IMPACT OF RISK- BASED SUPERVISION ON THE PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

By

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BEING A DISSERTATION PRESENTED TO THE SCHOOL OF POST GRADUATE STUDIES, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE (M.Sc.) DEGREE IN BUSINESS ADMINISTRATION

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DECLARATION

I hereby, declare that this Dissertation titled "Impact of Risk Based Supervision on the Performance of Selected Deposit Money Banks in Nigeria" is written under the supervision of Prof Bello Sabo and Dr J.K. Yere and it is a product of my humble research effort. 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 degree or diploma in this or other institution.

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CERTIFICATION

This Dissertation titled "Impact of Risk Based Supervision on the Performance of Selected Deposit Money Banks in Nigeria" by Abubakar Umar meets the requirements governing the award of the Degree of Master of Science (M.Sc.), Business Administration of Ahmadu Bello University, Zaria and is approved for its contribution for Knowledge and literary presentation.

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ABBREVIATIONS AND ACRONYMS

AMCOM	Asset Management Corporation of Nigeria
BOFIA	Banks and Other Financial Institutions Act
BCBS	Basel Committee on Banking Supervision
CAR	Capital Adequacy Ratio
CBN	Central Bank of Nigeria
CAMA	Companies and Allied Matters Act
CDS	Credit Default Swap
DMBs	Deposit Money Banks
ERS	Elliot Rothenberg Stock
EU	European Union
FATF	Financial Action Task Force
FE	Fixed Effect
GDP	Gross Domestic Product
GLS	Generalized Least Square
IMF	International Monetary Funds
KYC	Know Your Customer
LCR	Liquidity Coverage Ratio
LLP	Loan Loss Provision
LTDR	Loan to Deposit Ratio
NDIC	Nigerian Deposit Insurance Corporation
NII	Net Interest Income
NSE	Nigerian Stock Exchange
NSFR	Net Stable Funding Ratio
NPL	Non-Performing Loans

OLS	Ordinary Least Square
RBS	Risk based Supervision
RE	Random Effect
ROA	Return on Assets
ROE	Return on Equity
SAP	Structural Adjustment Program
USA	United States of America

ABSTRACT

Recent reforms in the banking sector in many economies of the world particularly in the area of risk management practices have generated public policy debates on the influence of risk based supervision (RBS) on performance of the banking industry. This study examines the impact of risk based supervision (RBS) on the performance of deposit money banks (DMBs) in Nigeria. The study formulates three hypotheses and applies longitudinal panel data regression to analyse the relationship between the dependent variable; return on assets and the independent variables; non-performing loan, loan loss provision and loan to deposit ratio of the banks. Furthermore, the study utilises secondary data extracted from the financial statements of the banks over the period of 2009 to 2013. The result of the robust simple ordinary least square regression provides evidence that non-performing loans and loan loss provision have significant impact on return on assets. It also shows that loan to deposit ratio has no significant impact on return assets of the banks. The overall outcome of the study shows that risk based supervision has significant impact on the performance of DMBs in Nigeria. Based on the findings, the study recommends among others that CBN and NDIC should continue to detail their approach toward risk management practices through various policies and procedures that have to do with credit policy and standard operating procedures. Also, the apex regulatory body should reemphasize policies and strategies on loan diversification so as to encourage the finance of long term projects that are of high economic value and benefits as this will further enhance the performance of DMBs in Nigeria.

CHAPTER ONE
INTRODUCTION

1.1 Background to the study

Banks play a vital role in the economic resources allocation through efficient financial services they provide.They channel funds from depositors to investors continuously. Their intermediation role can be said to be a catalyst for economic growth. The efficient and effective performance of the banking industry over time is an index of financial stability in any country. The extent to which banks perform their financial activities to the public for productive activities accelerates the pace of a nation's economic growth and its long-term sustainability leads to the economic development.

The Nigerian financial sector has experienced remarkable changes over the years in terms of the number of institutions, ownership structure, as well as the depth and breadth of operations. These changes have been influenced largely by the challenges posed by deregulation of the financial sector, globalization of operation, technological innovation and adoption of supervisory and prudential requirements that conform to international standards (NDIC, 2010). Banking sector reforms in Nigeria have been an on-going phenomenon right from the early1980s. Before 1986, the sector experienced little or no competition with the concentration of activities in some few banks (Odeleye, 2014). This was as a result of the regulatory effort that limited entry and branch expansion as well as setting both deposit and lending rates(Adegbaju&Olokoyo, 2008). Moreover, the Nigerian financial sector deregulation of 1987 subsequent to the adoption of the Structural Adjustment Program (SAP) in 1986made a high and healthy degree of competition, because the phenomena provided incentives for banks expansion in terms of individual size and number operating within the country (Ailemen, 2009).

However,the global banking crises coupled with a deep financial distress as a result of political instabilities, inconsistencies on the part of the financial regulators led to a decline in most of the banks' profitability (Sunusi, 2012). Thus, another round of banking sector reform was announced in 2004. Before the period, there were 89 banks with 3,382 branches nationwide. As at end of March, 2004, the CBN's ratings of all the banks classified 62 as sound and satisfactory, 14 as marginal and 11 as unsound, while 2 of the banks did not render any returns during the period (Soludu, 2004). The weaknesses of some of the ailing banks were that some of the banks had low capital base and weak asset quality. Majority of them were highly insolvent and illiquid. There were severe cases of non-adherence to professional ethics in the conduct of banking business. More so, there exist low credit creation and dependence on public sector funds. In general, the banking sector lacks the capacity to effectively support the real sector and facilitate economic growth. The fundamental problems of the banks, particularly those classified as unsound, have been identified to include persistent illiquidity, poor assets quality and unprofitable operations thus leading them to have abandoned their essential intermediation role (Ailemen, 2009; Soludu, 2004).

As a move to check the problem, CBN declared a 13-point reforming program in the whole banking industry. The recapitalization ofbanks capital base established the first phase of the reform policy. The key elements in the agenda includeda minimum capital base of ₦25 billion and consolidation of banking institutions through mergers and acquisitions resulting in the emergence of 24 banks out of the 89 banks operating within the country as at December 2004. During the period of 2006 and 2008, there existed a strong growth in the country's banking sector where by banks total assets rose over ₦1.6trillion. Also, the sector asset as a percentage of GDP increased rapidly to 60% in 2008 and significant risk assets growth amid limited product innovation (AMCON, 2012).

As a result of the effect of the second round of globalfinancial crises in 2008 on the Nigerian banking sector and the effort of CBN in collaboration with NDIC to meet with the global bench mark concerning the safety and soundness of the banking system, Risk-Based Supervision (RBS) approach to the Nigerian Deposit Money Banks (DMBs) was established. Although, the RBS entails different components of risk, the regulators laid more emphasis on liquidity and credit risk because of their relevance to the sector (Sanusi, 2012). Liquidity risk involves possibility of a bank notto able to meet its financial obligations as they fall measured by loan to deposit ratiowhile credit risk is in the area of inability of the creditors of a financial institution to meet with their financial obligations measured by non-performing loans and loan loss provision. Therefore, the study seeks to investigate the impact of risk-based supervision on the performance of the Nigerian deposit banks.

1.2 Statement of the Problem

The analysis of the recent global financial crisis in Nigeria has shown that, inadequate supervision and regulation of banks on a consolidated basis, among others, was a key contributor to the crisis (IMF, 2013; CBN, 2013). Sanusi (2012) posited that prior to the period; banks were significantly exposed to capital market leading to the problems of margin loans and equity which threatened the banking sector stability. Also, some banks, including those with substantial market share had their capital completely eroded, running in to liquidity crises. Aside these, several banks were seriously exposed to the oil industry by offering huge credit facilities to operators in the oil and gas sector.As prices and demand fall drastically, majority of such facilities went bad leaving a huge portfolio of credit risk in form of non-performing loans (NPLs) in the balance sheets of the banks (Sanusi, 2012). Therefore, the combined effects of credit risk, liquidity risk and other related problems that have to do with corporate governance and severe regulatory lapses launched the banking system crisis in

2009 which significantly affected the Nigerian DMBs. There is no gainsaying the fact that these posed huge challengese to the CBN and other regulators in the sector.

The RBS approach is intended to cater for the observed problems that drove Nigerian DBMs into huge and severe challenges and has a proper mix of both on-site and off-site supervision. It is intended that the approach will position such DMBs into sound footing and ensure overall safety of depositors' fund. It is also envisioned in maintaining DMBs roles of serving as the propeller of economic growth and development in the country. However, whether the stated problems have been properly taken care of and the aims have been achieved after the adoption of RBS by the Nigerian DMBs is an issue that deserves empirical investigation. A problem that has largely remained unsolved is to assess the impact of RBS, taking into consideration the combined effect of credit and liquidity risk management on the DMBs particularly in Nigeria.Though some studies for instance, Ejoh**,** Okpa and Inyang (2014) have attempted to investigate the relationship between credit risk and liquidity risk management and how they influence the probability of bank defaults among DBMs in Nigeria, they are considered not robust because of the small size of the sample. The study used a sample of a single bank (First Bank of Nigeria Plc.) to represent the entire banking sector and the data were obtained through a structural questionnaire. More so, the study was not carried out on the basis of financial regulation action for performance enhancement.

Other studies that seek to investigate the influence of risk management practices on the performance of DMBs most especially in Nigeria include a research by Soyemi, Omowunmi and Ashogbon (2014) using cross sectional data in the analysis and the data is restricted to only 2012 financial year; and the one conducted by Agbada (2013) using structural questionnaire and simple percentage in the analysis.

Due to models and scope inadequacy, there is the need to have empirical studies to determine the extent to which the adoption of RBS impact on the financial performance of DMBs within the context of Nigeria becomes necessary. It is against this background that this study seeks to investigate the impact of RBS on the performance of DMBs in the Nigerian banking sector.

1.3 Research questions

The following basic questions are raised to guide this study:

i. To what extent does Non-Performing Loan affect the performance of DMBs in Nigeria?

ii. To what extent does Loan Loss Provision affect the performance of DMBs in Nigeria?

iii. To what extent does Loan to Deposit Ratio affect the performance of DMBs in Nigeria?

1.4 Objectives of the study

The broad objective of the study is to examine the impact of risk-based supervision on the performance of the Nigerian DMBs. Other specific objectives the study intends to achieve as follow are to examine:

i. The impact of Non-Performing Loans on the performance of DMBs in Nigeria.

ii. The impact of Loan Loss Provisionon the performance of DMBs in Nigeria.

iii. The impact of Loan to DepositRatio on the performance of DMBs in Nigeria

1.5 Research hypotheses

The research hypotheses are formulated in a null form and are as follow:

H_{o1}: Non-Performing Loans have no significant impact on the performance of DMBs in Nigeria.

H_{o2}: Loan Loss Provision has no significant impact on the performance of DMBs in Nigeria.

H_{o3}: Loan to DepositRatio has no significant impact on the performance of DMBs in Nigeria.

1.6 Significance of the study

It is hoped that the outcome of this study contributes to the existing body of knowledge in the area of RBS introduced by the CBN and NDIC. The study examines the combined effects of credit and liquidity risk management practices being part of the risks exposed to the banking sector in the last 2008 financial crises in Nigeria, and how the management of these risks contribute to the improved performance in DMBs. The existing body of knowledge emphasised on risk management practices as internal affairs of DMBs and how these contribute to their performance. This study examines the extent of the supervisors' effort to identify the type of risk profile exposed to the individual banks and banking groups and the allocation of more supervisory resources to such areas identified with higher risk for mitigation; and how these contribute to the performance of DMBs in Nigeria.

The study is of great importance to CBN and NDIC being the top supervising and regulating authorities responsible for designing, formulating and implementing policies concerning DMBs supervision so as to ensure sound banking practices within the Nigerian banking sector. The study reveals the level of DMBs performance as a result of the adoption of risk-based supervision which replaced the former version of banking supervision known as the

compliance-based supervision. It serves as a guide in designing and implementing policies and strategies that covers such areas highly exposed to risk within the Nigerian DMBs

International agencies such as: World Bank, International Monetary Fund (IMF) and Basel Committee on Banking Supervision (BCBS) and other foundations known for providing support in the area of banking supervisions as part of their efforts to empower the productive sectors of the economy. This study offers a guide for them as to the level they can play in ensuring sound banking practices.

To bank managers, this research is of great importance as the outcome of the study can stimulate them to be well equipped, encouraged and it will help them in improving their knowledge and skills in risk management practices for performance enhancement through supervisory impact.

To the general public as a whole, being the providers and users of financial resources, the studyprovides them with information necessary to develop confidence in the banking sector.

1.7Scope of the study

The scope of the study is restricted to the impact of Risk-Based Supervision (RBS) on the performance of Deposit Money Banks (DMBs) in Nigeria. The study covers five (5) years from 2009-2013, that is, post adoption of RBS in Nigeria.

The period is considered appropriate because it was during the period of 2009 that the approach was introduced. Also, as some banks were bailed out, public confidence was restored in the Nigerian banking sector and the DMBs stock prices were stabilised (Sanusi, 2012; Muhammad, 2012).

