) and the banks belief of "too big to fail and discipline" (Swamy, 2011).

Due to these developments, a case is made for regulating banking institutions to protect and prevent possible disruption of their activities and the adverse effects that may befallen various stakeholders in the economy. Since bank failures can cause panics, restrict firms' credit accessibility, and disrupt household savings, this dissertation is of the view that prudential regulatory standards like that of Basel II could go a long way in achieving the twin goals of bank regulation which Swamy (2011) explained to be stability and efficiency of the financial system.

2.2.2 Components of Basel II

In what follows, the three main components of Basel II accord are explained. The objective is to highlight the salient issues covered by each of the components and how it affects the operations of banks.

2.2.2.1 Capital Adequacy Ratio (CAR)

The objectives of the new capital standards include raising capital base, enhancing risk coverage, and reducing procyclicality movements within the banking system through counter-cyclical buffers. Capital Adequacy Ratio (CAR) gives some protection to depositors and the higher the CAR, the higher the level of protection to depositors as depositors would only lose money if a bank makes a loss, which exceeds the amount of capital it has.

The international standard recommends minimum capital adequacy ratios to ensure that banks absorb a reasonable level of losses before becoming insolvent and before depositors' funds are lost. Applying these ratios serve to promote the stability and efficiency of the financial system by reducing the likelihood of bank insolvency, which may lead to a loss of confidence in the financial system, cause financial problems for other banks and threaten the smooth functioning of financial markets.

Two types of capital of banks that can be measured are the Tier 1 capital and the Tier 2 capital. While the Tier 2 capital is a capital that can absorb losses in the event of a winding up and provide a lesser degree of protection to depositors, the Tier 1 capital is a capital that is permanently and freely available to absorb losses without bank being obliged to cease trading. It is the capital, which global banks are required to keep to counter macro shocks from economic cycles and it is important because it safeguards both the survival of the bank and the stability of the financial system. The Basel II regulatory framework requires higher capital buffer for banks to accommodate credit, operational and market risks in the business of financial intermediation. Its objectives among others include eliminating regulatory arbitrage by getting risk weights right and align regulation with best practices in risk management. It provides banks with incentives to enhance risk measurement and management capabilities and seeks to align regulatory capital of banks with economic risk. Under Basel II, the CAR is to be measured as the addition of the Tier 1 and Tier 2 capital divided by the total (risk-weighted) assets of the banks with a benchmark of 8%.

The theoretical reason for holding capital is to provide protection against unexpected losses (Weber and Darbellay, 2008). Demirgur–Kunt and Huizinga (1999) remarked that bank's capital is the ultimate line of defense against the risk of technical insolvency. The CAR is the addition of the Tier 1 and Tier 2 capital divided by the total assets of bank (Giordana & Schumacher, 2012). From a regulator's point of view, the Tier 1 capital is the core measure of a bank's financial strength and under the new Basel II, it is to be a minimum of 8% and predominantly held as common shares, share premium and retained earnings. Tier 1 capital is a part of a bank's regulatory capital, which is fully loss absorbent on a going-concern basis.

Considering its antecedent, the capital ratio has long been a valuable tool for assessing safety and soundness of banks. Saunders and Schumacher (2000) observed that bank may hold high capital to hedge against both the expected and unexpected credit risk and that bank with higher capital rates tend to face lower cost of funding due to lower prospective bankruptcy cost. The extant literature on the effect of capital on financial performance of banks has, however, produced inconsistent results. While the studies of [Dietrich & Wanzenried, 2009; Davydenko, 2010; Swamy, 2011; and Ani *et al*., 2012] had all found positive relationship between capital and profitability, the studies of (Saona, 2011; Ali *et al*., 2011; Qin & Pastory, 2012 and Elsayed 2013) had all found negative relationship between capital and profitability.

2.2.2.2 Liquidity Coverage Ratio (LCR)

Liquidity is the ease with which a bank can meet both expected and unexpected maturing obligations at a reasonable cost. It describes a bank's ability to fund asset increases and meet financial obligations, without incurring damaging losses. In an extreme situation, the problem of illiquidity can lead to insolvency and the profitability-liquidity trade-off required that banks develop sound techniques to prudently manage and address liquidity risk that may have systemic implications (Pandey, 2009).

The fundamental role of banks in financial intermediation has made them inherently vulnerable to liquidity risk, of both an institution-specific and a market nature (BIS, 2014). The recent financial market developments have also increased the complexity of liquidity risk and its management in the global banking industry. During the early liquidity phase of the financial crisis that began in 2007, many banks – despite meeting existing capital requirements then in effect – had trouble because they did not manage their liquidity in a prudent manner. The difficulties experienced by some banks, which, in some cases, created significant contagion effects to the broader financial system, were thus due to lapses in basic principles of liquidity risk measurement and management.

To curb this scenario, the Basel Committee on Banking Supervision initially published Principles for sound liquidity risk management and supervision in 2008, which provided detailed guidance on the risk management and supervision of funding liquidity risk. The Committee has further strengthened its liquidity framework by developing minimum global liquidity standard called the Liquidity Coverage Ratio (LCR). This standard, an essential component of the Basel III reforms, is aimed at enhancing overall liquidity risk management by achieving the objective of increasing short-term resilience of a bank's liquidity risk profile. Thus, the LCR was developed with the objective of promoting short-term resilience of a bank's liquidity risk profile by ensuring that a bank has sufficient high-quality liquid assets (HQLAs) to survive a significant stress scenario lasting for 30 days.

According to the Basel III document, HQLAs are unencumbered assets that are free of legal, regulatory, contractual, or other restrictions on the ability of the bank to liquidate, sell, transfer, or assign them (BIS, 2014). They are the assets that may be easily converted into cash without significant haircuts. Examples of eligible HQLAs for measuring LCR are Level 1 assets such as highly rated government securities, high-quality sovereign debt, and cash. The literature identified a number of social benefits of liquidity regulation which include lower incidence and costs of bank failures; lower probability of systemic crises due to lower degree of interconnectedness, less reliance on short-term bank funding as well as lower likelihood of asset fire-sales and reduced sensitivity of credit supply to underlying liquidity conditions facing banks.

As a metric of short-term resilience of banks to shocks, the LCR can be measured as the ratio of High Quality Liquid Assets to total assets or the Net Cash Outflows over a 30-day horizon. It measures a bank's exposure to short-run liquidity risk and ensures that internationally active banks have up to 30 days of high quality liquid assets to meet short-term institution specific and systemic stresses as well as a run on a bank's wholesale liabilities. The LCR observation period has begun since 2011 with a minimum requirement set at 60%. The minimum requirement will rise in equal annual steps to reach 100% in January1 2019 and the Committee explained that countries, which are receiving financial support for macroeconomic and structural reform purposes, might choose a different implementation schedule for their national banking systems, consistent with the design of their broader economic restructuring programme.

Meanwhile, obtaining optimum tradeoff between liquidity and profitability is still a contemporary challenge for today's chief financial executives, as they have to understand the tradeoff that exists between liquidity and profitability. Soyemi *et al*. (2013) showed that one of the major causes of bank failures is low levels of liquidity. Like other risks, liquidity risk has to be managed because of its tendency to compound other risks.

A journey through past studies showed that relationship exists between liquidity risk and profitability of banks. Abreu and Mendes (2002) provided empirical evidence that liquidity, measured as total loans over total assets of the bank positively affects bank profitability. Rachdi (2013) provided another evidence that liquidity positively affects the performance of the Tunis banking sector before and during the crisis using dynamic panel model. Similarly, Kosmidou, *et al*., (2004) reported positive relationship between liquidity and return on asset, which is consistent with Bourke (1989). However, Moulyneux and Thorton (1992), Guru *et al*. (1999) and Liu *et al.*(2010) showed that liquidity negatively affects banks' profitability measured using ROA, ROE and Net Interest Margin in their studies.

However, there are limited empirical researches that evaluate the impact of liquidity coverage ratio on banks' financial performance. The principal reason is the scarcity of recent instances of demanding prudential liquidity regulation, which was initially, excluded from Basel I regulation. A few number of recent studies that analyzed liquidity coverage regulation include that of Bonner (2012) and Bonner and Eijffinger (2012) which tested how the Dutch liquidity ratio affects corporate lending rates and interbank funding costs by exploiting the variation between banks, which are above or below their regulatory liquidity requirements.

2.2.2.3 Asset Quality Ratio (AQR)

The issue on the asset quality of banks is of general concern to the financial supervisory authorities both home and abroad because the deterioration in the bank asset quality does not only affect the financial performance of a bank, but also the soundness of the entire financial system in which a bank is a component. The BCBS core principles for effective banking supervision of 1997 comprised twenty-five core principles of which seven are directed at addressing various issues bordering on the asset quality of banks. The broader effort of the financial supervisory authorities to evaluate the soundness of the banking institutions' assets quality in metric form vis-à-vis the level and size of credit risk they take therefore brings forth the concept of the AQR as a ratio for measuring the financial soundness of banks.