1.8 Limitations of the Study

In the course of carrying out this research, some challenges were faced. The findings of this work are therefore, to be considered in the light of the following limitations:

Firstly, the five-year period of the study has limited the research in terms of the covered period. This is due to the fact that risk based supervision in the Nigerian banking sector emerged in the year 2009 subsequent to the financial crisis of 2008. Therefore, the study could not go below 2009 thus limiting the scope of the study lower than envisaged.

Secondly, scarceness of quarterly data on the sampled banks has made it difficult for the researcher to have more than 50 observations in all. Moreover, even the yearly data obtained were restricted to 2013 financial year and this is as a result of lack of access to full data covering the preceding year (2014). Therefore, the result could have been different if the observations used were more than that. It was however not possible due to non-availability of quarterly data that will cover up to the period of 2015.

CHAPTER TWO

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This section examines previous studies on risk based supervision and financial performance. It begins with the concept of deposit money banks, the concept of financial performance, followed by the concept of risk based supervision and its components. Empirical studies on credit and liquidity risk on financial performance are reviewed and the section ends with the theoretical and conceptual consideration underpinning the study.

2.2 The Concept of Deposit Money Banks

DMBs can be defined as financial institutions which accept deposits from the public and making these available for economically and socially desirable purposes thereby creating credit (Ekezie, 2006). DMBs have broadly been defined as financial institutions that accept, collect, transfer, pay, exchange, lend, invest, and safe-guard funds for their customers. Although banks do many things, their primary role is to take in funds called deposits from the surplus sectors and lend them to those who need funds known as the deficit sectors (CBN, 2010). They therefore, serve as intermediaries between depositors (who lend money to the bank) and borrowers (to whom the bank lends money). According to Turkmen and Yigit, (2012), DMBs are institutions operating primarily for the purpose of accepting deposit and granting loan in their own names and for their own accounts as per the provisions of the laws and the branches establishing such institutions.

The role of Deposits Money Banks (DMBs), otherwise known as commercial banks is fundamental to financing economic activity in a given economy. The principal function carried out by these institutions is to ensure that there is adequate flow of money to service the deficit sectors of the economy and to facilitate the movement of funds amongst the

various economic units. This movement is referred to as financial intermediation which is usually from the surplus unit to the deficit unit demand. Therefore, a sound and profitable banking sector is the one capable of withstanding negative shocks and contributing to the stability of the financial system, thus assisting in rapid economic growth and development of a nation (Richard & Okeye, 2013; Ajayi & Sosan, 2012).

In Nigeria, a bank or a firm wishing to carry out deposit taking business must first be incorporated under the Companies and Allied Matter Act (CAMA), 1990 and then obtain a valid license from the CBN. Its operations should be in line with the provisions of the Bank and Other Financial Institutions Acts (BOFIA), 1991, the CBN Act, the Nigerian Deposit Insurance Corporations (NDIC) Acts, the Money Laundry Act 2004 and other banking laws (CBN, 2010).

DMBs have the responsibilities of offering efficient financial services to their customers through savings and withdrawals of money; ensuring adequate liquidity so that cash withdrawals are met promptly and payment of competitive rate of interest on savings and deposits in line with the regulatory requirements, and charging reasonable interest rates and commissions. They also ensure safety deposit of customers' funds and make secret of the affairs between the bank and customers in order to protect the interest of such customers. Moreover, concerning the Shareholders, DMBs are expected to guarantee continuous investment of shareholders' funds by ensuring effective performance through utilizing the capital invested in the bank to maximize profit. They are also expected to give reasonable returns (dividends) commensurate with the capital investment; maximization of the owner's wealth, by ensuring good market prices of shares of the bank in the stock market. They keep shareholders informed of the bank's performances through annual general meetings, newsletters and information bulletins. To the government, they act or serve as responsible

corporate entity, providing credit facilities to the various sectors of the economy with a view to ensuring the economic development; fostering the growth of GDP; Complying with the laws and regulations prescribed by regulatory authorities such as CBN, NDIC, and the likes; assisting government in funding and promoting social activities, such as sponsoring sports programs, and contributions towards combating diseases. To the public, banks are expected to be socially responsible to the banking public in general, and members of the community in which they are situated. They are also expected to participate in the creation and maintenance of employment opportunities to the qualified members of the community (Richard & Okeye, 2013; Ajayi & Sosan, 2012; Ekezie, 2006)

DMBs in Nigeria are primarily regulated by some authorities. The apex regulator is the CBN, and has superior powers over other regulators; and then, the NDIC. The CBN's core supervisory role is practicable in the area of policies formulation and establishment of specific administrative or bureaucratic procedures that must be adhered to by all banks and financial institutions in Nigeria. In addition, CBN is seen as lender of last resort to all banks in the country.

On the other hand, NDIC as anagency is responsible for insuring financial institutions, paying and monitoring deposits in accordance with the failure of any insured financial institution. They also maintain a supervisory role, performed by protecting the depositors' funds, ensuring monetary and transfer stability, supporting and encouraging an efficient payment system, preventing any form of dubious, unsafe and unsound banking practices and prevention of any future reoccurrence.

Therefore, CBN and NDIC derive their supervisory powers principally from the Central Bank of Nigeria Act, 2007 (CBN Act), Nigeria Deposit Insurance Corporation Act, 2006 (NDIC Act), and the Banks and Other Financial Institutions Act, 1991 (BOFI Act). Other legislative

instruments that impact on banking supervision include the Failed Banks (Recovery of Debts) and Other Malpractices in Banks Act, 2004, the Companies and Allied Matters Act (CAMA Act), 2004, the Economic and Financial Crimes Commission Act 2004 and the Money Laundering Prohibition Act 2011. The CBN and NDIC also issue rules and regulations pursuant to their powers under the above mentioned legislation (CBN, 200; NDIC, 2010; IMF, 2013).

Nigerian commercial banking sector has witnessed substantial growth and development in recent years subsequent to the consolidation regime of the Central Bank of Nigeria (CBN) in 2005. This makes it mandatory for any commercial bank in the country to maintain a minimum capital of 25billion naira as equity fund. According to the CBN, the policy resulted in exceptional growth in banks' operations. For instance, between 2006 and 2009, total deposit liabilities grow by 65%, total asset by 148%, loan and advances 225% capital and resources 192%. However, by June 2009, the sector witnessed a shock identified through special examination (stress-test) by CBN. These revealed the problems of massive mismanagement of depositors fund through uncollaterised loans and problems of non-performing loans among others, resulting in excess liquidity in the sector. To overcome the situation, CBN injected about N620billion to bailout some of the distressed banks and at the same time, putting together other necessary regulatory actions (IMF, 2013; Soludu, 2004).

2.3 Financial Performance of DMBs

Financial performance analysis of DMBs has been of great interest to academic researchers. By its nature, performance measurement is a diverse subject. While some have represented ex post analysis to reveal performance, others have represented ex ante analysis. Moreover, there are several definitions, selections and categorization of appropriate performance employed by researchers to study the performance of DMBs such as the work of Kim and

Rasia (2001), Sarita, Zandi and Shabi (2012), Sufian (2008), Brissimis,Delis and Papanico (2008), Vshih, Zhang and Liu (2006), and Micco,Panazzaand Yenez (2004). They were of the view that performance in an organization can be measured in terms of market shares, efficiency, ownership and human resource management.

However, Kumbirai and Webb (2010) assert that financial ratios are often observed and analysed under the varying groups reflecting different operating characteristics of banks. The common classifications include capital adequacy, asset quality, managerial efficiency (often used as a proxy for management quality), earnings (or profitability), and liquidity. Popular ratios for assessing capital adequacy include gross capital to total assets and gross capital to total loans. For asset quality, the ratios of total loans to total assets, loan loss provision to total loans and risk assets to total assets are commonly used. The ratios of operating income to operating expenses and operating expenses to total assets are commonly used to assess managerial efficiency. Profitability ratios include net income to total assets and net income to total capital, while for liquidity, total loans to total deposits and holding of government securities as a ratio of total assets are common. These factors dominantly reflect internal factors and as such focus on special banks' special characteristics (Olugbenga and Olankunle, 1998) and Umakrishnan and Arindam (2005). Other internal factors include bank size, bank's capital, credit risk, and liquidity risk (Funso, Kolade and Ojo, 2012)

Apart from financial information that are derived mostly from financial ratios, there are other external factors known as sector wide or country wide factors which are beyond the control of the company and affect the performance of banks. These factors include macroeconomic variables, such as gross domestic product, interest rate and inflation; and other factors describing economic conditions such as local market structure, demographic conditions and

capital market information that are usually incorporated into the analysis of bank performance (Ongore and Kusa, 2013), (Samuel and peters, 2014), and (Tesfaye, 2012).

However, there is general agreement that bank profitability is a function of both internal and external factors used in measuring performance. Researchers have used ROA (Return on Asset), ROE (Return on Equity), and NII (Net interest income) as the standard for assessing bank performance (Sarita, Zandi and Shabi, 2012). As cited by Ongore and Kusa in Athanasoglou, Delis, and Staikouras(2006), profitability by its nature is a function of internal factors that are principally influenced by a bank's management decisions and policy objectives such as the level of liquidity, provisioning policy, capital adequacy, expense management and bank size, and the external factors related to industrial structural factors such as ownership, market concentration and stock market development and other macroeconomic factors.

In most research studies reviewed such as the work of Rasia (2001), Sarita, Zandi and Shabi (2012), Sufian (2008) and Athanasoglou, Delis, and Staikouras(2006), overall performance is a product of efficiency and effectiveness which is measured in form of profitability ratios which are normally computed from the figures reported by commercial banks in their annual reports. Rasiah (2010) postulates that the use of profitability ratios are not influenced by changes in price levels as the real value of profits cannot be affected by the varying inflation rates. As such, how well a bank is performing financially is revealed by Return on Equity (ROE) and Return on Assets (ROA) (Bourke, 1989; Molyneux and Thornton 1992).

The ROE measures the rate of return on the equity of shareholders. It is computed by dividing banks net income after taxes by the total equity capital which includes Tier 1 and Tier 2 capital. This measure of profitability gives an indication of what the banks earn on the shareholders' investment.Return on assets (ROA) is the ratio of Net Income after Taxes

divided by Total Assets. The ROA signifies organizational performance as it depicts how effective and efficient the management of banks has been as they seek to transform assets into earnings. The higher this ratio is, the higher the performance of the banks.

Thus, ROA is a useful tool for comparing profitability of one bank with others and for assessing the performance of the whole commercial banking system. Popoola (2014) reports that Rivard and Thomas and argued that bank profitability is best measured by ROA in the sense that, ROA cannot be distorted by high equity multiplier. Hassan and Bashir (2003) add that as ROA tends to be lower for financial intermediaries; most banks heavily utilize financial leverage to increase their ROE to competitive levels.

2.4 Concept of Risk

The concept of risk has increasingly become an obvious and a well-structured approach as organizations have to make well informed decisions with regards to improving performance through change initiatives. Therefore, academic researchers, institutions, organizations and businesses were more concerned on how the concept of risk should be looked at.

According to Gibson (2012),risk can generally be seen as the potential that events, planned or unanticipated may have an opposing impact on capital and earnings. It is also defined as an uncertainty of outcome that is posed by any eventuality that may occur and may likely to affect an organization's ability to meet its business objectives. Investopedia Financial Dictionary (2015) asserts that, risk is defined as any chance that an actual return from an investment will differ from the expected and may include the possibility of losing some or all of the original investment. In the word of the Economic Times (2015),risk has to do with the future uncertainty about deviation from expected earnings or expected outcome that an investor is willing to take to realize a gain from the investment.

Academic researchers and professionals in financial institutions were of more concern on the right methods used to measure risks. Courtault, Kabanov, Bru and Crepel, (2000) and Hilbers, Raaijmakers, Rijsbergen and de Vries (2013) maintained a similar view which stressed that, in the nineteenth century, as a result of rapid development of stock and bonds markets, investors started looking for richer measures of risk. It was the era that shaped the insurance view of point that considered risk as a source of loss and replaced it by a sense that risk could also be seen as a source of profit. During the period, risk is measuredby the useof qualitative measures which are broad in nature due to little access to information. Few quantitative techniqueswere employed to measure risk. Investors in financial assets tend to treat the entire groups of investments as sharing the same risk level and therefore, categorising stocks into risky and inappropriate investments no matter what their dividend yield. They also measure investments based on the availability of information about the entity issuing it.Equity issued by a well-established company with a solid reputationwas considered safer than equity issued by a more recently formed entity about which less was known. In response, companies started providing more data on operations and making them available to potential investors (Courtault, Kabanov, Bru and Crepel, 2000).