The AQR, which may be measured as the ratio of the non-performing loans to the total loans or as the ratio of the loan loss provisions to the total loans of banks, relates to the left-hand side of the bank's balance sheet and primarily focuses on the quality of loans that provides earnings for banks. Debelle (2015) considered this ratio extremely important in the banking sector following the collapse of many renowned world financial institutions in 2007-2009 and the recent market turmoil, which exposed significant risk management weaknesses of banks. Similarly, Yin (1999) observed that the deterioration of the bank asset quality arising from the ignorance of loan quality is one of the proximate causes of the Asian Financial Crisis of 1997-98 while DeYoung (1997) averred that a bank's upward or downward ranking by global credit rating institution like the Standard and Poor (S&P) is significantly influenced by the asset quality ratio of a bank.

Adequate management of credit risk is therefore a critical factor for the survival, growth and development of banks because banks exist not only to accept deposits but also to grant credit facilities. This activity inevitably exposed banks to huge credit risk, which might lead to financial distress including bankruptcy. The Basel Committee on Banking Supervision (2001) identified credit risk as the main significant risks of banks and defined it as the probability that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms or the possibility of losing the outstanding loan partially or totally due to credit events.

In Nigeria, available records show that the creation of risk management department to manage credit risk of the DMBs in Nigeria has not yielded adequate positive result. This fact was borne out by the spate of the bad loans i.e. non-performing loans of the DMBs in Nigeria which was as high as 35% between 1999 and 2009 (Sanusi, 2010). To assess the level and size of the credit risk associated with the banking business operations in the course of financial intermediation, global rating agencies and financial regulators usually make use of the asset quality ratio; which is a financial soundness ratio that relates to the left-hand side of the bank balance sheet and focuses on the quality of loans, which provides earnings for a bank.

If a bank's asset quality is inadequate, the loan amount may become the amount to be collected, and the bank will have to increase its bad debt losses and spend more resources on the collection of non-performing loans. When banks list the loan amount for collection, banks will incur extra operating costs from non-value-added activities so as to handle and supervise the collection process. Such non-value-added activities include constantly tracking the debtors' financial status, being cautious of the collateral value, and paying expenses for contract negotiation. Other costs involved include winning the trust from management and the public, preserving the safety and completeness of the banks and preventing the banks from being rated poor by global rating agencies.

2.3 Concept of Financial Performance

From the extant literature, researchers have applied several surrogates as metric measures of financial performance of banks. Such metrics according to Buba (2010) include a combination of financial ratios analysis, benchmarking and measuring of performance against budget. Others include return on assets, returns on equity, net interest margin, and a host of others. However, the European Central Bank (ECB, 2010) cautioned that a good performance measurement framework should encompass more aspects of the performance than just profitability embedded in pure market-oriented indicators and should be less prone to the manipulation from the markets. Taken this caveat, this study employed Return on Assets (ROA) as a metric of financial performance.

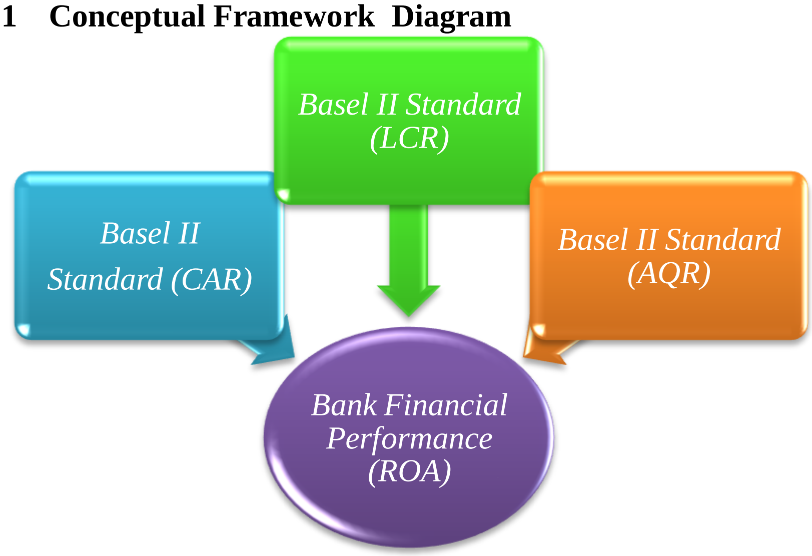
ROA is a key proxy measure frequently used in the literature of bank financial performance. It shows the profit earned per naira of assets and most importantly reflects the management's ability and efficiency to utilize banks' financial and real investment resources to generate profits (Hassan & Bashir, 2003). The ROA depends on the bank's policy decisions as well as on uncontrollable factors relating to the economy and government regulations. Rivard and Thomas (1997) asserted that bank profitability is best measured by ROA because high equity multipliers do not distort it. Guven and Onur (2009) corroborated this view by submitting that researchers focus on and make use of ROA to measure bank profitability to guard against most of the limitations associated with the use of other accounting financial performance proxies.

Studying determinants of profitability of commercial banks in Qatar, Elsayed (2013) employed ROA as a proxy measure of bank financial performance the same manner Miko (2010) did in his study of the impact of consolidation on the profitability of banks in Nigeria. Both studies measured ROA as profit before tax over the total assets. Pandey (2009) explained that the appropriate measure of profit is profit before tax because it shows earnings arising directly from the commercial operations of the business without the effect of financing. Given this backdrop, this study measured ROA as the profit before tax divided by total assets and follow Elsayed (2013) and Miko (2010) in employing ROA as a proxy measure of bank profitability.

2.4 Conceptual Framework of the Study

The diagram below depicts the presumed relationship conceived by the researcher to exist between the dependent and independent variables of the study. The diagram illustrates that the bank financial performance is the explained variable of the study and is proxied using returns on assets. The diagram also indicates that the Basel II standard represent the explanatory variables of the study and are being proxied by the capital adequacy ratio (CAR), the liquidity coverage ratio (LCR) and the asset quality ratio (AQR).

2.4.1 Conceptual Framework Diagram



Source: Researcher (2015).

2.5 Review of Empirical Studies

A number of empirical studies had been conducted in the past on Basel II. One of such studies was the study of Maria Pilar and Emma (2013) who analyzed the degree of implementation and compliance with Basel II regulations in Brazil, Mexico and Colombia. Their study showed that the analyzed countries have met the Basel II capital requirements since 2005 due to reasonable and strict regulation previously implemented. Based on their findings, they concluded that the implementation of the capital requirements would not have a significant impact on the credit flow among different financial agents that revitalize the international economies. However, this study may reveal a different result if carried out in Nigeria whose banking system and geographical terrain differ from that of Latin American countries like Brazil, Mexico, and Colombia.

Using Generalized Method of Moment (GMM) as well as econometric model based on simulated data for a period of 2003q2 to 2011q3, Giordana and Schumacher (2012) examined the impact of Basel II standard on banks' default risk of the Luxembourgish banks. To show how Basel II regulations affect the Luxembourgish banks' profitability, they examined two explanatory variables, which are the Basel II CAR (measured as Tier 1 Capital over total assets) and the Liquidity Coverage Ratio (measured as HQLAs over net outflows).Their dependent variable for profitability was measured using ROA. Econometrically, they demonstrated that the LCR has an insignificant impact on banks' profitability and that banks with higher CAR are less profitable. The limitation of their study however lies in the use of quarterly data and net outflows whose proxy is nebulous. The researcher in this study views that the use of annual data and total assets of the banks as use in this study may make a difference in the results and findings arrived at in Giordana and Schumacher's study.

Swamy (2011) examined the implication of Basel II on Indian Banking using secondary data from the Reserve Bank of India (RBI) over the periods of 2002 to 2011. With the application of econometric estimation models of panel data and GMM techniques, he showed that the new capital requirements of Basel II have a positive impact for banks and their ability to conserve core capital in the event of stress. He concluded that the liquidity standard requirements will benefit the Indian banks in managing the pressures on liquidity in a stress scenario more effectively but that banking operations may experience a reduced pace in view of the heightened supervisory vigil on banks' activities in terms of ensuring the new capital and liquidity standards. Although there is credibility in the use of the Central bank data as employed by Swamy, caveat should be taken as the macro nature of the RBI data might present a different result when micro data or individual banks data are used.

Locarno (2011) employed the Bank of Italy Quarterly Model (BIQM) to study two effects of the Basel II: the increase in the capital ratio and the increase in the liquidity requirements. He found that the costs, which the Italian economy will bear in order to adopt the Basel II stronger capital and liquidity requirements during the transition period, and in the long run, are small and negligible if compared with the potential benefits, which can be reaped from reducing the frequency of systemic crises and the amplitude of boom-bust cycles. Like the study of Giordana and Schumacher (2012), Locarno's study also suffered a setback of using quarterly data, which might not be comprehensive enough when compared with annual data.

Another empirical study on Basel II is that carried out by Figuet, Humblot, and Lahet (2010) in 30 emerging countries. Employing GMM estimator, these researchers analyzed the potential impacts of Basel II banking reforms on cross border banking claims from 1999 to 2010. Their study revealed that banks' capital cost is essential in banks' balance management and that the Basel II may threaten banks' lending capacity. They concluded that the regulatory framework of Basel II would have a significant negative impact on cross-border banking claims. Figuet, Humblot, and Lahet (2010) study is a cross-country study whose findings and conclusion may not be completely applicable to Nigeria, which is a single country.