By the early part of the twentieth century, services started to collect data on return and price on individual securities and computing some basic statistics such as the expected return and standard deviation in returns.These led to a more consideration of effort on the behavior of stock and option prices. Moreover, due to information accessibility and reliability on financial reports from corporations, financial analysts started to develop risk measuresbased on accounting numbers. Ratios of profitability and financial leverage were used to measure risk. Also, bond ratings were also used as a measurement of credit risk in companies (Hilbers, Raaijmakers, Rijsbergen and de Vries, 2013). In addition, risk measures drew on both stock

price volatility and accounting informationin conjunction with broad risk categories, based upon security type and issuer reputation (Courtault, Kabanov, Bru and Crepel, 2000).

2.5 Types of Risk

Risks are of different types and originate from different situations. According to European Union, risk can be categorised into four main types. These include: credit risk, market risk, liquidity risk and operational risk. Various risks originate due to the uncertainty arising out of various factors that influence an investment or a situation.

2.5.1 Concept of Credit Risk

Credit risk is the most important aspect of risk in banks because lending activity remains their dominant activity, where credit risk is crucial, and loans make up the bulk of their assets. This form of risk arises in a situation where bank funds are dedicated or invested in any contractual agreement, impliedly or in actual term and whether reflected in an on or off balance sheet. Moreover, this risk is determined mostly by factors such as the attitudes of debtors towards the risk, level of unemployment, political issues, changing nature of socio-economic conditions, and market forces which are more essential to a viable banking business (EU, 2005).

Basel Committee on Banking Supervision BCBS (2001) defined credit risk as the risk of default on a loan whereby counterparty will fail to perform fully its financial obligations or the guarantor failing to meet obligations. Abdelrahim (2013) defined credit risk as the default risk where by the interest or principal or both will not be paid as promised which is assessed by observing the proportion of assets that are below standard and it is usually borne by all lenders which will lead to serious problems, if excessive. Funso, Kolade and Ojo (2012) opined that credit risk can be defined as the exposure faced by banks when a borrower or

counterparty defaults in honouring debt obligations on due date or at maturity which can position the bank in distress if not properly managed. Basel Committee on Banking Supervision- BCBS (1999) defined credit risk as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms. According to Giesecke's (2004) definition, credit risk is the distribution of financial losses due to unanticipated changes in the credit quality of counterparty in a financial agreement which usually will bring catastrophic financial losses.

Credit risk management is very vital in measuring and improving the profitability of banks. According to BCBS (1999), the long term success of any banking institution depends on an effective system which ensures repayments of loans by borrowers which is critical in dealing with asymmetric information problems, thus, reducing the level of loan losses. Haneef, Riaz, Ramzam, Rana, Ishaq, and Karim (2012) assert that banking profitability portray the risk taking behaviour of managers. Banks with high profitability are less stressed to revenue creation and thus less constrained to partake in risk credit offerings. At the same time, inefficient banks are more likely to be exposed to high level of problem loans. They argued that lack of proper risk management increases the amount of non-performing loans which in the long run, threatens the profitability of banks.

As put forward by BCBS (2000), loans are the largest and most observable source of credit risk for most banks. Also, there are other sources of credit risk that exist throughout the activities of a bank. Moreover, banks are increasingly facing credit risk in various financial instruments other than loans; including acceptances, interbank transactions, trade financing, foreign exchange transactions, financial futures, swaps, bonds, equities, options, extension of commitments and guarantees, and settlement of transactions.

According to Nawaz and Munir (2012), Kaaya and Pastory (2013), non-performing loan is the largest and critical source of credit risk and arises from either a failure or refusal of a borrower to perform his obligation in a predetermined arrangement. Tracey (2011) maintained that bank lending behavior could restrain economic activity, most especially in periods of stress when NPLs are high. As observed by Chigozie and Okoli (2013) incessant increase in interest rate is a strong and important factor that causes bad debt and the resultant effect is that it stresses the bank into distress condition. The most powerful impact of high non-performing loans in banks portfolio is decline in the bank profitability particularly when such banks disposed loans to borrowers, (Kargi, 2011).

BCBS (2012) assert that credit risk may result from the on-balance sheet and off-balance sheet exposures, loans and advances, investments, inter-bank lending, derivative transactions, securities financing transactions and trading activities in addition to the credit worthiness of the borrower. BCBS (2006) observed that in both individual institutions as well as banking systems, historical evidences have shown that concentration of credit risk in asset portfolios has been one of the main causes of bank distress.

To mitigate credit risk, banks utilise extensive techniques including collateral, guarantees and, increasingly, credit derivatives. The advancement of more efficient approaches to the measurement of credit risk through internal models has been a considerable factor encouraging the greater risk application of credit risk transfer techniques and a more liquid market for instruments such as credit derivatives, BCBS (2001).

In the late 1980s and early 1990s the Nigerian banking sector witnessed rising non-performing credit portfolios and these significantly contributed to the financial distress in the banking sector. Also identified was the existence of predatory debtors in the banking system whose modus operandi involved the abandonment of their debt obligations in some banks

only to contract new debts in other banks. Furthermore, the use of status enquiries on bilateral basis between banks was characterised by some weaknesses as many continued to extend fresh facilities to customers who already had hard core and un-serviced debts with other banks and financial institutions leaving large amount of non-performing loan.

These necessitated the need for a central database from which consolidated credit information on borrowers could be obtained. Therefore, the CBN Credit Risk Management System (CRMS) was established by the CBN Act No.24 of 1991 in order to obtain from all banks, returns on all credits with a minimum outstanding balance of a specified amount for compilation and dissemination by way of status report to any interested party, CBN (2011).

Kargi as cited in Owojori, Akintoye, and Adidu(2011) opined that the available statistics obtained from the liquidated banks exposed that failure to recover loans and advances committed to customers and directors or managers was a key element that led to the distress of the liquidated banks. In 1995, 60 out of the total of 115 operating banks were in distressed where by their ratio of non-performing loans and leases to their total loans and leases stood at 67%. Also, the ratio declined to 79% in 1996; to 82% in 1997 and the licences of 35 of the distressed banks were revoked in December 2002. In 2003, only a single bank named Peak Merchant Bank was closed; no bank was closed in 2004(Kargi, 2011).

Therefore, from 1994 to 2005, the number of banking licences revoked by the CBN stood at 36. In January 2006, licences of 14 banks were also revoked due to their inability to meet the minimum capitalization requirement by the CBN. During the period, some of the distressed banks had ratios of performing credits less than 10% of the total loan portfolios. According to NDIC Annual Reports, the ratio of non-performing loans to total loans of the industry had improved to 21.5% in 2000, and as at the end of 2001, the ratio stood at 16.9%. It depreciated to 21.27% in 2002, 21.59% in 2003, and in 2004, the ratio was 23.08%. (Kargi, 2011)

To measure credit risk, there are a number of ratios employed by researchers. Non-performing loan to loan and Advances (NPLLA) as an integral aspect of asset quality which measures the amount of outstanding loan by which payment has been delayed, defaulted or even no longer anticipated to be made.NPL is directly related to the financial performance of a bank and is the contributing factor to the credit risk of the banking system. An increase in the NPL suggests that there is a high probability of a large number of credit defaults. This in turn affects the net-worth of the bank and also erodes the value of the bank's asset. Moreover, the ratio of Loan Loss Reserves to Gross Loans (LLSRGL) is also another measurement of bank's asset quality that indicates how much of the total portfolio has been provided for but not charged off. The indicator shows that the higher the ratio the poorer the quality and therefore, the higher the risk the loan portfolio will be. In addition, Loan loss provisioning as a share of net interest income (LLPNI) is also a measure of credit quality, which indicates high credit quality by showing low figures, (Funso, Kolade, and Ojo, 2012; Boahene, Dasah and Agyei, 2012; Kargi, 2011).

The Basel Committee on Banking Supervision (1999) affirms that loans are considered to be the largest and most recognizable root of credit risk. Moreover, other sources can be found on other activities that banks can get involved itself in one way or the other. Therefore, part of the requirement for every bank is to be aware of the need to identify measure, monitor and control credit risk while also defining how credit risks could be lowered. This means that a bank must hold sufficient capital against these risks in order to adequately compensate for such risks incurred. Also, Jimenez, Saurina, and Espana (2005) assert that in addition to capital requirements, loan loss provisions can also serve most significant and provident tools that banking regulators use to strengthen the solvency of individual bank and the stability of the banking sector. According to them, the developments of Basel II have also led banks to use capital to cover unexpected losses.

2.5.2 Concept of Liquidity Risk

Liquidity risk in banking sector has become the major focus of international policy with expected delivery of supervisory requirements on an ambitious timeline and its careful management is becoming a strategic need for survival. Also, researchers, international organizations and supervisors such as Driscoll and Covas (2014); Walque, Pierrard and Waymuller (2014); Cucinelli (2013); Varotto (2011); Fadaren (2011); Glossoub (2010); Ayenor and Alper (2009); and the Basel Committee have studied the banking liquidity, providing not only a definition but also developing different liquidity causes, its determinants and liquidity risk management techniques. This is due to the consideration of the fact that the banking sector is part of the supplier of liquidity, issuing liquid liabilities in order to hold less liquid assets, using its capital to cover liquidity risk and making a turn on the provision of liquidity services that justify the cost of the capital involved.

Basel Committee on Banking Supervision BCBS (2008) defines liquidity as an entity's capacity to finance increases in its volume of assets and to comply with its payment obligations on maturity, without incurring unacceptable losses. Moreover, liquidity is the ease with which value can be realized from asset either by using creditworthiness to obtain external funding; or by the sale of owned assets in the marketplace.

The former concept relates to the “funding liquidity” which is the ability of the financial institutions to perform their intermediation functions efficiently. While the later relates to the market liquidity which is the situation where by an asset cannot be sold in the market quickly, or, if its sale is executed very rapidly, and can only be achieved at a heavily discounted price. Market liquidity risk can soon result in the bank facing a funding liquidity crisis (Farag, 2012)

In the view of BCBS (2006), liquidity risk is the probability of acquiring losses through insufficient liquid resources to comply with the agreed payment obligations within a certain time horizon, and having considered the possibility of the entity managing to liquidate its assets in reasonable time and price conditions. It is the risk of not being able to meet expected or unexpected cash flows without affecting daily operations or the entity's financial position. Farag (2013) opines that liquidity risk is that risk whereby a bank or business is unable to meet its commitment as they fall leading to bankruptcy or rise in funding cost. It is regarded as the solvency of business which has special reference to the degree of readiness in which assets can be converted into cash without loss. Moreover, researchers were of the view that liquidity risk arises from a bank's inability to accommodate decreases in liabilities or to fund increases in assets.

Cifuentes, Shin and Ferrucci (2005) investigate the theoretical basis underlying liquidity risk and contagion and assert that, contagious failures can result from small shocks. They further exposed that liquidity requirements on institutions can be as effective as capital requirements in predicting contagious failures. Illiquidity in bank therefore, means that such a bank cannot obtain sufficient funds, either by increasing liabilities or by converting assets promptly at a reasonable cost. Under critical conditions, lack of enough liquidity even results in bank's bankruptcy (Tabari, Ahmadi and Emami, 2013).

Vodova (2013) studied the determinants of liquidity risk and attempt to identify the determinants of liquidity creation. The study highlights that the most important determinants of liquidity risk include macroeconomic variables, capital adequacy and bank profitability and other bank specific variables such as size interest margin, monetary policy interest rate and interest rate on interbank transaction. Fadare (2011) asserts that liquidity ratio, monetary policy rate and lagged loan to deposit ratio are significant for predicting banking liquidity.

Moreover, Cucinelli (2013) argued that liquidity risk can be measured by liquidity coverage ratio and the net stable fund ratio as proposed by Basel Committee (2010); and some specific bank structure variables such as size, competition, asset quality and specialisation. Also, he further highlights that bigger banks maintain a higher liquidity risk exposure, while banks with higher capitalisation present a better liquidity on long horizon.

Berenguer, Gimeno and Nave (2009) tried to explain the role played by liquidity on the deviations of sovereign bonds yields from a theoretical liquidity-free term structure of interest rates. They argued that differences in the level of liquidity of the labels would cause wider movements of prices for less liquid bonds, and therefore liquidity considerations should imply differences in their associated variance.

Moreover, Alzorqan (2014) investigates the causes of liquidity risk and relationship between bank liquidity risk and performance, taking liquidity risk as an endogenous determinant of bank performance. He concluded that liquidity risk and banks performance are positively related. Oluwafemi, Israel, Adebisi, Simeon, and Olawale (2013) focus on the association of risk management practices and financial performance of banks in Nigeria and observed a significant relationship between banks performance and liquidity risk management and suggest the need for banks to practice prudent risks management in order to protect the interests of their investors.

The Basel III standards were therefore, established with the expected benefits to focus on increasing financial stability. The most important factors will include greater resistance of liquidity in the short and long term, improving liquidity risk management and supervision in entities, preventing further systemic liquidity crises and reinforcing investors' confidence (BCBS, 2010). According to the management solutions (2012), the benefits of the liquidity regulation standards are expected to be focused on increasing financial stability in which the

most important factors will include greater resistance of liquidity in the short and long term, improving liquidity risk management and supervision in entities, preventing further systemic liquidity crises and reinforcing investors' confidence.