Using a representative bank's financial statement from 1993 to 2007 and a general stochastic equilibrium model framework, King (2010) estimated potential impacts of capital and liquidity regulations on bank lending spreads of 13 OECD member country banks. He found that increased lending spreads of a representative bank in a range of 40 to 60 basis points as well as a 2% point increase in the capital ratio in order to meet the LCR requirement. Meanwhile, King's study of 2010 created a lacuna in the literature because it largely concentrated on the OECD member-country banks, which did not include the Nigerian banks. This present study is therefore being conducted in Nigeria to bridge such gap.

Moreover, Yan *et al.* (2011) studied a sample of the UK banks from 1997 to 2010 and provided empirical evidence that the Basel II reform has a significant net positive long-term effect on the British economy. Their findings revealed that the biggest benefit of the new regulatory framework among others include a reduction in the probability of the banking crisis. The problem with the Yan *et al* study however is that their adopted methodology is neither explicit nor readily understandable.

Finally, Angelini *et al.* (2011) investigated the impact of the new regulatory standards on long-term economic performance and fluctuations as well as the effect of adopting countercyclical capital buffers on economic cycles. They found that a percentage point increase in the capital ratio causes a median of 0.09 % decline in the level of steady state output relative to the baseline.

On the other side of the coin, researchers like Härle *et al.* (2010), Went (2010), Allen *et al.* (2010), and Agbaeze & Onwuka (2014) have carried out descriptive studies on Basel II. Analyzing the impact of Basel II on the European banking industry, Härle *et al.* (2010) reflected that complying with Basel II requirements have a substantial negative impact on bank profitability. With the use of descriptive statistics, they showed that Basel II reduces the return on equity approximately by average 4 % points in Europe and 3 % points in the United States.

Another descriptive study was conducted by Went (2010) to surmise that the net effect of the new liquidity rules will be reduced earnings of the individual banks and a shrinking profitability of the banking sector in aggregate. Similarly, based on the analysis of the UK market, Allen *et al.* (2010) provided evidence that Basel II would force banks to shift their business model from liability management to asset management, as asset volumes would be constrained by the availability of funding.

Using content analysis research methodology, Agbaeze and Onwuka (2014) studied the implication of the Basel II and abolition of universal banking model for Nigerian banks. They reviewed the new rules on the minimum capital ratio alongside composite structure of banks' capital and examined what it portends for the Nigerian banks alongside its effects on banks viz a viz the abolition of the universal banking model in Nigeria. Their study provided evidence that the new rules on the minimum level and structure of banks capital would not negatively affect Nigerian banks as most of them already have provisions above the new

BIS requirements. The pitfall of all descriptive studies however is that they may not lend much credence to the statistical tests to the extent of drawing conclusion for a study.

In the context of financial performance, extant literature and studies have shown that several factors drive banks' profitability or bank financial performance. One of such studies is that of Ani, Ezeudu and Ugwuanyi (2012) who investigated the determinants of the profitability of money deposit banks in Nigeria from 2001 to 2010 using pooled OLS. The researchers demonstrated that higher capital assets ratio contributes strongly to bank profitability and that capital adequacy is a major endogenous factor that is under the control of the management and determining the profitability of banks in Nigeria.

In Ukraine, Davydenko (2011) examined the determinants of bank profitability of the Ukrainian banks. Using a panel of individual bank's financial statements from 2005 to 2009, he found that capital adequacy positively and significantly affects the financial performance of the Ukrainian banks. In another study, Olweny and Shipho (2011) evaluated a sample of 38 commercial banks in Kenya from 2002 to 2008. They found that stronger capital base and higher liquidity improve profitability. Dietrich and Wanzenried (2009) examined Switzerland banking sector and provided evidence that better capitalized and highly efficient banks are more profitable with larger banks being slightly less profitable than medium sized banks and foreign banks less profitable than Swiss owned banks.

On the other hand, the investigation of the bank-specific and macroeconomic variables on profitability of United States banking industry over the period of 1995 to 2007 by Saona (2011) using GMM system estimator revealed that capital ratio has negative significant relationship with the performance of banks. Likewise, the study of Ali, Farhan, and Zafar (2011) on bank-specific and macroeconomic determinants of profitability of commercial banks in Pakistan using secondary data from the annual reports and accounts and analyzed by means of descriptive statistics, Pearson correlation and regression analysis, equally demonstrated that return on assets has a negative association with capital.

Qin and Pastory (2012) also conducted a research on Tanzania banking sector from 2000-2009, using regression model. Part of their findings showed that capital adequacy ratio has negative relation with performance of banks. Finally, employing a balanced panel annual bank level data as well as the financial structure and macroeconomic data covering 2006 to 2010 , Soyemi, Akinpelu and Ogunleye (2013) found that capital adequacy ratio is negatively related to and statistically significant to variation in bank profitability in Nigeria.

From the review of the empirical and descriptive studies done so far, two major facts have become emergent. The first is that the extant literature have produced contradictory findings as to the effect of capital adequacy ratio on financial performance of banks while the second indicates that the peak of the data analyzed in all the studies reviewed stopped at 2010. This study will therefore analyze data from 2009 to 2013 to fill this gap.

Using a panel error-correction framework, Duijm and Wierts (2014) examined and tested how banks adjust their balance sheets to meet the Dutch liquidity coverage ratio following liquidity shocks. They found that when the gap between a bank's actual liquidity ratio and its required ratio is below its long-term average, banks adjust their balance sheets by increasing the share of stable forms of funding, while the response of liquid assets is insignificant. This result is in line with the study of Ryan and Mio (2014) that carried out study to examine the impact of liquidity regulation on banks but found adjustment to be more symmetric following a tightening of liquidity regulation, affecting both the composition of assets and liabilities.

Other microeconomic studies that examined bank liquidity management and liquidity regulation include Bonner *et* al (2013), whose study examined liquidity regulation and bank cash holdings. The studies of De Haan and van den End (2013a) also assessed maturity transformation of banks; while that of Berger and Bouwman (2009) evaluated the liquidity transformation of banks. Lastly, Berger et al (2014) carried out an exploratory study on regulatory intervention and liquidity transformation while Ötker-Robe and Pazarbasioglu (2010) in their study of impact of regulatory reforms on large and complex financial institutions, used cash and government securities as surrogate for HQLAs. They measured liquidity coverage ratio by dividing the HQLAs with total assets of the banks. Their findings showed that Asian and European banks have the best short-term liquidity positions. Using similar proxy in another study, Giordana and Schumacher (2012) with the help of three alternative estimators, which are OLS, Fixed Effects, and GMM, showed that the LCR has an insignificant impact on profitability of the Luxembourgish banks.

Using bank data of 60 Islamic banks across 18 countries during the period of 2002 to 2007, Ghazali (2008) demonstrated that capital strength determines profitability while the impact of liquidity remained unresolved and varied with the measure of profitability used. His study also showed that the impact of credit risk measured by loan loss provisions to gross loans is positive though not significant on all profitability measures.

Bodla and Verma (2009) examined the implementation of the credit risk management in the Indian commercial banks using descriptive statistics. The study showed among others that the Indian banks are abstaining from the use of derivatives as a risk-hedging tool and that there is no statistical difference in credit risk management between the private and the public banks in India. Specifically, the study revealed that the authority and approval of managing credit risk were vested with board of directors in 94% of the public sector banks and 62.5% of the private sector banks in India. Based on these findings, Bodla and Verma concluded that the credit policy committee play significant role in the approval of credit risk management in India.

Also, Rudra and Jayadev (2009) conducted a study to examine the sensitivity of the Indian bank's stocks on risk management. They adopted the methodology of regression to analyze the risk management indicators on stocks' returns and showed evidence that the stock returns responded positively to the risk management of the Indian banks and that the Indian banks did not focus on increasing capital adequacy to mitigate credit risk. Their study concluded that risk management is an important determinant of banks stock return in India and that the Indian banks should ensure better risk management capabilities to reward stockholders.

Kithinji (2010) assessed the effect of credit risk management on the profitability of commercial banks in Kenya from 2004 to 2008 using secondary data comprising of non-performing loans and profits. He found that the bulk of the profits of commercial banks are not influenced by the amount of credit and non-performing loans. The findings of his study revealed that other variables other than credit and non-performing loans affected profitability as the study established an indirect relationship between non-performing loans and profitability.

Ramadan (2011) analyzed Jordanian Islamic banks profitability during the period 2000-2010 and found that higher capital ratio, investment ratio, and credit risk contributed to higher return on assets. Kargi (2011) evaluated the impact of credit risk and profitability of the Nigerian banks from 2004 to 2008 using descriptive and regression techniques. His findings showed that credit risk management has a significant impact on the profitability of Nigerian banks. Specifically, the study showed that bank profitability is inversely influenced by the levels of loans and advances, non-performing loans and deposits, which expose them to great risk of illiquidity and distress.

Employing fixed effect regression analysis, Al-Khouri (2011) examined the impact of bank specific-risk characteristics and the overall banking environment on the performance of 43 commercial banks operating in 6 of the Gulf Cooperation Council countries from 1998 to 2008. The results revealed that credit risk, liquidity risk and capital risk are the major factors affecting bank performance when profitability is measured by return on assets.