Farar (2012) asserts that liquidity risks in banking sector can be mitigated in either of the two ways. First, banks can seek to attract stable sources of funding that are less likely to run in the event of stressed market conditions. And second, banks can hold a buffer of highly liquid assets or cash that can be drawn down when their liabilities fall due. This buffer is particularly important if a bank is unable to renew its existing sources of funding or if other assets cannot be liquidated easily. Also, this buffer mitigates both types of the liquidity risk (funding risk and market risk).

Alzorqan (2014) posits that liquidity risk management must reflect different scenarios which include: The "going-concern" scenario which established a benchmark for balance sheet-related cash flows during the normal course of business. This scenario is generally applied to the management of a bank's use of deposits. A second scenario relates to the liquidity of a bank in a crisis situation when a significant part of its liabilities cannot be rolled over or replaced, implying contraction of the bank's balance sheet. This scenario relates to the existing liquidity regulations or supervisory liquidity measures. A third scenario refers to the general market crises, where by liquidity is affected in the entire banking system, or at least in it significant part. Liquidity management under this scenario is centered on credit quality, with significant differences in funding access prevailing among banks.

To measure liquidity risk, there are a number of ratios employed by researchers. The current ratio measures the relationship between total current firm assets and total current firm liabilities. According to this argument, thehigher the ratio, the more liquid the firm is considered to be and it is measured in a relative term. Moreover, another popular ratio used in

measuring liquidity risk is working capital ratio. It measures the amount of funds available to purchase inputs and inventory items after the sale of current firm assets and payment of all current firm liabilities. This ratio is expressed in absolute terms; and therefore, the determination of adequate working capital is related to the size of the firm's operation (Maaka, 2013). Moreover, there are other important new ratios introduced by BCBS. This is due to the fact that one of the major contributors to the recent financial crisis was the inability of banks to roll over their short-term financing. For this fact, two popular ratios were introduced: the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR). This is in order to help improve the banks' short-term (LCR) and long-term (NSFR) balance sheet resilience. Therefore, the LCR estimates the gap between the high-quality liquid assets and the total net cash outflows over the next 30 calendar days under a significantly severe liquidity stress scenario, and the ratio should be to 100%. The objective of the NSFR is to ensure that long-term assets are funded with at least a minimum amount of stable liabilities in relation to their liquidity risk profiles and to limit over-reliance on short-term wholesale funding (for a one year horizon). The NSFR gathers several balance sheet items and weights them with the refinancing part. To meet the Basel III requirements, the NSFR should be superior to 100% (BCBS, 2013).

In addition to the above liquidity risk measurement, loan to deposit ratio (LTDR) can also be used as a measurement of bank liquidity risk. This ratio measures the degree at which loans can be advanced to customers out of the total deposit available to banks (de End, 2013). According to IMF report (2013), liquidity of a bank should depend on total cash requirement of customers. Tesfaye (2012) argued that loan to deposit ratio were significant for predicting banking sector performance. This is in line with the view of Omowunmi (2012), that loan to deposit ratio maintained a highly significant effect on banks' performance.

Therefore, the concept of liquidity risk revolves around a bank's ability to maintain sufficient funds to meet its commitments, which may, in turn, be related to its ability to attract deposits. It is also about matching the maturity of assets and liabilities and coping with any short-term pressures that may arise during the process of ensuring that assets are fully funded.

2.5.3 Concept of Market Risk

According to BCBS (2006), market risk is defined as the risk of losses in on- and off-balance sheet positions resulting from movements in market prices. According to Soyemi (2014), market risk can be seen as the risk of volatility in the market which affects bank's return. It is the risk of loss from adverse movement in financial market rates (interest and exchange rates) and bond, equity or commodity prices.Aruwa and Musa (2014) opined that market risk is the risk that occurred due to changes in the economic environment that that a particular bank operates.

BCBS (2006) maintained that market risk can be categorized into four main types which include: Interest rate risk, currency risk, equity risk, commodity risk, and settlement and counterparty risk.

Interest rate riskarises when the holder of an interestbearing asset such as bond which has a fixed-maturity for its own portfolio. Asthe market interest ratechanges,the market value of the bond also changes. Losses arise when market interest rates increase and the value of the bond decreases, as the discounted future cash flow has a resulting lower present value.

Currency risk arises when the holder of a position is denominated in a non-domestic currency. An example of this risk is a bank that grants a loan in a non-domestic currency. A loss arises when the domestic currency appreciates in value on the exchange markets, resulting in a loss of value on the loan (measured in domestic currency).

Category is equity risk ascends on the holder of an equity position. An example of this risk is a bank that has purchased shares/equities in a company. A loss arises when the share/equity, for instance one traded on a stock exchange, is fixed at a lower market value.

Commodity riskmounts on the holder of a commodity position. An example of commodity risk is a bank that has purchased gold. A loss for the bank arises when the price of gold is fixed at a lower level inthe commodities markets.

Settlement and Counterparty risk: This is the risk that arises on transactions in interest rates, currency, equities or commodities that have not yet been settled. An example is a bank that has purchased a share from another bank that is not the issuer of the share, but which has to deliver the share to the purchaser against payment. A loss arises for either party in the transaction if settlement does not occur.

2.6Concept of Risk-Based Supervision

The term Risk-Based Supervision (RBS) assumed several meaning from various scholars, institutions and organisations. The Basel Committee on Banking Supervision defined Risk-based Supervision as a forward looking approach where by the supervisor assesses the diverse business areas of the financial institution, the associated quality of management and internal controls in order to identify the areas of greatest risk and directs supervisory focus to such areas. Moreover, Financial Action Task Force (FATF) (2014) opines that RBS is a means by which competent authorities and financial institutions develop a more robust, proactive and sophisticated measures, principally at identifying the risk profile exposed to a bank and banking groups in order to adopt a more flexible set of measures proportionate to those risks thereby mitigating them effectively. According to Nwaigwe (2011), RBS is an organized forward looking process planned to ascertain significant risk to which individual banks are exposed, assess the overall risk management policies and practice used to mitigate

such risks and to center supervisory resources, based on the risk characteristics of such institutions. CBN (2011) defined RBS as an effective system of banking supervision by which the supervisors develop and maintain a forward-looking assessment of the risk profile associated with individual banks and banking groups, the recognition of the risks exposed to the banking sector, and the allocation of more supervisory resources to such areas identified with higher risk.

RBS therefore, provides the supervisors with an enabling environment to have an appropriate understanding of the safety and soundness of banks in the banking system, and has a proper mix of an on-site and off-site supervision CBN (2011). Through the off-site analysis and on-site examinations, the supervisors can monitor that banks comply with the banking regulations and check to make sure that sound practices for the identification, monitoring, management and control of banking risks are put in place, and to satisfy the supervisor that banks will not face serious problems in the future. Moreover, principle 13 of the Core Principles for Effective Banking Supervision states that: "Banking supervisors must be satisfied that banks have in place a comprehensive risk management process (including appropriate board and senior management oversight) to identify, measure, monitor and control all other material risks and, where appropriate, to hold capital against these risks" (BCBS,2012).

The 14th International Conference of Banking supervisors was of the view that the essence of RBS was based on the supervisors' explicit assessment of risk, and its key distinguishing feature is that supervisory resources are allocated where they are needed most (BCBS, 2012). RBS therefore provides definite advantages to supervisors in understanding the risks in banks and in their businesses. Risk-based supervision has been adopted by supervisors in various countries with varying degrees of success.

Moreover, according to Hilbers, Raaijmakers, Rijsbergen and de Vries (2013), indicators for measuring the effect of financial supervision can be grouped into two which include: hard indicators based on quantitative data, and soft indicators mainly derived from qualitative data. Various hard indicators available to financial supervisors for measuring the effects of supervision include those indicators based on market data, such as credit ratings, stock prices or the level of credit default swap (CDS) spreads for a financial institution, levels of private investments in high-risk products, nature of financial products launched and financial institutions' revenue models,and the number of criminal investigations resulting from unusual transaction reports of financial institutions.These indicators reflect the risk profile of the relevant institution as observed by market parties. More so, supervisors can select other hard indicators that reflect specific supervisory requirements, such as solvency and liquidity ratios, and those indicators that relates to the number of bankruptcies among supervised institutions and the amount of losses accompanied by these defaults among others.

Soft indicators are derived mainly from qualitative information such as public confidence in the financial sector or in financial supervisors, level of compliance with assessment criteria relating to qualitative aspects of supervision such as business models, strategy and governance within financial institutions. Others include outcome of external or peer reviews that measure the level of compliance towards national or international supervisory standards, stakeholders' surveys to measure the perceived effectiveness of the supervision, and the determination of the quality of supervision through back testing supervisory methods (Hilbers, Raaijmakers, Rijsbergen and de Vries, 2013)

Therefore, going by the above, we can assert that RBS has to do with the overall effort of the financial regulators to clearly identify the financial activities employed by a bank and the banking groups, the determination of the types and amounts of risk to which these activities

depict the institution, the consideration of the quality of management and internal control system and the application of a more flexible set of measures proportionate to those risks by regulators thereby mitigating them efficiently.

2.6.1 Off-Site and On-Site Banking Supervision

According to the Basel Committee on Banking Supervision BCBS (2006), off-site and on-site supervision are two sides of one coin: they complement each other, and would not be complete without each other. The Principle prescribed is that both off-site monitoring and on-site inspections represent the preconditions for effective banking supervision. The key element is that the two processes are intertwined and that there is a free flow of information among the two processes (EU, 2005).

Off-site supervision is the process of collecting quantitative information that can provide the supervisor with material evidence about the past and current standing of the banks. This will therefore, enable the supervisor to store the collected data or information in a database in order to allow for an automatic evaluation. Offsite monitoring provides an early warning of the potential areas of concern or risk exposure as well as macro information about the banking industry (Salam, 2010). The overall purpose is to assess whether there is a need for supervisory action. The main objectives of off-site supervision include monitoring the development and levels of banks risk in a benchmarking exercise at individual levels and comparing the bank with a peer group of comparable institutions; the monitoring of a bank's compliance with prudential limits; and providing input for the prioritisation of supervisory resources and for planning of inspections (Espenilla, 2007; EU,2005). In an off-site supervision, the analytical methods for banks assessment include a simple approachbased on some financial ratios basically for observing and analysing indicators in the bank's balance sheet, income statement, and others in order to identify any possible deterioration of a bank's

position in normative terms or relative to competitors; and an advanced approachusing statistical econometric analysis combined with additional qualitative indicators allowing for the estimation and rating of the probability of bank default. Generally, the supervisory report must cover both the quantitative and qualitative elements of banks' capital adequacy, liquidity condition, composition of asset quality and liabilities, earning powers, risk concentration, management competency, and the internal control system (EU, 2005).

On the other hand, On-site examination enhances the sustenance of public confidence and the integrity of the banking system. The primary objective here is to allow the supervisor to have a better understanding of the banking business and the risks profile of an individual bank as well as the quality of the management; and to obtain the assurance that the regulatory framework is being implemented correctly and that banks are managed and organised in a proper and sound manner, including the risk management framework (EU, 2005). On-site examination also provides the best means for determining institution's adherence to laws and regulations and helps to prevent problem situations from remaining uncorrected and deteriorating to the point that resolution is required (EU, 2008;). Moreover, the on-site supervision is better suited to address the qualitative elements of banks. It is usually undertaken to determine the reliability andstrength of the banks' management, procedures and risk management systems (Lichtenstein, 2006). It increases the scope of supervision and improves the interpretation of reports and other information submitted to the supervisors. Without on-site assessment, it would be difficult for the supervisor to maintain a system that combines both compliance-based supervision and risk-based approach (NDIC, 2014).

Moreover, both On-site and off-site supervision ensure that institutions remain healthy at all times and/or where there are problems, they would be detected and addressed promptly. In

addition, the approach protects the bank depositors, encourages competition among banks and assists in efficient and orderly payment system (NDIC, 2014).

2.6.2 Risk to which the NigerianDMBs areexposed.

The second round effectof the recent financial crises on the Nigerian DMBs was quite challenging for the financial systemstability. Moreover, several risk components were exposed to the Nigerian banking sector which threatens their ability to appropriately perform their financial intermediation functions (Sunusi, 2012).

Banks were significantly exposed to the oil industry. They extended huge credit facilities to operators in the oil and gas sector. Therefore, as prices and demand dropped significantly, many of such facilities went bad; leaving a huge portfolio of non-performing loans (NPLs) in the banks' balance sheets. Also, there was a significant exposure of banks to the capital market which threatened the banking sector stability. These led to some banks (including those with substantial market share), to have their capital completely worn out and became insolvent(Sunusi, 2012).

Therefore, the resultant effect of stock market crash,revenue decline, credit crunch, illiquidity, severe regulatory lapses, and corporate governance issues launched the banking system crisis and threatened financial system and macroeconomic stability. These led to the emergence of credit risks and liquidity risks among others in the Nigerian banking industry which posed huge challenges to the Central Bank of Nigeria (CBN) and other regulators in the economy.