Epure and Lafuente (2012) examined bank performance in the presence of risk for Costa-Rican banking industry from 1998 to 2007. The results showed that bank performance improvements follow regulatory changes and that risk explains differences in banks and non-performing loans negatively affect efficiency and return on assets while the capital adequacy ratio has positive impact on the net interest margin.

Boahene, Dasah and Agyei (2012) likewise studied 6 selected commercial banks in Ghana for a period of 5 years using panel data. The results showed that credit risk has a positive and significant relationship with bank profitability. Specifically, their studies revealed that banks in Ghana enjoy high profitability in spite of high credit risk contrary to the normal view held in previous studies that credit risk indicators are negatively related to profitability. They attributed this phenomenon to the prohibitive lending interest rates, fees and commissions being charged by commercial banks in Ghana.

Kolapo, Ayeni and Oke (2012) carried out an empirical investigation into the quantitative effect of credit risk on the performance of 5 commercial banks in Nigeria from 2000 to 2010 using panel data regression model to analyze and estimate the determinants of the profit function. The results showed that the effect of credit risk on banks performance measured by ROA is cross-sectional invariant; similar across banks studied in Nigeria. Likewise, Chen and Pan (2012) examined the credit risk efficiency of 34 Taiwanese commercial banks from 2005 to 2008 using Data Envelopment Analysis. The results of their study showed that only one bank is efficient out of the 34 banks studied using credit parameters of credit risk allocative efficiency, credit risk cost efficiency and credit risk technical efficiency.

Finally, Abdelrahim (2013) in Saudi Arabia used CAMEL Model and descriptive methodology to analyze the effectiveness of the credit risk management of the Saudi banks in the light of global financial crisis. His study revealed that low quality of assets, weak corporate governance, and lack of credit diversification among others are the bane of Saudi banks. Specifically, the study found that liquidity has significant strong positive impact on effectiveness of credit risk management of Saudi Banks while capital adequacy and asset quality have insignificant impact on effectiveness of credit risk management in that country.

As a continuum, researchers have also made huge efforts to examine the nexus between the credit risk and profitability of banks. Ducas and Mclaughlin (1990) showed that volatility of bank profitability is largely due to the credit risk and that credit risk leads to reduction in bank performance. Umoh (1994) revealed that increasing level of non-performing loan rates in banks' books, poor loan processing, undue interference in the loan granting process and inadequate loan collaterals among others are not unconnected to the poor and ineffective credit risk management, which negatively influence banks' profitability. Angbazo (1997) documented evidence that banks with larger loan portfolio require higher net interest margin to compensate for higher risk of default while Cooper *et al.* (2003) demonstrated that variations in credit risks leads to variations in health of banks' loan portfolio which in turn affects bank performance. Similarly, Hassan and Bashir (2003) found that profitability respond positively to increase in capital and negatively to loan ratios while Stuart (2005) revealed that the spate of bad or non-performing loans was as high as 35% in the Nigerian commercial banks between 1999 and 2009.

Furthermore, Athanasoglou et al. (2006) examined South Eastern European banks and found a significant negative effect of credit risk and operating expenses management on bank profitability but a significant positive association between bank capital and profitability. Another study by Ben-Naceur and Omran (2008) examined the influence of bank regulations, concentration, financial and institutional development on commercial banks' margin and profitability in Middle East and North Africa countries from 1989 to 2005. They documented evidence that bank capitalization and credit risk have positive and significant impact on banks' profitability.

2.6 Theoretical Framework of the Study

According to Bryman and Bell (2008), the purpose of theory is to generate hypothesis that can be tested. This study is underpinned on three theories, which are the Buffer Capital Adequacy Theory, the Liquidity-Profitability Trade-Off Theory and the Public Interest Theory (PIT) of Regulation. These theories were adopted because they seem relevant and relatively explain the variables of the study vis-à-vis banking regulation and financial performance (Oladejo & Oladipupo, 2011). The discourse of the theoretical frameworks selected for anchoring this study is highlighted as follows:

2.6.1 Buffer Theory of Capital Adequacy

This study made use of capital adequacy ratio as one of its explanatory variables and the theory explaining this variable is the Buffer Theory of Capital Adequacy of Calem and Rob

(1996), who theorized that capital adequacy ratio constrains profitability of banks and that regulators make banks hold a 'buffer' of excess capital to reduce the probability of failure.

The theory explained that under the legal capital requirements, a bank approaching regulatory minimum capital ratio might have incentive to boost capital and reduce risk in order to avoid the regulatory costs triggered by a breach of the capital requirements. The theory expounded that banks may prefer to hold a 'buffer' of excess capital to reduce the probability of falling under the legal capital requirements, especially if banks' capital adequacy ratio is very volatile. The theory posited that poorly capitalized banks might be tempted to take more risk in the hope that higher expected returns will help them increase their capital while the aggressive banks may try to extend the frontiers of "imprudent management policy" by operating with less capital base in violation of the regulatory guidelines. This theory is relatively relevant to the Nigerian banking sector in which capital requirements constitute the main banking supervisory instrument. And where the Central Bank of Nigeria usually conducts on-site examination or at times delegates this task to external auditors to exert regulatory pressure on banks to achieve the objective of the capital adequacy ratio which Rime (2001) explained is to force banks internalizing losses and decreasing moral hazard.

2.6.2 Liquidity-Profitability Trade-Off Theory

The Liquidity-Profitability Trade-Off theory is another theory upon which this study is hosted. The theory posits that a trade-off exists between the liquidity and the profitability of a firm, and that a firm cannot pursue the two objectives of being profitable and being liquid at the same time without automatically affecting the other. The theory presupposes that the regulation of banks is necessary to maintain safety and soundness of the banking system, to the extent, which put banks in a position to meet their liabilities without difficulty. One outcome of the recent financial crises is the recognition that liquidity is as important to the bank stability, as are capital requirements. Previous studies showed that banks with higher liquidity and larger capital buffers are less vulnerable to failure during financial crisis Bagyenda *et al*. (2011) and this made it imperative for the regulatory authorities to compel greater solvency and liquidity on individual banks than making it optional. This theory is adopted because it captures the financial performance of banks and the LCR variable, which measures the short -term liquidity positions of banks in the model adopted by this study.

2.6.3 Public Interest Theory of Regulation

The Public Interest Theory of regulation (PIT) is adopted to anchor this study because it explains the ethical obligation which the financial regulatory bodies like the CBN have in rationalizing economic activity of firms in a more efficient and useful manners. The theory is an economic theory propounded by A.C. Pigou in 1939 to argue that regulatory intervention occurs in order to promote social welfare, objectives, and public interest at large against externalities and market failure. The analogy of this theory in the financial sector is that financial regulators have ethical obligation to protect and safeguard public interest of the depositors, shareholders and investors who are the owners of the capital which agents running and managing the banks use for corporate and/or private interests. In a nutshell, the theory posited that regulators represent the interest of the broad civil society rather than the interest of a vested powerful individuals or groups, which exert pressure on regulators in order to capture rents at the expense of a more dispersed groups.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter gives details of the research methodology adopted for this dissertation. It presents the discourse of the appropriate research design, population of the study and sample size as well as sampling technique, the source and method of data collection, the data analysis technique, as well as the justification for the technique used.

3.2 Research Design

This study adopted a correlational research design to determine the nexus between the Basel II standard and financial performance of banks in Nigeria. Kumar (2005) explained that correlational research design is the appropriate research design to use where a study intends to examine the impact of one variable on other variables. Shehu (2012) corroborated this statement by submitting that correlational research design is ideal for impact study. This study also sees a correlational research design as a design for experimentation, with capacity to demonstrate the direction and degree to which an independent variable of a study exerts influence on a dependent variable statistically.

3.3 Population of the Study and Sample Size

The population of this study comprises the 16 deposit money banks listed on the Nigerian Stock Exchange as at 31 December 2013. The study sampled all the eight (8) Tier 1 DMBs, designated by the CBN as the systemically important banks or “too-big-to-fail” banks based on its approved criteria of size, interconnectedness, substitutability, and complexity. Their selection is justified based on the fact that they are classified as Tier 1 banks and account for more than 70% of the banking sector in Nigeria in terms of assets, earnings, customer deposits, and branch networks (CBN Banking Supervision Annual Report 2013). These sampled banks are therefore of interest to this study because their failure could pose a systemic risk to the banking industry in Nigeria and cause financial instability. Table 3.1 shows the eight banks selected for this study.

Table 3.1: Sample Size of the Study

S/No	Names of Banks	Year of Incorporation	Year Listed on the Exchange
1.	Zenith Bank Plc	1990	2004
2.	First Bank of Nigeria Plc	1969	1971
3.	Guaranty Trust Bank Plc	1990	1996
4.	Ecobank Nigeria Plc	1986	2006
5.	Access Bank Plc	1989	1998
6.	United Bank for Africa Plc	1961	1970
7.	Skye Bank Plc	1989	2005
8.	Diamond Bank Plc	1990	2005

Sources: (CBN 2013/NSE Factbook).

3.4 Source and Method of Data Collection

This study made use of the secondary source of data collected from the annual reports and accounts of the 8 sampled banks and relevant publications of the BCBS downloaded online from its website. The data obtained from the financial reports of the selected banks thereafter were runned using the statistical package STATA10 with a view to obtaining empirical results from the model specified for the study.

3.5 Technique of Data Analysis and Justification for Technique Used

Multiple regression technique with panel data methodology was applied as the suitable technique of analyzing the data for this study. The rationale for this is predicated on the panel character of the data collected, which combines both time series and cross-sectional attributes.

Gujarati (2003) described regression analysis as the study of the dependent variable on one or more other independent variables with a view to estimating or predicting the population mean value of the dependent variable. In research, the application of regression technique is widely acclaimed to have satisfactory results. The justification and evidence of this are found in Baltagi (1995), Fox (2008), and Sabari (2011) who asserted that regression technique is flexible, powerful and produces optimal results in predicting numeric output when properly structured.

3.6 Model Specification

To determine the nexus between the explained and the explanatory variables of this study, the model for the study is specified and the function capturing them is initially stated as: BFP= $f(B2S)$

Where: BFP = Bank Financial Performance serving as the dependent variable and is proxied using ROA, and B2S = Basel II standard representing the explanatory variables proxied using CAR, LCR, and AQR.

Based on the variables specified, the final regression model for testing the hypotheses and ascertaining the empirical results of the study are stated as:

$$ROA_{it} = \alpha o + \alpha_1 CAR_{it} + \alpha_2 LCR_{it} + \alpha_3 AQR_{it} + \varepsilon_{it}$$

Where: αo represents the constant or the intercept of the model;

α_1-α_3 : represents the coefficients of the explanatory variables to be estimated in the model; *i* : denotes the individual sampled bank; t : is time-period; while ε_{it} is the stochastic error term or disturbance for bank $_i$ at time t. The remaining variables of the study are defined in table 3.2.

Table 3.2: Variable Definition and Measurement Table

Variables of the Study	Variable Notation	Proxy Measurement	Source/Author
Bank Financial Performance: (Dependent Variable)			
Returns on Assets	ROA	$\frac{Profit\ Before\ Tax}{Total\ Assets\ of\ banks}$	Elsayed (2013) Miko (2010)
Basel II Standard: (Independent Variables)			
Capital Adequacy Ratio	CAR	$\frac{Tier\ 1 + Tier\ 2}{Total\ Assets\ of\ banks}$	Elsayed (2013) Giordana & Schumacher (2012)
Liquidity Coverage Ratio	LCR	$\frac{HQLAs}{Total\ Assets\ of\ banks}$	Ötker-Robe & Pazarbasioglu (2010)
Asset Quality Ratio	AQR	$\frac{Loan\ Loss\ Provisions}{Total\ Loans\ of\ banks}$	Kargi (2011) Boahene et al. (2012)

Source: Compiled by the Researcher from various Literature

CHAPTER FOUR
DATA PRESENTATION AND ANALYSIS OF RESULTS

4.1 Introduction

This chapter deals with the presentation, analysis and interpretation of the secondary data collected from the annual reports and accounts of the 8 sampled banks, selected censorially for the purpose of empirically testing the model for this study. The statistical package of Stata 10 was applied to process the data and the results obtained thereafter were analyzed and discussed section by section with section one giving an account of the descriptive statistics of the data runned and section two presenting the summarized results of the correlation matrix of the study. The details of the various diagnostic tests conducted to normalize the data used for the study was provided in section three while section four gives the nitty-gritty of the OLS multiple regression results selected for interpretation based on a large Chi^2 probability value of 0.2944 obtained from the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity conducted via Stata. Meanwhile, the final section dwells on the hypothesis testing and discussion of the research findings alongside with the policy implications of the study.

4.2 Descriptive Statistics

Descriptive statistics provides some useful insights about the data set of a study because it gives an account of the shape and nature of a data set. Table 4.1 presents the descriptive statistics of the data runned for this study in terms of the minimum, maximum, mean, standard deviation, skewness, kurtosis and the number of observations for the study.

Table 4.1 Descriptive Statistics of the Variables of Study (2009 – 2013)

VAR	MIN	MAX	MEAN	STD DEV	SKEW	KURT	OBS
ROA	*0.015*	*0.980*	*0.366*	*0.205*	*0.290*	*3.594*	*40*
CAR	*0.06*	*28.13*	*13.02*	*6. 593*	*0.067*	*2.429*	*40*
LCR	*0.55*	*28.20*	*4.868*	*6.385*	*2.318*	*8.272*	*40*
AQR	*0.11*	*0.75*	*0.279*	*0.150*	*1.480*	*4.885*	*40*

Source: STATA 10.0

Table 4.1 shows that there are 40 observations for 8 listed DMBs over a period of 5 years with one explained variable, which is Return on Assets (ROA) and three explanatory variables, which are Capital Adequacy Ratio (CAR), Liquidity Coverage Ratio (LCR), and the Asset Quality Ratio (AQR). Likewise, the table demonstrates the skewness, which is a measure of the asymmetry of a distribution that describes the symmetrical nature of the data set employed for the study. For a normal distribution, the skewness value is 0. From the table above, it can be seen that the ROA and the CAR approximately have a skewness value of 0 to 1 significant figure while the LCR and the AQR have a long right tail. This implies that the data set for ROA and CAR are normally distributed while those for LCR and AQR are not normally distributed. The non normality of the LCR and the AQR is indicated by their large values of 2.318 and 1.480 which skewed to the right of a normal curve.

For the kurtosis, which is a measure of the extent to which observations cluster around a central point, the table reveals that the kurtosis value of 3.594 for ROA, 8.272 for LCR and 4.885 for AQR are more than the threshold of 3 stipulated for a normal distribution. This means that the ROA, the LCR and the AQR are leptokurtic. It is also an indication that they cluster more to the right than those in the normal distribution and have a higher peak as well as a larger tail that is far-flung from the threshold of 3 stipulated for a normal distribution. On the other hand, the kurtosis value of 2.429 for CAR indicates that this value is less than the benchmark of 3 for a normal distribution. Overall, the numerical values of the skewness and kurtosis analyzed suggests that the data gathered for this study is relatively noisy and that only two of the variables are normally distributed.

From table 4.1, it is observable that the mean values for all the variables of the study are 0.366 for returns on assets, 13.02 for capital adequacy ratio, 4.868 for liquidity coverage ratio and 0.279 for the asset quality ratio with their level of dispersion being 0.205, 6.593, 6.385, and 0.150 respectively. The interpretation of these values is that the money deposit banks under study have an industry average of Profit Before Tax (PBT) of ₦366 million, Tier 1and Tier capital ratio of 13.02%, High Quality Liquid Assets (HQLAs) of ₦4.868 billion and a total of loan loss provisions of ₦279 million over the period of the study. The values of the standard deviation of 0.205, 6.593, 6.385, and 0.150, however, indicate the degree of variability existing in the level of profit before taxes, the Tier 1and Tier 2 capital ratio, high quality liquid assets and the amount of the loan loss provisions of the sampled banks studied over the period of 5 years respectively.

For the minimum and maximum values, table 4.1 reveals that the banks under study have a minimum value of ₦15 million and a maximum value of ₦980 million profit before tax while their minimum capital adequacy ratio is 6% and maximum is 28.13%. The liquidity coverage ratio, which comprises of the high-quality liquid assets of the banks reveals that the sampled money deposit banks under study have a minimum of ₦0.55 billion and a maximum of ₦28.2 billion over the five-year period of study. Finally, the table 4.1 shows that the money deposit banks under study have a minimum of loan loss provision of ₦0.11 million and a maximum of ₦0.75 million.

Although descriptive statistics give some useful insights about a data set, Sanda *et.al* (2005) cautioned that they do not lend much credence to the statistical tests to the extent of drawing conclusion for a study. Consequently, we cannot rely heavily on the analysis done above to draw conclusion for similar banks in different study periods or banks outside the sample of the study.

4.3 Correlation Matrix

This section presents the correlation matrix of the variables of the study to demonstrate the associated relationship existing between them. Anikweze (2010) explained that a correlation analysis is used to establish the nature of the strength and direction of the linear relationship existing between the dependent and independent variables of the study. According to him, the magnitude of a correlation coefficient is measured using the numerical value of -1 to +1.Scholars in Econometrics interpret and regard the correlation coefficient value of 0.0 to 0.2 as a very low correlation, 0.2 to 0.4 as a low correlation, 0.4 to 0.6 as an average correlation, 0.6 to 0.8 as a high correlation and above 0.8 to 1 as a perfect correlation.

In this study, the Pearson correlation technique was used to estimate the magnitude of the correlation coefficients of the study and the correlation matrix results generated for the variables of the study through the use of statistical package of Stata 10 are presented in Table 4.2.

Table 4.2: Correlation Matrix of the Variables of Study

VAR	*ROA*	*CAR*	*LCR*	*AQR*
ROA	*1.0000*			
CAR	*-0.4568** ***(0.0030)***	*1.0000*		
LCR	*0.5704** ***(0.0001)***	*-02747* ***(0.0862)***	*1.0000*	
AQR	*-0.1231* ***(0.4493)***	*0.0921* ***(0.5719)***	*0.1374* ***(0.3978)***	*1.0000*

Source: Stata 10

The asterisks in the results above indicate the strength of the correlation coefficients for the variables of the study while the values in parentheses show the *p*-values or the level at which these correlation coefficients are statistically significant.