2.7 Review of Empirical Studies

In an attempt to examine the relationships that exist between RBS and DMBs performance, empirical studies were reviewed and these include the following:

Boahene, Dasah and Agyei (2012) employed a sample of 6 commercial banks to examine the impact of credit risk on banks profitability in Ghana. Using panel data covering the period of 2005-2009 within the fixed effects model, the study employed regression to test for the presence of the relationship. The study found evidence of positive and significant relationship between credit risk and bank profitability. However, finding shows that banks in Ghana enjoy high profitability in spite of high credit risk contrary to the normal view that credit risk indicators behave negatively in relation to profitability.

Kolapo, Kolade and Ojo (2012) employed a sampled of 5 commercial banks to investigate the quantitative effect of credit risk on the performance of commercial banks in Nigeria over the period of 11 years (2000-2010). Panel data regression model was used to estimate the determinants of the profitability function. The results showed that the effect of credit risk on bank performance measured by the banks Return on Assets is cross-sectional invariant. This shows that the effect is similar across banks in Nigeria. However, the method of analysis employed in the study failed to capture the degree to which individual banks are affected.

Mileris (2012) using 22 EU countries grouped into 3 clusters according to their similarity in changes of the doubtful and non-performing loans percentage in banks with the aim to finding the macroeconomic determinants that significantly influence the changes of loan portfolio credit risk in banks and to develop the statistical model for prediction of the proportion of doubtful and non-performing loans. The set of 20 independent variables as factors determining the changes in amount of doubtful and non-performing loans was created and calculated from 9 macroeconomic indicators of 3 years. The model was developed to classify the countries into clusters applying the logistic regression, factor analysis and probit methods and the classification assumed 100%accuracy. The multiple regression and polynomial regression methods were applied for the index predictions in clusters. The

research confirmed that the amount of doubtful and non-performing loans in banks highly depends on macroeconomic changes in a country. Moreover, the model can warn the banks in advance if the significant increase in the loan portfolio credit risk after 2 years is highly possible. However, the model developed did not attempt to analyse the level at which credit risk determinants affect banks performance.

Messai and Jouini (2013) tried to detect the determinants of non-performing loans for a sample of 85 banks in three countries (Italy, Greece and Spain) for the period of 2004-2008. Using panel data model, the study employed a Pearson correlation coefficient to examine the relationship between macroeconomic variables (rate of growth of GDP, unemployment rate and real interest rate) with respect to specific variables (return on assets, the change in loans and the loan loss reserves to total loans ratio). The study found that problem loans vary negatively with the growth rate of GDP, the profitability of banks' assets and positively with the unemployment rate, the loan loss reserves to total loans and the real interest rate. The study did not attempt to show the significant influence of the regulators in managing these loans.

Moreover, Abiola and Olausi (2014) employed a sample of seven (7) commercial banks to investigate the impact of credit risk management on the performance of commercial banks in Nigeria covering the period of seven years (2005 - 2011). Using paneldata regression model to estimate the relationship between the dependent variable measured by Return on Equity (ROE) and Return on Asset (ROA) as banks performance indicators, and Non-Performing Loans (NPL) and Capital Adequacy Ratio (CAR) as credit risk management indicators, the findings revealed that credit risk management has a significant impact on the profitability of commercial banks' in Nigeria. The study failed to consider the combine effect of the other risk components on the performance of these banks.

Tracey (2011) investigates the impact of NPLs on Loan growth of Jamaica and Trinidad and Tobago. By estimating the threshold range for the Loan-NPL relationship using regression analysis for two Caribbean countries, the results suggest a threshold range for NPLs as determining differential loan behavior of banks. The implication is that, bank lending behavior could restrain economic activity, especially in periods of stress when NPLs are high. However, the study failed to estimate the threshold of NPLs on loan growth by separating the countries and see its impact on the economy.

Abdul-Aziz, Ibrahim and Isa (2009) employed a sample of four commercial banks in Malaysia to investigate the sector which contributes to the largest portion in non-performing loans (NPLs) and loan recovery income to profitability performance for each bank. Using data based on the banks' equity and annual revenue, the study employed trend analysis and multiple regression analysis to examine the existence of the relationship. The result from the analysis shows that financing to purchase residential property turned out as the largest contributor to non-performing loans (NPLs). The test also indicates that there is a significant impact of NPLs to profitability performance for foreign banks whereas for local banks itdepends on the individual bank. From the test also, it showed that there is no significant impact on loan recovery income towards profitability performance. But the study did not attempt to investigate the impact of the stake holders on managing these loans and how it result to performance enhancement.

Clementina and Isu (2014) employed secondary data published by CBN, and from International Financial Statistics (an IMF Publication) covering the period of 29 years (1984 – 2012) to confirm the assertion or otherwise that non- performing loans tend to increase when the economy slacks into a recession. Using multiple regression, the study found that increase in non-performing loans impacted negatively on the Gross Domestic Product in

Nigeria and that increase in lending rate and inflation rate cause non-performing loans to increase. The study did not consider the influence of the supervisory bodies on the management of these loans.

Godleweski (2004) investigates the impact of regulatory and institutional factors of an Emerging Market Economies on excessive credit risk taking in banks from Asia, Latin America andCentral and Eastern Europe. Using two step logit models to a data base of such banks, the results confirm the role of the institutional and regulatory environment as a source of excessive credit risk which increases bank failure risk. According to the study, the integration of these environmental variables significantly contributes to the explanatory and discriminatory power of the model of bank default prediction. However, the study failed to investigates how such institutions and regulators impact on the banks' performance.

Jimenez and Saurina (2006) tried to examine the banking regulatory tools that can contribute to dampen business-cycle fluctuations and, thus, to enhance financial stability in the Spanish banking sector focusing on commercial and saving banks covering the period of eighteen years (1984 - 2002). Using Logit and Probit model, the study finds a strong positive relationship between rapid credit growth and loan loss. The study also confirms an empirical evidence of more lenient credit standards during boom periods. Moreover, the study develop a regulatory prudential tool, based on a forward-looking, loan loss provision that takes into account the credit risk profile of banks' loan portfolios along the business cycle and maintained that provision might contribute to reinforce the soundness and the stability of banking systems. The study did not investigate how those regulators impact on the performance of the banks.

Haneef, Riaz, Ramzan, Rana, Ishaq and Karim (2012) employed a sample of five commercial banks to investigate the impact of risk management on non- performing loan and profitability

of the banking sector of Pakistan. Using data obtained through questionnaires, the study analysed the Risk management practices in banks and variation of NPL & Profitability through Bar & Pie Chart analysis. The result of the study reveals that there is no proper mechanism for risk management in banking sector of Pakistan. Moreover, the study also concluded that non-performing loans are increasing due to lack of risk management which threatens the profitability of banks. This study provides suggestion that the banking sector can avoid their non-performing loans by adopting methods suggested by state bank of Pakistan. However, the study did not analyse the level of the relationship among the variables.

Soyemi, Omowunmi and Ashogbon (2014) examined the impact risk management practices among deposit money banks in Nigeria with a view to relating these practices to their financial performance in the 2012 financial year. Using data cross sectional data obtained through content analysis of the sampled banks' annual reports and accounts on variables such as non-performing loans, liquidity, operating cost and capital adequacy to measure risk management practices, the study employed descriptive statistics to depict patterns of the relationship and then OLS regression was used to estimate the significant influence between the banks' risk management practices and their financial performance. The findings exposed that risk management practices in the banking sector have a significant impact on financial performance. However, the data used by the study was cross sectional in nature. There is the need to employ time series or panel data in the analyses.

Kargi (2011) employed a sample of six DMBs to examine the impact of credit risk on the profitability of banks in Nigeria. Using time series and cross sectional data covering the period of five years (2004 - 2008), the study employed descriptive statistics, correlation and

regression techniques to analyse the data. The result of the study revealed that credit risk management has a significant impact on the profitability ofDMBs in Nigeria.

Alzorqan (2014) employed a sample of two banks (commercial banks) to investigate the lies in the difficulty of estimating the level of bank liquidity that commercial banks must keep that guarantees the fulfillment of all its financial obligations, and at the same time enable them to maximize investments and profits in Jordan. Using panel data covering the period of 2008 – 2012, regression analysis was employed to investigate the relationship between banks liquidity risk and performance. The findings show that there is statistically significant relationship between liquidity risk management and performance of Jordanian banks. However, the study utilised few commercial banks in the analysis. Also, Alshatti (2015) employed a sample of thirteen commercial banks to investigate the effect of liquidity management on profitability in Jordan. Using a time series data covering the period of eight years, the research employed regression analysis to investigate the relationship between liquidity indicators (investment ratio, Quick ratio, capital ratio, net credit facilities/ total assets and liquid assets ratio) and profitability (return on equity and return on assets). The empirical results revealed a positive effect of the increase in the quick ratio and the investment ratio of the available funds on the profitability, while there is a negative effect of the capital ratio and the liquid assets ratio on the profitability of the Jordanian commercial banks.

Tabari, Ahmadi, Emami (2013) employed a sample of fifteen banks to examine the effect of liquidity risk on the performance of commercial banks in Iran. Using panel data covering the period of eight years (2003 - 2010), panel data regression model was employed to test the relationship. The result of the study shows that the variables of bank's size, bank's asset, gross

domestic product and inflation will cause to improve the performance of banks, while credit risk and liquidity risk will cause to weaken the performance of banks.

Tesfaye (2012) employed a sample of eight commercial banks to to identify the determinants of commercial banks liquidity and then to see their impact on banks financial performance in Ethiopia through the significant variables explaining liquidity. Using panel data covering the period of twelve years (2000 - 2011), the study employed a balanced fixed effect panel regression in the analyses. The findings indicate that capital adequacy, bank size, share of non-performing loans in the total volume of loans, interest rate margin, inflation rate and short term interest rate had positive and statistically significant impact on banks liquidity. Real GDP growth rate and loan growth had statistically insignificant impact on banks liquidity. Moreover, among the statistically significant factors affecting banks liquidity, capital adequacy and bank size had positive impact on financial performance whereas, non-performing loans and short term interest rate had negative impact on financial performance. Interest rate margin and inflation had negative but statistically insignificant impact on financial performance. Therefore, the study revealed that the impact of bank liquidity on financial performance was non-linear/positive and negative.

Akanet (2014) examined a sample of five listed DMBs to find out the cause and effect relationship between liquidity and profitability in Nigeria. Using panel data covering the period of seven years (2005 - 2011), the study employed regression analysis and descriptive statistics to analyse the impact of bank liquidity on its financial performance. The result shows that profitability represented by Return on Equity (ROE) is influenced by two liquidity ratios which are current ratio and cash ratio while quick ratio has no significant relationship with profitability among the listed Nigerian DMBs. But the study did not include total deposit from the banks customers in the analysis. Ibe (2013) employed a sample of three banks to

investigate the impact of liquidity management on the profitability of banks in Nigeria. Using the panel data covering the period of sixteen years (1995 - 2010), the study employed Elliot Rothenberg Stock (ERS) stationary test model to test run association of the variables under study while regression analysis was used to test the relationship. The findings of the study show that there is a significant relationship between liquidity and bank profitability. However, the size of the sample selected to represent the entire population is not enough for the analysis.

Lartey, Antwi and Boadi (2013) employed a sample of seven listed banks to find out the relationship between the liquidity and the profitability of banks listed in Ghana. Using time series data covering the period of six years (2005 - 2010), the study employed apanel data regression to analyse the relationship. The findingsreveal a very weak positive relationship between the liquidity and the profitability of banks in Ghana.

Ogbuabor, Malaolu and Mba (2013) employed a sample of five commercial banks to examine the impact of informality on the liquidity of the banking system in Nigeria. Using a panel data covering the period of thirteen years (2000 - 2012), the study employed a panel data regression to investigate the relationship. The findings indicate that informality impacts negatively on the liquidity of DMBs in Nigeria. Specifically, the study found that a unit increase in the size of the informal sector results in 7.44% deterioration in the liquidity of deposit money banks. However, the study failed to examine the contribution of such sector (informal sector) in terms of banks profitability.

Tafri, Hamid, Meera, and Omar (2009) utilised a sample of 36 banks to examine the relationship between financial risks and profitability of the conventional and Islamic banks in Malaysia. Using a panel data of fixed effects and random effects models covering the period of ten years (1996 - 2005), the study employed a panel data regression to examine the

relationship between profitability (ROE and ROA) and financial risk (credit risk, interest rate risk and liquidity risks). The study found that credit risk has a significant impact on profitability for the conventional as well as the Islamic banks. Moreover, liquidity risk was found to have an insignificant impact on both profitability measures. However, the study employed interest rate which is found to be an external variable to banks.

Agbada (2013) employed a sample of 300 banks from Asaba, Benin City and Lagos, to explore the efficacy of liquidity management and banking performance in Nigeria. Using the data obtained from a structured questionnaire covering the period, the study employed a Pearson product-moment correlation coefficient to analyse the data. The study revealed a significant relationship between efficient liquidity management and banking performance and that efficient liquidity management enhances the soundness of banks. However, the study failed to use longitudinal data for the analysis. Moreover, Ejoh**,** Okpa and Inyang (2014) examined the extent to which the relationship between credit risk and liquidity risk influence the probability of bank defaults among DBMs, a study of First bank of Nigeria Plc. Using experimental research design where questionnaires were administered to a sample of eighty (80) respondents, the study analysed the data by simple percentage. The Pearson product moment correlation and chi-square result found a positive relationship between liquidity risk and credit risk. However, the study employed a single bank and failed to utilise a longitudinal data in the analysis.

Thus, this study differs from the above studies in that they considered risk management practices as an internal aspect of the individual banks concerned, and thus increase performance. None of them looked at the management of these risks as the responsibility of the regulatory and supervisory authorities of the banking sector. Also, this study willinvestigate the impact of Risk-Based Supervision (RBS) measured by credit and

liquidityrisks management as a product of supervisory concerned with the performance DMBs measured by return on assets (ROA) missing in the previous studies. Therefore, this study is designed to fill these literature gaps.

2.8 Theoretical Framework

There exist several theories that explain performance resultedbehaviour displayed by either of the stake holders (regulators, owners, customer, society and the like). These theories among others include: Anticipated income theory, Commercial loan theory and Bankruptcy costs theory.Anticipated income theory holds that liquidity can be managed through the proper phasing and structuring of the loan made by a bank to the customer andthese point the self-liquidating commitment by banks. Commercial loan theory emphasizes on the maturity structure of bank assets (loan and investments) and assumes that repayment from the self-liquidating assets of the bank would be sufficient to provide for liquidity.Bankruptcy costs theory explains the fact that behaviours of stakeholders (customers) effectively reduce the value of the firm.

The above theories cannot hold in this study because the consideration is on banking supervision by the regulatory bodies and how their activities lead to higher performance. Therefore, theories that best explain RBS (liquidity and credit risk management) and performance are discussed below:

i. Shiftability Theory

This theory postulates that a bank's liquidity is maintained if it holds assets that could be shifted or sold to other lenders or investors for cash. This argument holds that a bank's liquidity could be improved if it continuously possesses assets to sell and provided that regulating authorities such as the CBN and the discounting market are ready to purchase the

asset offered for discount. Thus, this theory contends that shiftability, marketability or transferability of a bank's assets stand to be the basis for ensuring liquidity.

The theory further argued that highly marketable security held by a bank is an outstanding and excellent source of liquidity. Dodds (1982) posits that to ensure convertibility without interruption and substantial loss, such assets must meet certain conditions. Also, Dodds (1982) argued that liability management theory and liquidity management theory consist of all such activities involved in obtaining funds from depositors and other creditors especially from the market and determining the appropriate mix of funds for a particular bank. This point of view contends that liability management must seek to answer the following questions; how do banks obtain funds from depositors?How do they obtain funds from other creditors?What is the appropriate mix of the funds for any bank?

Therefore, this relates to both the banks and depositors' effort to fulfill their financial obligations as they fall due thereby preventing the likelihood of emergence of all sorts of risks. The supervisors must ensure that managers inspect those activities involved in enhancing the liquidity needs of the bank through the proper use of borrowed funds.

ii. **Regulatory and Efficient Market-Monitoring Theory**

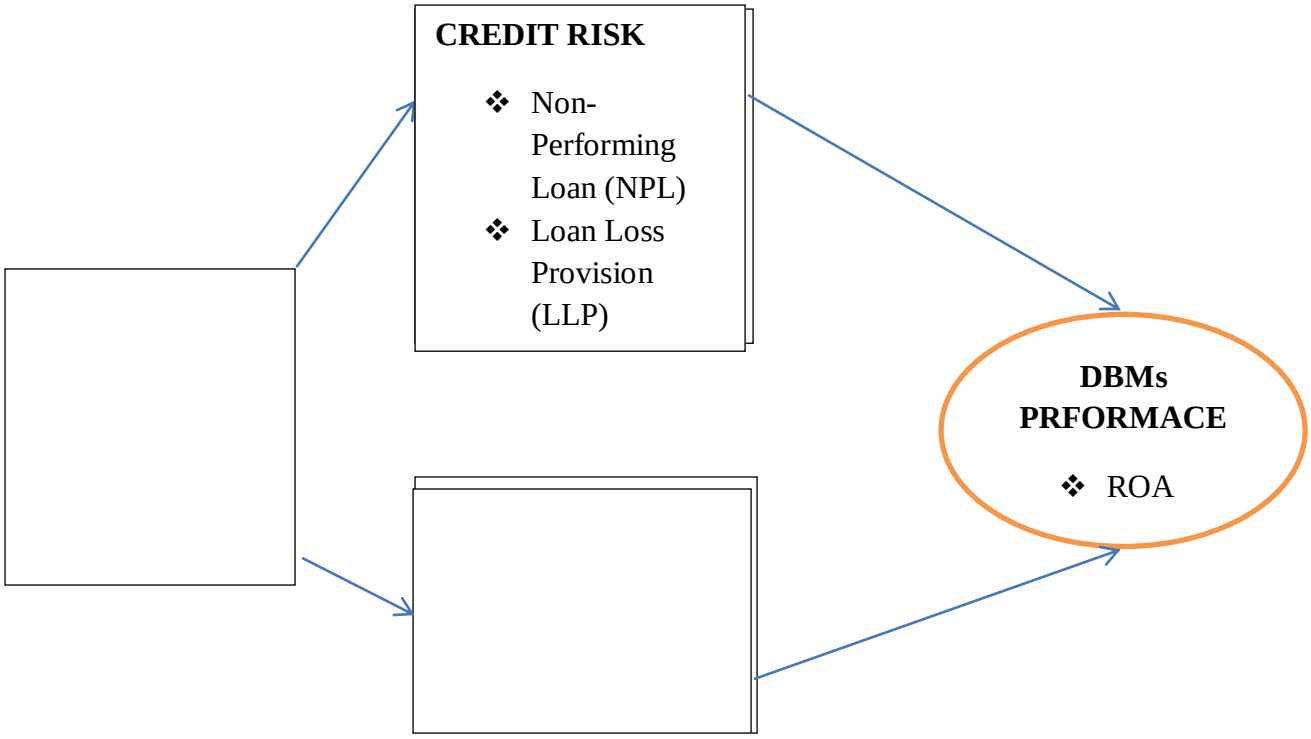
This theory asserts that performance can only be achieved through efficient market monitoring and other mechanisms that will call for an increase in efficiency when performance is deemed inadequate. Thus, an important factor contributing to a positive relationship between risk management and banks efficiency relates to the actions of regulators and supervisors.According to the theory, banks could only respond to regulatory actions when they are forced to increase their concern on various risk management practices. Therefore, the need to control high incidence of loan default occasioned by increased lending activities is the general motive for reforms in financial systems in a given economy of the

world. Moreover, any empirical approach used to model the relationships between efficient risk management is also required to take into account bank performance. Harley (2011)posits that government should regulate investment policy for banks in order to allow for increase efficiency and to be globally competitive. For according to Ezeoha(2011), sound regulatory structures ensure obedience to the laid down rules, guiding banks' corporate governance behaviours and specially moderating the conduct of bank managements which ensures adequate and reasonable performance.

The decision to anchor the study on these theories was informed by the fact that the study looked at the impact of risk-based supervision indicated by some measurement of risk which includes credit risk and liquidity risk on the performance peroxided by return on asset of the selected deposit money banks. Thus, the theories provide a way of linking the variables of the study.

2.9Conceptual framework

Based on the above theories, the conceptual framework that shows the relationship between the dependent and independent variable as used in the research is stated as below:



Source: Author's computation.

The above diagram shows the link between Risks-Based Supervision (RBS) indicated by credit risk (measured NPL and LLP) and liquidity risk (measured by LTDR) and performance (indicated by ROA). The implication here is that,proper and careful management of these risks by the supervisory authorities (CBN and NDIC) will result to performance enhancement by the Nigerian DBMs.The justification for this is that, according to the above theories, there should be a form of supervisory action that will check the conduct of banks managements in those areas that are highly exposed to risk which at the end will ensure adequate and reasonable performance.

CHAPTER THREE
METHODOLOGY

3.1 Introduction

This study aims at determining the impact of RBS on the financial performance of DMBs in Nigeria. In order to achieve the stated objectives, this chapter outlines and explains the methodological issues relating to the study. It further gives clear explanation of the basic research design, population and sampling design of the study, sources and method used in the collection of data, variables measurement, and the techniques used in analysing data with the justification for the methods used.

3.2 Research Design

The study used a longitudinal research design. This is viewed to be more appropriate because it describes the statistical relationship between two or more variables over a period of time. This is justifiable because it allows the researcher to focus on intra individual change, developmental sequences, and co-occurring social and environmental changes that assist one to advance theoretical/explanatory accounts of whatever change occurs. The design allows for the construction of the shape of developmental function and let the researcher examine differences between entities in terms of the entire developmental function. Thus, the study measured three independent variables which are non-performing loan (NPL), loan loss provision (LLP), and loan to deposit ratio (LTDR) to one dependent variable, that is, return on assets (ROA), as well as examining the relationship in terms of changes in their developmental sequence over a period of time.

3.3 Research Population and Sample

The population of the study comprised of all DMBs listed on the Nigerian stock exchange as at Dec. 2014. The total number of the listed DMBs in Nigeria as at 2014 stood at 21 (NSE, 2014). For this purpose, a census strategy is adopted. However, for any bank to be considered, the following criteria must be satisfied:

i. The bank must have been listed on the Nigerian stock exchange before the adoption of RBS in the Nigerian DMBs in 2009.
ii. The bank must not have acquired or merged with any firm before the adoption of RBS.

Following the above criteria, eleven banks (11) were removed out of the twenty one (21) by the above filters. Therefore, ten (10) banks were obtained. These include Diamond Bank, Fidelity Bank, Guaranty Trust Bank plc, Sky Bank plc, Sterling Bank plc, United Bank for Africa plc, Union Bank plc, Unity Bank plc, WEMA Bank plc, and Zenith International Bank plc. The remaining banks were not included in the analysis because they did not meet the above stated criteria.Therefore, analysiswas made based on the availability of the data.

3.4 Sources and Method of Data Collection

This research utilised secondary data as the main data sourcethrough the instrument of documentation. The study used the panel data extracted from the financial statements of the selected banks for the sample period from five years. The rationale behind the empirical analysis of this research is to determine the impact of RBS practices onDMBs in the post adoption era (from 2009 to 2013).

3.5 Variables Measurement

The dependent and independent variables in the study will be measured as thus:

3.5.1 Independent Variables

The independent variable used in the study includesRisk Based Supervision peroxided by credit riskand liquidity risk. Credit risk is measured by the rate of Non-Performing Loan(NPL) and Loan Loss Provision (LLP)as used by Charles and Kenneth (2013), Yan (2013), Funso, Kolade and Ojo (2012), and Jimenez, Wagner and Knaup (2010) and Saurina (2006). While liquidity risk as maintained by End (2013) is measured byLoan to Deposit Ratio (LTDR) as used by Omowunmi (2012) andAilemen and Oyero (2013). The use of this measurementcan serve as an effective indicator of liquidity risk (End, 2013& Tesfaye, 2012).This is justifiable because the apex regulatory authorities were of more concern on these risks as they affect the Nigerian DMBs during the 2008 banking crisis in Nigeria.

3.5.2 Dependent Variable

The research used Return on Asset as the dependent variable. This is the ratio of net operating profit earned by a company from its business operations in a given period of time to the amount of the company's total asset, as used by Charles and Kenneth (2013), Funso, Kolade and Ojo (2012), Kargi (2011) and Wagner and Knaup (2010).

This is justifiable because ROA cannot be distorted by high equity multiplier and tends to be lower for financial intermediaries because most banks heavily utilize financial leverage to increase their ROE to competitive levels. While ROA denotes organizational performance as it portrays how effective and efficient the management of banks has been as they seek to transform assets into earnings. The higher this ratio is, the higher the performance of the banks.

Table 3.5.1: Description of the Variables

Variables	**Descriptions**	**Measurement**
Return on Asset (ROA)	Dependent	This is the ratio of net operating profit earned by a company from its business operations in a given period of time to the amount of the company's total asset. It is computed as thus: Earnings before interest and tax to total assets EBIT/TA.ROA=$\frac{\text{EBIT}}{TA}$
Non- Performing Loans (NPL)	Independent	These are credits which the banks perceive as possible losses of loan due to loan default. It is computed as the ratio of non-performing loan to loans and advances. NPL=$\frac{\text{NPL}}{LADV}$
Loan Loss Provisions (LLP)	Independent	This is the amount of money that a bank set aside from its annual earnings as a precaution against possible loss of a non-performing loan, or to off-set a lost credit facility.it is computed as the ratio of loan loss provision to loans and advances.LLP=$\frac{\text{LLP}}{LTDR}$
Loan to Deposit (LTDR)	Independent	This is the total amount of loans advanced to customers out of the total deposit of the banks. It is computed as the total loan and advances to total deposit of the banks. LTDR=$\frac{\text{LADV}}{TL}$
Bank Size (BSZ)	Control	Natural log of total assets to control for the effect of bank size on the performance.