Firstly, the table shows that the capital adequacy ratio, as measured by the addition of the Tier 1and Tier 2 capital to total assets of the banks, has an average negative correlation coefficient of 45.68% with ROA of the sampled banks and that this correlation is statistically significant at 1%. Secondly, the table discloses that the liquidity coverage ratio as measured by the high-quality liquid assets of the sampled banks to their total assets has an average positive correlation coefficient of 57.04% with the ROA over the period of 5 years and is statistically significant at 1%. The table similarly reveals that the asset quality ratio, as measured by the loan loss provision to the total loans of the DMBs operating in Nigeria, has a very low negative correlation coefficient of 12.31% with the ROA over the period of 2009 to 2013 which is statistically insignificant at 10%.

From the results of the correlation matrix presented in table 4.2 , it becomes evidentiary that an average, negative statistically significant relationship exists between the ROA and the CAR of the DMBs in Nigeria while a very low negative and statistically insignificant association exists between the ROA and the AQR of the same sampled banks. Similarly, an average positive and significant relationship exists between the ROA and the LCR. The interpretation of these results suggest that there is a positive relationship between the ROA and the LCR of the DMBs. This implies that an increase in the LCR will bring a rise in the ROA. However, the CAR and the AQR will move in opposite direction with ROA of the DMBs under study; meaning that as the CAR and AQR increase, the ROA of the banks will decrease and vice versa.

4.4 Diagnostic Tests

This section gives a discourse of diagnostic tests conducted by this study to normalize the data used so as to prevent spurious results and reporting. The what, why and how of the various robustness tests conducted by this study are hereunder elucidated:

4.4.1 Data Normality Test

The normality of data is a prerequisite for many statistical tests because a normal data is an underlying assumption in parametric testing. An assessment of a data normality test therefore is a form of model selection test that is carried out to ascertain if a set of data is well modeled by a normal distribution or drawn from a normally distributed population.

To see if the data set of this study comes from a normally distributed population, two normality tests were conducted. These are Skewness/Kurtosis tests for normality and Shapiro-Wilk test for normal data, which is suitable for the small sample sizes of less than 50 that falls within the range of the 40-observation applied in this study. The results generated via the statistical package of Stata 10 indicated that the data for ROA and CAR are normally distributed while those for LCR and AQR are not well modeled by a normal distribution. The study in order to correct for non-normality adopted data reflection method and the results generated thereafter are presented in tables 4.3 and 4.4.

Table 4.3: Skewness/Kurtosis Tests for Normality

Variable	Pr(Skewness)	Pr(Kurtosis)	Adj Chi^2 (2)	Prob> Chi^2
ROA	0.400	0.227	2.32	0.3137
CAR	0.844	0.532	0.44	0.8027
LCR	0.000	0.000	24.96	0.0000
AQR	0.000	0.025	0.025	0.0011

Source: Stata 10

Table 4.4: Shapiro-Wilk Test for Normal Data

Variable	Observations	W	V	z	Prob>z
ROA	40	0.96183	1.509	0.866	0.19331
CAR	40	0.98296	0.673	-0.832	0.79728
LCR	40	0.65176	13.765	5.518	0.00000
AQR	40	0.84800	6.008	3.774	0.00008

Source: Stata 10

Comparing the results of table 4.3 with table 4.4, there is a statistical proof that the two tables do not differ significantly. This implies that both tables confirmed the same thing that only the data for the ROA and CAR are well modeled by a normal distribution while those for the LCR and AQR are not.

4.4.2 Heteroskedasticity Test

An important assumption of the classical linear regression model, assumption number 4, is that the disturbances (*ui*) appearing in the population regression function are homoskedastic i.e. they have equal or same variance. When the probability of the Chi^2 value is significant at 5% level of significance, it is assumed that there is presence of heteroskedasticity and if otherwise, it is assumed that heteroskedasticity is absent.

The result obtained from the Breusch-Pagan / Cook-Weisberg test for heteroskedasticity via Stata, provided a small Chi^2 value of 1.10 and a large Chi^2 probability value of 0.2944, which is approximately 29%. This value is not significant at 5% and thus indicates absence of heteroskedasticity.

4.4.3 Multicolinearity Test

Multicolinearity is a condition that exists when the independent variables of the study are highly correlated. High correlation between independent variables of a study can cause statistical and computational difficulties (Kargi, 2009) and by extension, can adversely affect the model fitness of a multiple regression. Shehu and Buba (2011) asserted that the variance inflation factors (VIF) and tolerance values (1/VIF) are two most advanced measures for detecting the presence of multicollinearity problem between the explanatory variables of a study. This study performed a collinearity diagnostic test to see if there is multicolinearity problem. The results obtained using Stata 10 as a statistical package revealed that the VIF with a value of 1.10 for CAR, 1.11 for LCR and 1.04 for AQR were consistently smaller than the value of 10 suggested by Neter *et al* (1996) and Cassey and Anderson (1999). Similarly the tolerance limits of 0.907 for CAR, 0.897 for LCR and 0. 962 for AQR, were also found to be far above the minimum threshold of 0.2 mentioned by Statnotes (2007) as cited by Sabari (2011) and smaller than the maximum of 1 mentioned by Tobachnick and Fidell (1996). This result therefore gives us confidence to present the Ordinary Least Square (OLS) regression results, which relate the proxies of the Basel II standard with that of the financial performance of sampled banks over the five-year period of study.

4.5 Presentation and Discussion of OLS Regression Results

This section discusses the *t*-values of the data runned using Stata 10 and the multiple regression results analyzed in the light of the impact, which Basel II proxies have on financial performance of deposit money banks in Nigeria as shown in Table 4.5 below.

Table 4.5: Impact of Basel II on ROA of DMBs in Nigeria

Variables	Coefficients	*t*-Values	*p*-values	Hypothesis Testing	VIF	1/VIF
Constant	0.471	6.24	(0.000)			
CAR	-0.009	-2.32	(0.026)	H_{o1}: Rejected	1.10	0.907
LCR	0.016	3.91	(0.000)	H_{o2}: Rejected	1.11	0.897
AQR	-0.225	-1.31	(0.198)	H_{o3}: Fail to Reject	1.04	0.963
R	0.670					
R^2	0.449					
Adj R^2	0. 403					
F-Stats	9.78		(0.0001)			

Source: Stata 10

The empirical model that captures the variables of this study is first estimated from Table 4.5 above and stated as $ROA_{it} = 0.471 - 0.009CAR_{it} + 0.016LCR_{it} - 0.225AQR_{it}$.

while the subsequent sections provide an in-depth discussion on the panel OLS regression results upon which the individual and combined effects of Basel II on financial performance of DMBs are analyzed and the hypothesis testing performed.

4.5.1 Capital Adequacy Ratio and Financial Performance of DMBs in Nigeria

Table 4.5 shows that the *t*-value for capital adequacy ratio as measured by the addition of the Tier 1 and Tier 2 capital to the total assets of the DMBs is -2.32 with a coefficient of -0.009 at 5% level of significance. This result indicates that the CAR negatively affects the ROA of the DMBs under study and means that a percentage increase in the capital adequacy ratio will reduce the profit before taxes of the sampled banks by ₦0.009 million or ₦9000 over the period of the study. This finding reaffirms the Buffer Theory of Capital Adequacy which states that capital adequacy ratio constrains profitability of banks and that regulators make banks hold a 'buffer' of excess capital to reduce the probability of failure.

In the realm of extant literature, the finding of this study is in line with that of Saona (2011); Ali, Husni and Walid (2011); Qin and Pastory (2012) and Elsayed (2013) who have all found negative relationship between capital adequacy ratio and profitability. On the other hand, the finding contrasts those of Hassan and Bashir (2004), Dietrich and Wanzenried (2009); Davydenko (2010); Swamy (2011) and Ani *et al*. (2012) who have all found positive relationship between capital adequacy ratio and profitability of banks in their respective studies.

Meanwhile, the *p*-value of 0.026 which is significant at 5% provides statistical evidence for which this study rejects the hypothesis number one of the study (H_{o1}) which states that capital adequacy ratio has no significant effect on returns on assets of DMBs in Nigeria.

4.5.2 Liquidity Coverage Ratio and Financial Performance of DMBs in Nigeria

From table 4.5, the *t*-value for the liquidity coverage ratio as measured by the high quality liquid assets and the total assets of the sampled DMBs is 3.91 while the coefficient value is 0.016 and statistically significant at 1%. Unlike the capital adequacy ratio, the liquidity coverage ratio positively and significantly influences the financial performance of the DMBs in this study. This implies that as the LCR increases, the profit before taxes of the sampled DMBs in Nigeria will also increase. Another interpretation of this result is that a percentage increase in the liquidity coverage ratio will bring an increase of ₦0.016 million or ₦16000 in the profit before taxes of the DMBs over the period of study i.e. 2009-2013.