Source: Author's Compilation, 2015.

3.6 Technique of Data Analysis

The research used panel data regression model analysis to examine the causal relationship of the various aspects of credit and liquidity risk on the performance of DMBs. The regression model was analysed from the financial reports of the banks that had been in operation since 2009 and whose annual reports were available for the periods. The statements of financial position as well as the statement of financial performance and their notes were studied to get the data for the variables mentioned in the model.

The nature of data used in the study enabled the use of panel/longitudinal data model which is believed to have an advantage over cross sectional and time series data method. Panel data involves the pooling of observations on the cross-sectional over several time periods.

The justification of using panel data set can be summarized as follows: first and most importantly is that, panel data can be used to address a broader range of issues and tackle more complex problems than would not be possible with pure time-series or pure cross-sectional data alone. Secondly, it can be used to examine how variables, or the relationships between them, change over time. To do this using pure time-series data would usually require a long run of data simply to get a sufficient number of observations that will allow for a meaningful hypothesis tests. Nevertheless, by combining cross-sectional and time series data, one can increase the number of degrees of freedom, and thus the power of the test, by using information on the dynamic behavior of a large number of entities at the same time. The additional deviation introduced by combining the data can also help to mitigate problems of multicollinearity that can arise if time series are modeled individually. Lastly, by structuring the model in an appropriate way, it can enable one to remove the impact of certain forms of omitted variables bias in regression results. Thus, the general panel/longitudinal regression model is presented as follows:

$y_{it} = \alpha_o + \beta x_{it} + u_{it}$ ……. (i)

Where:

Y_{it} =is the dependent variable

i = Cross-section

t=Time-series facet.

α_o= intercept coefficient

β = Vector of parameters to be estimated on the explanatory variables,

x_{it}=Vector of observations on the explanatory variables

u_{it}= error term

Source: Brooks**,** 2008.

3.6.1 The Analytical Model

General models that incorporated all the variables to test the hypotheses of the study were stated based on the model by Brooks (2008)as follows:

$ROA_{it} = \beta o + \beta 1 NPL_{it} + \beta 2 LLP_{it} + \beta 3 LTDR_{it} + \beta 4 BSZ_{it} + u_i$ …….. (ii)

Where:

ROA_{it}=Return on asset

βo= Constant value

NPL_{it} = Non-Performing Loan

LLP_{it} = Loan Loss Provision

$LTDR_{it}$ = Loan to Deposit Ratio

BSZ_{it}= Bank Size

u_{it} = Random error term

The descriptive statistics examined the means and standard deviations of regression variables. This research measures the goodness to fit the regression model for performance and RBS using the r squared (R^2) value. The R^2represented the proportion of variation of the dependent variable, accountedfor by the independent variables in the regression model. The highest R^2 value indicates strong predictability of the model while lowest R^2 value shows a weak predictability. The researchalso observed significant p-value of the regression model in order to determine the significance tests of the regression coefficients.

In order to ascertain the reliability of the regression models, robustness testwas performed. In estimating the panel data regression models, two models of Generalized Least Squares (GLS) regression are used, namely, GLS model with fixed effects and GLS model with random effects. This research usedHousman specification test to identify the most suitable model between the two in order to control for unobservable heterogeneity across individuals. Also, Heteroscedasticity-consistent standard error estimate was made to account for the existence of Heteroscedasticity.The effect of using the correction is that, if the variance of the errors is positively related to the square of an explanatory variable, the standard errors for the slope coefficients are increased relative to the usual OLS standard errors, which would make hypothesis testing more conservative, so that more evidence would be required against the null hypothesis before it would be rejected.

The use of inferential statistics is to make inferences or judgments about the population on the basis of the research sample as asserted by Kim and Rasiah in Zikmud (2003). In addition, the econometric software package (STATA 13.0) was used to analyse the data.

The equation of the modelused tested the overall impact of RBS on the performance of DMBs in Nigeria.

As regards the first hypothesis which states that Non-Performing Loans do not have any significant impact on the performance of DMBs in Nigeria, STATA 13.0 wasutilised as the statistical tool to test the hypothesis. Non-Performing Loans is measured as the ratio of non-performing loan to loans and advances. The null hypothesis is rejected on the basis that the P-value obtained is less than 5%. This implies that the coefficient shows the unit change in performance resulting from a unit in the amount of Non-Performing Loans.

The second hypothesis which maintained that Loan Loss Provision does not have any significant impact on the performance of DMBs in Nigeria is measured as the ratio of loan loss provision to classified loans. The tool utilised to predict the relationship between Loan Loss Provision and performance wasSTATA 13.0. The hypothesis is rejected if the P- value obtained is at less than 5%. This indicates that the coefficient shows the unit change in performance resulting from a unit change in the amount of Loan Loss Provision of the banks.

The third hypothesis which states that Loan to Deposit Ratio does not have any significant impact on the performance of DMBs in Nigeria will be rejected if the P- value is significant at less than 5%. The coefficient will indicate a unit change in performance resulting from a unit change in the amount of Loan to Deposit of the bank. LTDR is measured as the total loan and advances to total deposit of the banks.

CHAPTER FOUR
DATA PRESENTATION AND ANALYSIS

4.1 Introduction

This chapter analysed the data collected for the study. It also tested the research hypotheses and discussed the findings in the light of the literature previously reviewed. Finally, the chapter highlighted the key policy implications of the research findings.

4.2 Descriptive Statistics

The summary of the descriptive statistics of variables used for the study is given as follows:

Table 4.2.1: Summary of Descriptive Statistics

Variables	Mean	Std. Dev.	Minimum	Maximum	Shapiro-Wilk Test for Normality
ROA	0.0129228	0.0283931	-0.081661	0.0638171	2.928***
NPL	0.1901402	0.3954802	0.0004572	2.44119	6.780***
LLP	-0.0954084	0.293022	-1.824618	0.5207099	6.780***
LTDR	0.5468821	0.1534861	0.2982926	0.9600365	1.609**
BSZ	11.8745	0.3201197	11.15469	12.4592	0.152

Source: Output generated using Stata

***, **, * represent significance at 1%, 5% and 10% respectively.

Table 4.2.1 shows the summary of descriptive statistics of the data used for all the variables of the study. The result is attached as appendix I. From the table, the mean values of ROA, NPL, LLP, LTDR and BSZ are 0.0129228, 0.1901402, -0.0954084, 0.5468821 and 11.8745 respectively. The independent variable NPL has the highest standard deviation of 0.3954802, suggesting that it has relatively the highest dispersion from the mean of the values relating to

the variables. In addition, the level of variables during the period of the study lies between -0.081661 and 0.0638171, 0.0004572 and 2.44119, -1.824618 and 0.5207099, 0.2982926 and 0.9600365, and 11.15469 and 12.4592 respectively for ROA, NPL, LLP, LTDR and BSZ. The implication is that the data set did not indicate growth anomaly over the years or possible outliers within the observation.

To check for normality of the dataset, Shapiro-Wilk test for normality was conducted. The full result of the test is attached as appendix II. The summary of the result shows that the observations in all the variables indicated data non-normality distribution except for LTDP and BSZ. This is clear from the p-values, which are significant at 1% level for all the variables except LTDR and BSZ, which returned a p-value of 0.053 and 0.439 respectively. The rule in this test is that significant p-values imply non-normality data distribution despite the fact that the consideration is on the normality of the residuals and not the variables.

A Pearson correlation analysis was then conducted on all the variables to check for degree of relationship among the variables. The full result is attached as appendix III while the summary of the result is presented as follows:

Table 4.2.3: Correlation Matrix

Variables	ROA	NPL	LLP	LTDR	BSZ
ROA	1.0000				
NPL	-0.3493	1.0000			
LLP	0.1083	-0.7838	1.0000		
LTDR	0.2856	-0.3515	0.2389	1.0000	
BSZ	0.4062	-0.4967	0.5002	0.2166	1.0000

Source: Output generated using Stata

Table 4.2.3 shows that the dependent variable, ROA, is positively correlated withLLP, LTDR and BSZ and the relationship is significant in all cases. This implies that an increase in loan loss provision will result to an increase in return on assets of the banks. This contradicts the normal view established in literature that higher loan loss provisioning produces lower return to the banks. As regards to the significant relationship between ROA and LTDR, an increase in loan to deposit ratio will result to an increase in return on assets of the banks. The reason might not be unconnected with the theoretical postulation that highly liquid banks tend to generate higher return than less liquid banks. However, ROA has a significant negative relationship with NPL. This therefore means that, a decrease in the amount of non-performing loans will lead to an increase in profitability of the DMBs and thus, higher performance.

The result also reveals a significant negative relationship between NPL on the one hand, and on the other hand, LLP, LTDR and BSZ. This shows that the larger the assets of the DMBs, the greater the amount of loan loss provisioning and loan to deposit ratio of the banks. The inverse relationship between NPL on one hand, and on LLP, LTDR and BSZ indicates a decreasing NPL while LLP, LTDR and BSZ are increasing. This buttresses the postulation that decreasing non-performing loan does not necessarily translate into higher loan loss provisioning, total loans to total deposit and bank size. The decreasing non-performing loans could be due to the consideration of bonds issued to banks by Assets Management Corporation of Nigeria (AMCON) and fully guaranteed by the Federal Government of Nigeria in exchange for non-performing loans which significantly decreased the amount of non-performing loan incurred by DMBs.

On the other hand, the positive relationship between LLP, LTDR and BSZ implies that the higher the level of deposits from customers, the higher the amount of loan advanced to such

customers and the greater the percentage of provisioning that will be set aside to cover for the unanticipated future default of loan recovery from customers. Therefore, this supports the fact that loan loss provision has direct relationship with the total amount of loan advanced to customers and the size of the bank.

4.3 Presentation and Analysis of Regression Results

Using Generalized Least square (GLS) method, two sets of regression were run, controlling for fixed effect (FE) at one time and random effect (RE) at the other time. The outputs, which are attached as appendix IV (a) and (b), showed considerable difference between FE and RE, thereby casting doubt on the pooled regression result. In order to clear the doubt and also to determine which model among the two result best fit the model, Hausman specification test was carried out based on the estimate of the two models.

Generally, the null hypothesis in Hausman specification test is that the preferred model is the RE. The hypothesis is stated to show the estimators of RE and FE do not significantly differ. The result of the Hausman test showed a p-value of 0.7512, which is not statistically significant. The full result of the test is attached as appendix IV (c). On the basis of the result, the null hypothesis could not be rejected and RE was considered as the best fitted model.

Diagnostic tests were carried out on the RE. First, Multicollinearity test was conducted and the output is attached as appendix IV (d). The result revealed that the interacting variables are of harmless colinearity relations. This was followed with heteroscedasticity test. The null in this test is homoscedasticity. The result showed a p-value that is significant at 1%, thereby indicating the presence of heteroscedasticity. The full result is attached as appendix IV (e). Normality test for the residuals was also carried out using Shapiro-Wilk. In essence, this test is considered more important than the date normality. The result showed a p-value that is significant at 1%, thereby indicating that the residuals are not normally distributed as in the

case of the date normality test that was carried out earlier. The result is attached as appendix IV (f). A robust RE was then run to correct for the heteroscedasticity revealed earlier. A random effects result with robust standard error was obtained after correction for heteroscedasticity and non-normality of the residuals.

Moreover, considering the sample used for the studies which were drawn from the same industry, that is, banking industry, another test for panel effect using Breusch-Pagan Langrange Multiplier (LM) was carried out to determine whether the entities are of the same or of different characteristics and thus decide between random effect regression and Ordinary Least Square (OLS) regression. The rule is that if the entities are of the same characteristics, they would not have to be treated separately since there would be no panel effect, and thus, OLS regression would suit. The null hypothesis in the LM test is that there is no panel effect across the entities. The result of the LM test revealed a p-value of 1.0000, which is statistically significant at 1%. Based on this new result, which is attached as appendix IV (g), the result of the robust OLS regression was considered as the best fitted model.

The summary of the robust OLS regression is presented below. The full result is attached as appendix IV (h).

Table 4.3.1: Summary of Robust OLS Result

Variables	*Coefficient*	*T-values*	*Probability*
C	-0.40676	-2.40	0.021
NPL	-0.03892	-2.44	0.019***
LLP	-0.05226	-3.02	0.004***
LTDR	0.02754	1.46	0.153
BSZ	0.03430	2.52	0.016***
R^2	0.32		
Root MSE	0.26		
Prob > F	0.0157		

Source: Output generated using Stata

***, **, * represent significance at 1%, 5% and 10% respectively.

Table 4.3.1 contains the summary of the robust OLS regression output. From the table, the estimated robust simple OLS regression relationship for ROA is:

ROA= -0.40676-0.03892NPL-0.05226 + 0.02754LTDR+0.03430BSZ

The table reveals that the overall R-squared (R^2) value which is the appropriate R^2 for simple OLS using Stata is 0.32. This means that about 32% of the systematic variation in the selected banks' return on assets is jointly explained by changes in the banks' non-performing loans, loan loss provision and loans to deposit ratio. This implies that on the other hand, the explanatory power of the model used in the study stands at 32%. On the other hand, other factors that have not been captured in the study explain the remaining 68%.