However, contrary to the liquidity-profitability trade-off theory, which states that a firm cannot be liquid and at the same time be profitable, the LCR in this study has a positive coefficient in the OLS estimation. One plausible reason for this scenario may be attributed to the idiosyncrasy of the financial firms, in which high-quality liquid assets tend to create a reputational capital or equity reputation for banks. According to Hall (1992), equity reputation tend to endear bank customers to their financial institutions because of the belief that such financial firms possess sufficient liquid resources to manage short-run liquidity crisis whenever such problem arises. Buttressing this fact, Jagersma (2010) submits that a favorable equity reputation is the most critical and strategic asset, which banks possess for it enables banks to create economic value, enhance their market value and instill more confidence in the minds of their depositors.

When compared with the findings of the few available previous studies, the finding of this study contrasts with that of the Giordana and Schumacher (2012), who find that the LCR has an insignificant impact on banks' profitability in Luxembourg; but consistent with that of the Ötker-Robe and Pazarbasioglu (2010), who find that the LCR significantly impacted on the profitability of the Asian and European banks.

Given the *p*-value of 0.000 obtained from the OLS regression results, which is statistically significant at 1%, this study equally finds another statistical evidence to reject the second hypothesis of the study (H_{o2}) which states that the liquidity coverage ratio has no significant influence on returns on assets of DMBs in Nigeria.

4.5.3 Asset Quality Ratio and Financial Performance of DMBs in Nigeria

The *t*-value of -1.31 and the coefficient value of -0.225 with a *p*-value of 0.198 is evidentiary that the asset quality ratio, as measured by the loan loss provisions to the total loans of the DMBs in this study, relates negatively with the financial performance of the sampled DMBs studied from 2009 to 2013 but statistically has no significant impact on their financial performance. This implies that the ratio of the loan loss provisions to the total loans has no statistical significant impact on the ROA of the sampled DMBs in Nigeria within the period of the study.

The result above contrasts the empirical finding of Ghazali (2008) who finds that the impact of credit risk measured by loan loss provisions to gross loans is positive but not significant and that of the Ben-Naceur & Omran (2008)who find that the credit risk has positive and significant impact on banks' profitability. Conversely, the finding is in accord with that of the Epure and Lafuente (2012) who find that non-performing loans negatively affect the return on assets of the Costa-Rican banking industry from 1998 to 2007and that of the Abdelrahim (2013) who finds that asset quality has insignificant impact on effectiveness of credit risk management performance in Saudi Arabia.

The *p*-value of 0.198 which is not statistically significant at 10% provides statistical grounds for which this study fails to reject the third hypothesis of the study (H_{o3}) which states that the asset quality ratio has no significant impact on returns on assets of DMBs in Nigeria.

4.5.4 Basel II and Financial Performance of sampled DMBs in Nigeria

The combined effects of the explanatory variables on the dependent variable of this study are demonstrated by the R, R^2, Adjusted $R^2$and F-statistic whose values are 0.670, 0. 449, 0.403and 9.78 respectively in table 4.5.

From the OLS estimation, it is observable that there is combined correlation of 67% between the dependent and independent variables of the study. This cumulatively indicates that a strong positive relationship exists between the dependent and the independent variables of the study and that an improvement in the Basel II proxies tends to bring positive change of 67% to the financial performance of the sampled DMBs.

Furthermore, the R^2 of 44.9% represents the multiple correlation coefficient of determination, which shows the cumulative impact and the degree of the total variation in the financial performance (ROA) explained by the explanatory variables of the study. The meaning of this result is that the regression model adopted in this study has an average explanatory power of 44.9%. It also implies that the total variation of the dependent variable explained by the explanatory variables of the study is 44.9% while the remaining 55.1% is the residual or other factors that are not explained by the model used. Since the R^2 produced in this study is not less than 10% or greater than 90%, it is presumed that, the OLS regression model used in this study is fit. The fitness of the model adopted is further confirmed by the *F*-statistic of 9.78 which is significant at 1%. The p-value of 0.0001 thus indicates that there is proper selection, combination, and specification of the variables in this study and that there is 99% confidence level that the variation explained by the model of this study is not due to chance.

Similarly, the two most advanced measures for detecting the presence of multi-collinearity in a study show that there is absence of harmful multi-collinearity problem in this study because the values of the VIF of 1.10 for CAR, 1.11 for LCR and 1.04 for AQR are consistently smaller than the benchmark of 10 stipulated by Neter *et al.* (1996) and Cassey and Anderson (1999). The tolerance values of 0.907 for CAR, 0.897 for LCR and 0.962 for AQR further confirm absence of harmful multi-collinearity in this study because their values are far above the minimum benchmark of 0.2 mentioned by Statnotes (2007) as cited by Sabari (2011) and less than the maximum of 1 mentioned by Tobachnick and Fidell (1996) and Musa (2005). Finally, the *Adjusted* R^2 of 0.403 and the aggregate *t*-value of 6.24 at 1% level of significance provide strong empirical evidence that for every changes in the Basel II variables, there is bound to be a positive change in the financial performance of the sampled DMBs in Nigeria.

4.6 Discussion of Research findings and Policy Implications

Based on the results analyzed and the hypothesis testing done so far, this study has found that:

The capital adequacy ratio is a significant Basel II standard, which has a negative correlation of -0.46% with the return on assets of the sampled DMBs and exerts significant impact on the financial performance of the DMBs in Nigeria as indicated by the *t*-value of -2.32, which is statistically significant at 5%. This result signifies that capital adequacy ratio is bound to have a substantial negative impact on banks' profitability and will restrict banks' ability to do maturity transformation, which is the core function of banks as advanced in the extant literature by Otker-Robe and Pazarbasioglu (2010), Härle *et al.* (2010), Went (2010) and Angelini *et al.* (2011).

The policy implication of this finding for the bank management is that they have to be more proactive, innovative and manage the resources of the banks more efficiently since CAR is a prudential standard designed by the financial regulators to ensure that banks finance a sufficient percentage of their total assets with their own funds to prevent procyclicality in the banking sector. For the financial regulators, the finding implies that they have to continue enforcing the CAR as a prudential standard even if it squeezes financial performance of banks. This will enable them to control obnoxious risk-taking behaviour of banks and enhance banking sector's ability and resilience to economic and financial shocks. Doing this may also make them to be performing their ethical obligation in the context of the public interest theory which states that regulators have ethical obligation to safeguard the real economy at large and rationalize the economic activity of the banking firms in a more efficient manner so as to prevent externalities or market failure, which may adversely affect public interest at large.

Furthermore, based on the correlation coefficient of 0.57% and the t-value of 3.91, which is significant at 1%, this study has similarly found that the liquidity coverage ratio positively and strongly influences the profitability of the sampled DMBs studied over the period of 2009 to 2013. The policy implication of this finding is that banks with better LCR could lower liquidity risk as well as the incidence of bank failures because of the mild profitability that will be generated in the course of financial intermediation. Banks could create corporate financial reputation based on the possession of high-quality liquid assets, and this may help them fund increase in assets and meet multiple stakeholders' obligations, without incurring damaging losses. According to Fombrun (1996), a favorable reputation could be a strategic resource that can improve bank financial performance because stakeholders are predisposed to favor reputable companies in their exchange relationships. This predisposition may thus enable a company to increase prices and create competitive barriers that lead to higher stock prices and profitability. From this, it means the board of directors or banks' management has to be alive in putting proper reputation improvement plans in place in order to maximize profitability under Basel II standard.

Finally, the correlation matrix results of this study reveals a negative correlation of 12.31% at a significant level of 44.9% between the ROA and the AQR. While the regression results of the same study shows a *t*-value of -1.31 and a *p*-value of 0.198 that is not statistically significant at 10%.These results indicate that the AQR as one of the explanatory variables in this study has a negative but statistically insignificant impact on the ROA of the sampled DMBs and because of this, has no policy implication over the period of study which is 2009-2013.

CHAPTER FIVE
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

This study has empirically examined the impact of Basel II standard on financial performance of DMBs in Nigeria over a period of 5 years from 2009 to 2013. The study explored Basel II standard to ascertain its impact on the financial performance of 8 DMBs selected using census sampling technique. In an effort to address the problem of the study and contribute to the emergent body of the academic literature on the issue of the Basel II framework, three null hypotheses were formulated and three research questions raised. One of the questions posed by the study is to what extent Capital Adequacy Ratio affects the financial performance of Deposit Money Banks in Nigeria? The study reviewed relevant literatures on Basel II as well as financial performance and anchored the study on the Buffer Capital Adequacy Theory, the Liquidity-Profitability Trade-Off Theory, and the Public Interest Theory of Regulation. To analyze the secondary data collected from the annual reports and accounts of the sampled banks, a correlational research design and panel multiple regressions technique were used. The empirical model of the study showed an average explanatory power of 44.9% and a combined linear relationship of 67% between the dependent and independent variables of the study.

5.2 Conclusions

The following conclusions are made based on the findings of the study:

(i) The CAR has a significant negative effect on the ROA of DMBs in Nigeria. The empirical evidence of this study shows the extent to which the CAR impacts the financial performance of the sampled DMBs in Nigeria and this helps answer the first research question raised by the study.

(ii) Furthermore, the empirical evidence demonstrated by the correlation coefficient and the t-value of the LCR of this study provide plausible answer to the second research question posed by this study and this makes us conclude that the improvement and maintenance of proper LCR by the financial regulators and the banks' management in Nigeria can give rise to improvement in financial performance of the DMBs in Nigeria.

5.3 Recommendations

Based on the major findings of this study, the following recommendations are proffered:

(i) The financial regulators should continue to enforce capital adequacy ratio on banks even if it squeezes their financial performance. This is because its application can restrain obnoxious risk-taking on the part of banks and help promote the banking sector stability and its resilience to shocks. The bank management, on the other hand, should be more proactive, innovative and manage the resources of the banks more efficiently to generate satisfactory returns for all stakeholders under Basel II.

(ii) The board of directors and banks' management should be alive in putting proper reputation improvement plans in place for banks in Nigeria because improvement and maintenance of proper LCR by the board of directors and banks' management can give rise to improvement in financial performance of the DMBs in Nigeria.

5.4 Limitations of the Study

No research work can lay 100% claim to be exhaustive or devoid of limitations. What however makes a good research is how well those limitations are properly managed in the course of research (Abubakar, 2011). The following therefore are the limitations of this study:

(i) The implementation of the Basel II by the Nigerian banking institutions is still novel and at embryonic stage. This development has made researchers in Nigeria write little or less on the issue of Basel II before now. As a consequence, there is dearth of local literature to which the findings of this study may be compared and contrast in Nigeria.

(ii) The use of three explanatory variables and a five-year timeframe is another limitation with which the critics may lament is too short to allow comprehensive econometric analysis on the impact of Basel II framework and financial performance of DMBs in Nigeria.

(iii) Finally, critics may ask why is this study being carried out on Basel II when the paradigm shift for global banking regulation is now on a new Basel Accord called Basel III?

5.5 Areas for Further Research

At a time of financial uncertainty when battered investors and depositors are questioning whom they can trust, interest in promoting the resilience of banks to economic and financial stresses as proposed under Basel II framework has never been higher. The standards are receiving stupendous consideration and several numbers of countries are accepting the rationality behind it. This study therefore envisages that in no distant time there is going to be a wide area for further research on Basel II standard in Nigeria. The likely areas envisaged include:

(i) Studying the impact of Basel II framework on other financial institutions of the economy such as the micro finance banks, insurance firms and allied institutions;

(ii) Studying additional variable of the Basel II framework such as the operational and market risks and taking longer period which may help to unveil what was probably not disclosed in this study;

(iii) Finally, future studies may consider employing other data analysis technique such as Generalized Method of Moment (GMM) to analyze the issue of Basel II.

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Appendix I: Detailed Results

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      Percentiles      Smallest
 1%         .015           .015
 5%       .02095          .0174
10%        .0323          .0245       Obs                  40
25%          .25          .0267       Sum of Wgt.          40

50%          .38                      Mean           .3661625
                        Largest       Std. Dev.      .2048327
75%          .51             .6
90%         .595            .61       Variance       .0419564
95%          .64            .67       Skewness       .2903891
99%          .98            .98       Kurtosis       3.594409

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      Percentiles      Smallest
 1%          .06            .06
 5%         3.06           2.99
10%          4.2           3.13       Obs                  40
25%        7.155            4.2       Sum of Wgt.          40

50%        12.95                      Mean            13.0215
                        Largest       Std. Dev.      6.592951
75%        17.78          21.53
90%        21.42          21.53       Variance       43.46701
95%       23.465           25.4       Skewness        .067103
99%        28.13          28.13       Kurtosis       2.429787

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      Percentiles      Smallest
 1%        .5503          .5503
 5%         .832           .624
10%         1.07           1.04       Obs                  40
25%        1.235           1.04       Sum of Wgt.          40

50%        1.785                      Mean             4.8683
                        Largest       Std. Dev.      6.384515
75%         7.33           12.5
90%        11.85           12.9       Variance       40.76203
95%        19.59          26.28       Skewness       2.317543
99%         28.2           28.2       Kurtosis       8.272278

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      Percentiles      Smallest
 1%          .11            .11
 5%          .13            .13
10%          .13            .13       Obs                  40
25%         .175            .13       Sum of Wgt.          40

50%          .24                      Mean             .27975
                        Largest       Std. Dev.      .1508521
75%          .33            .51
90%          .48            .63       Variance       .0227563
95%          .65            .67       Skewness       1.480601
99%          .75            .75       Kurtosis       4.885909
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```
. pwcorr roa car lcr aqr, star (0.05) sig

             |      roa      car      lcr      aqr
-------------+------------------------------------
         roa |   1.0000
             |
             |
         car |  -0.4568*  1.0000
             |   0.0030
             |
         lcr |   0.5704* -0.2747   1.0000
             |   0.0001   0.0862
             |
         aqr |  -0.1231   0.0921   0.1374   1.0000
             |   0.4493   0.5719   0.3978
             |
. reg roa car lcr aqr

      Source |       SS       df       MS              Number of obs =      40
-------------+------------------------------           F(  3,    36) =    9.78
       Model |  .734863344     3  .244954448           Prob > F      =  0.0001
    Residual |  .901437928    36  .025039942           R-squared     =  0.4491
-------------+------------------------------           Adj R-squared =  0.4032
       Total |  1.63630127    39  .041956443           Root MSE      =  .15824

------------------------------------------------------------------------------
         roa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         car |  -.0093643   .0040348    -2.32   0.026    -.0175472   -.0011813
         lcr |   .0163714   .0041885     3.91   0.000     .0078767    .0248662
         aqr |  -.2246204   .1711783    -1.31   0.198    -.5717862    .1225453
       _cons |   .4712357   .0755087     6.24   0.000     .3180969    .6243745
------------------------------------------------------------------------------

. swilk roa car lcr aqr

                   Shapiro-Wilk W test for normal data
    Variable |    Obs       W           V         z       Prob>z
-------------+--------------------------------------------------
         roa |     40    0.96183      1.509     0.866    0.19331
         car |     40    0.98296      0.673    -0.832    0.79728
         lcr |     40    0.65176     13.765     5.518    0.00000
         aqr |     40    0.84800      6.008     3.774    0.00008

. sktest roa car lcr aqr

                   Skewness/Kurtosis tests for Normality
                                                         ------- joint ------
    Variable | Pr(Skewness)   Pr(Kurtosis)  adj chi2(2)    Prob>chi2
-------------+-------------------------------------------------------
         roa |      0.400         0.227           2.32         0.3137
         car |      0.844         0.532           0.44         0.8027
         lcr |      0.000         0.000          24.96         0.0000
         aqr |      0.000         0.025          13.57         0.0011

. hettest

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of roa

         chi2(1)      =     1.10
         Prob > chi2  =   0.2944
```

```
. vif

    Variable |       VIF       1/VIF
-------------+----------------------
         lcr |      1.11    0.897817
         car |      1.10    0.907333
         aqr |      1.04    0.962872
-------------+----------------------
    Mean VIF |      1.08
```

Appendix II: Data Presentation

Banks	Year	Id	roa	car	lcr	aqr
Diamond	2009	1	0.015	16.28	0.5503	0.67
	2010	1	0.0174	13.1	0.624	0.63
	2011	1	0.0379	19.23	1.42	0.3
	2012	1	0.0267	19.58	2.39	0.34
	2013	1	0.0245	25.4	2.63	0.29
Access	2009	2	0.15	28.13	1.26	0.28
	2010	2	0.243	21.31	3.6	0.33
	2011	2	0.128	0.06	1.24	0.28
	2012	2	0.25	13.79	1.97	0.16
	2013	2	0.22	10.27	1.6	0.23
Zenith	2009	3	0.25	15.47	1.19	0.18
	2010	3	0.27	16.75	1.51	0.13
	2011	3	0.263	19.78	1.3	0.13
	2012	3	0.386	18.44	11.2	0.22
	2013	3	0.29	12.8	3.99	0.37
Skye	2009	4	0.38	12.22	2.46	0.32
	2010	4	0.4	11.4	1.15	0.18
	2011	4	0.34	17.78	1.04	0.45
	2012	4	0.3	15.68	1.23	0.35
	2013	4	0.38	14.7	1.39	0.33
UBA	2009	5	0.44	12.44	2.8	0.21
	2010	5	0.57	10.13	1.1	0.24
	2011	5	0.27	21.53	1.46	0.24
	2012	5	0.45	5.07	9.84	0.32
	2013	5	0.38	4.2	8.4	0.51
GTB	2009	6	0.48	6.25	12.5	0.44

	2010	6	0.51	5.55	11.1	0.11
	2011	6	0.425	3.13	6.26	0.15
	2012	6	0.52	14.12	28.2	0.13
	2013	6	0.44	2.99	2.98	0.13
1st Bank	2009	7	0.54	4.2	8.4	0.14
	2010	7	0.56	6.47	12.9	0.14
	2011	7	0.35	17.78	1.04	0.23
	2012	7	0.59	15.68	1.23	0.19
	2013	7	0.51	7.84	1.12	0.22
Ecobank	2009	8	0.6	12.44	2.8	0.19
	2010	8	0.61	10.13	1.2777	0.17
	2011	8	0.38	21.53	1.46	0.25
	2012	8	0.67	5.07	9.84	0.26
	2013	8	0.98	12.14	26.28	0.75