The Root MSE returns a value of 0.26 that is significant at 1% level. This confirms the overall significance of the model. It further supports the assumption of a significant linear relationship between the dependent variable, return on asset (ROA), and the independent

variables, non-performing loan (NPL), loan loss provision (LLP) and loan to deposit ratio (LTDR).

The bank size (BSZ), which is the control variable is used to control for the effect of size measured by the natural log of total asset. Therefore, according to the result, BSZ is found to be positively related to the ROA at 1% significant level and this is in line with the expectation.

4.4 Test of Hypothesis

This section presents the result of the test of hypothesis carried out for the study. In order to accept or reject the hypotheses of the study, the hypotheses have to be tested by analysing the beta coefficients, t-value and level of significance of the study variables. Three hypotheses have been developed and tested using the regression result from Stata 13.0. The three hypotheses for the study are stated below:

H_{o1}: Non-Performing Loans has no significant impact on the performance of DMBs in Nigeria.

H_{o2}: Loan Loss Provision has no significant impact on the performance of DMBs in Nigeria.

H_{o3}: Loan to DepositRatio has no significant impact on the performance of DMBs in Nigeria.

All the hypotheses are stated in the null form and clearly provide the basis for analysing the nature and extent of relationship between the dependent variable and independent variables.

Therefore, the regression results used for the test of hypotheses of the study is presented below:

Table 4.4.1: Result used for Test of Hypotheses

Variables	*Coefficient*	*T-values*	*Probability*
C	-0.40676	-2.40	0.021
NPL	-0.03892	-2.44	0.019
LLP	-0.05226	-3.02	0.004
LTDR	0.02754	1.46	0.153

Source: Output generated using Stata

Table 4.4.1 shows a negative t-values of NPL (-2.44) and LLP (-3.02). This indicates a negative/inverse relationship of these values and profitability of the selected DMBs. LTDR returned a positive t-value as the value stood at 1.46. The coefficient and t-values obtained from the result showed that NPL and LLP are the most statistically significant variables that influenced profitability at 1% level in all cases. However, the relationship between LTDR and the dependent variable, ROA is positive. In addition to LTDR, it was also found to be statistically insignificant at 15% level. The variable however turned out to be of direct relationship with ROA.

4.4.1 Hypothesis 1

H_{o1}: Non-Performing Loans has no significant impact on the performance of DMBs in Nigeria.

The regression result shown in table 4.4.1 reveals that non-performing loans (NPL) is significantly related to return on asset (ROA) with beta coefficient of about -0.03892 and t-value of approximately -2.44 both of which are significant at 1%. The result therefore provides the basis for rejecting the null hypothesis which states that non-performing loans has no significant impact on the performance of DMBs in

Nigeria.This means that based on the robust simple OLS result, NPL have significant impact on the performance of Nigerian DMBs measured by ROA. This is in line with the expectation as decrease in the amount of NPL results to an increase in the profitability of the banks. Thus,there exists inverse relationship between NPL and ROA.

The finding of the study, which shows that non-performing loans has significant impact on the performance of DMBs in Nigeria supports the study by Abdul-Aziz, Ibrahim and Isa (2009), Abiola and Olausi (2014), and Kargi (2011). They all found significant relationship between credit risk management and banks' performance. On the contrary, the finding contradicts the studies of Boahane, Dasah, and Agyei (2012) and Haneef, Riaz, Rana, Ishaq, and Karim (2012). Their findings indicate an insignificant relationship between non-performing loans and banks' performance.

4.4.2Hypothesis 2

H_{o2}: Loan Loss Provision has no significant impact on the performance of DMBs in Nigeria.

Consistent with the expectation, the regression result shows negative relationship between loan loss provision (LLP) and return on assets. Return on assets (ROA) which is the measure of profitability is found to be significantly associated with the loan loss provision of Nigerian DMBs. The result reveals that the beta coefficient value of LLP is -0.05226 and the t-value is -3.02 and they are significant at 1%. This shows that for every unit increase in return on assets, loan loss provision reduces by 5.2%. Based on this result, the second hypothesis which states that loan loss provision has no significant impact on the performance of DMBs in Nigeria is rejected. This means that based on the robust simple OLS result, LLP has significant impact on the

performance of Nigerian DMBs measured by ROA. Therefore, Loan loss provision is used for determining, measuring and estimating credit risk and as such, it's careful management results in higher performance.

On the basis of the above findings which shows that LLP has significant impact on the performance of DMBs in Nigeria is consistent with study of Charlse and Kenneth (2013), Funso, Kolade, and Ojo (2012), and Jimeniz and Saurina (2006). They all found a negative relationship between loan loss provision and banks' performance.

4.4.3Hypothesis 3

H_{o3}: Loan to DepositRatio has no significant impact on the performance of DMBs in Nigeria.

The regression result is also consistent with the expectation. That is, the result revealed positive relationship between loan to deposit ratio and return on assets with a coefficient value of 0.02754 and t-value of 1.46 both of which are insignificant at 15%. Thus, based on the OLS regression result, the third hypothesis which states that loan to depositratio has no significant impact on the performance of DMBs in Nigeria cannot be rejected.

On the basis of the above, the result which reveals that LTDR has positive but insignificant impact on the performance of DMBs in Nigeria is consistent with the study of Akanet (2014), Tabari, Ahmadi, and Emami (2013) and Latey, Antwi, and Boadi (2013). They found a positive insignificant relationship between liquidity risk and banks performance. On the other hand, the finding contradicts the study of Ailemen and Oyero (2013), Tesfaye (2012), Omowunmi (2012), Agbada (2013) and Ibe (2013). The former found a negative and insignificant relationship between loans

to deposit ratio and ROA, while the later found a positive and significant relationship between loans to deposit ratio and banks' profitability.

4.5 Policy Implications of the Research Findings

Studies on any regulatory authority or banking supervision that is aimed at improving the performance of DMBs most especially in Nigeria would be of great importance, and their findings would indisputably have some implications. The policy implications of this study are as follows:

First, considering that DMBs are an important source of financing to individuals, firms and corporate entities, the outcome of this could serve as basis for formulating policies that will make DBMs to center their concern on continuous effective risk management practices most especially in the area of credit risk. This is in the view of the negative relationships that exist between non-performing loans and loan loss provision on one hand and return on assets of DMBs. It is general that policy makers at all levels are of the strong view that banks need to have an extensive risk management practices in other to foster a more stable and efficient financial system and to contribute to the future avoidance of occurrence of financial crisis due to ineffective risk management practices.

Second, the study also has implication for decision on non-performing loans and loan loss provision. This is because the relationship between credit risk management and performance based on non-performing loan and return assets on the one hand, and between loan loss provision and return on assets on the other hand has been well established in the literature. What remains is the empirical evidence on the nature and extent of the relationship. DBMs would struggle based on the findings of this study to maintain an appreciable level of non-performing loan and decrease in loan loss provisioning in order to attain higher performance.

Third, the outcome of this study provided clear information on the nature and extent of relationship that exists between banks' total loans as proportionate to their total deposit and banks return on asset as part of the performance indicators in the Nigeria banking sector. The result revealed a positive relationship between ROA and LTDR. The positive relationship suggests that as loans to deposit ratio increases, return on assets is also increasing. Also, LTDR has an insignificant impact on the performance of DMBs as it indicates the extent to which DMBs generate returns from the total loans advanced to customers out of the totalbanks' deposits.This means that LTDR doesn't increase the performance of DMBs significantly as they offer low portion of their deposits to customers. Meanwhile, DMBs in Nigeria are more conservatives and risk averse regarding the expected losses from the total loans advanced to customers. Consequently, the findings of the research should be able make policy makers realize the need for policies on loan diversification so that more and more sources of returns could be realized from the loans advanced to customersfor performance enhancement.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

Recent reforms in the banking sector particularly with respect to its supervision as a result of the financial crisis in the area of risk management practices have generated public policy debates on the influence of risk based supervision (RBS) and firm specific performance within the industry. This study was carried out to assess the impact of risk based supervision (RBS) on the performance of selected Deposit Money Banks (DMBs) in Nigeria.

The study comprised five chapters. Chapter one discussed the general background issues that led to stating one main objective and three specific objectives. This led to the formulation of three hypotheses for the study with a scope covering five years, 2009 – 2013. The chapter also discussed the significance of the study.

Moreover, within the background of the study, it was observed that the expedition to Risk Based Supervision (RBS) in the Nigerian banking sector took its root from the various reforms introduced over the years to shuffle the industry into a more stable and competitive position. Due to the fact that the reform cannot be discussed despite the historical experiences of banking and banking businesses on-going in the country over a century, some relevant literature on the historical antecedents of banking supervision in Nigeria that led the industry to the present condition of today were reviewed.

In chapter two, a review of both theoretical and empirical literature on deposit money banks, risk based supervision and DMBs performance and their measurement was established. The review of the existing literature indicated that the literature was inadequate on the nature and extent of relationship between the dependent and independent variables of the study.

It was observed that while there are many studies on the relationship between risk management practices as an internal concern and performance among DMBs in Nigeria, only few of these studies focused on Africa and more particularly, in Nigeria. Moreover, even those that appeared to do so not to considered risk management practices in banking sector as the responsibility of the supervisory authority concerned and the studies fall into model and scope inadequacy. Also, it was generally observed that, effective and efficient risk management practices are considered as part of the most important factors explaining the performance of financial institutions, though their impact on bank performance based on the reviewed empirical studies did not centre on the part of the supervisory bodies. Furthermore, the literature signposted that the outcomes of most of the studies on the relationship between risk management practices and bank performance is mix.

The study was Correlational in design. From the list of banks that have been filtered among the twenty two banks, the study sampled ten banks out of the twenty two banks. Moreover, the data were collected from secondary source through the instrument of documentation.

The data were presented and statistically described in chapter four. Normality test for the dataset was conducted. Using Stata 13.0 software, two sets of regression were run controlling for fixed effect (FE) at one time and random effect (RE) at the other time based on the Generalised Least Square (GLS) method. Other relevant tests that include Hausman specification and Breuch-Pagan Langrange Multiplier (LM) were conducted.

The result of the robust simple OLS regression provided a basis for rejecting the entire hypothesis except the last one that related loan to deposit ratio to return on assets of DMBs in Nigeria. It showed that non-performing loans and loan loss provision have significant impact on the performance of DMBs in Nigeria. The result further indicated that the hypothesis that

linked return on asset to loan to deposit ratio are positively related, but the extent of the relationship is found to be statistically insignificant.

5.2 Conclusions

In view of the findings of this study, the following conclusions are made:

i. Risk Based Supervision (RBS) has significant impact on the performance of Deposit Money Banks (DMBs) in Nigeria. This shows that in so far the Nigerian banking sector is concerned, effective banking supervision most especially in the areas that are more exposed to risk, as suggested by Basel Committee on Banking Supervision (BCBS) postulation significantly improve the performance of DMBs.

ii. Non-performing loans significantly affect the performance DMBs in Nigeria. The way and manner banking supervisors manage non-performing loan in the sector are very critical to the overall financial performance within the sector. This is because well standardised credit risk management reduces the probability of default that results anytime banks extend, commit, invest or otherwise expose credit through actual or implied contractual agreements. A well-managed non-performing loan means higher performance.as indicated by the outcome of this study.This supports the postulation that excessive decreases in non-performing loan significantly improve the performance of banking industry.

iii. Loan loss provisions significantly affect performance of banks. This supports the assertion that a significant decline of loan loss provisioning results in increased returns of banks which affect the performance of the banking sector.

iv. A loan to deposits ratio has no significant impact on the performance of DMBs in Nigeria. This shows that in so far Nigerian banking supervision is concerned, banks needs to be diversified so that they can offer a higher proportion of their deposits to

customers for economically productive activities. As indicated by the study, mere conservatism as regards to loanable funds tends to discourage creditors from obtaining banks' loan out of the total banks' deposits and hence insignificant return.

5.3 Recommendation

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

i. Central Bank of Nigeria as the apex regulatory and supervisory body in the Nigerian banking sector should recognise that banks are in the business of managing risks to derive optimal satisfaction for all stakeholders. As shown by this study that RBS has significant impact on the performance of DMBs in Nigeria, CBN and NDIC should therefore continue to detail their approach to risk management practices through various policies and proceduressuch as credit policy and standard operating procedures among others. Banking supervisors should ensure that banks maintain a comprehensive and integrated approach to identifying, managing and reporting the sector inherent risk and other additional core risks that can be found within the sector.

ii. Banks' managers should continue to improve the quality of their credit portfolio through credit appraisal and management so as to reap the benefits of effective credit risk management. This recommendation is based on the fact that credit is the largest asset of a bank and any default of recovery will result to excessive damages. Therefore, effective credit risk management is central to the safety and soundness of a bank and the resultant positive effect is higher performance.

iii. The apex regulatory body should continue to regulate the level of provisioning in order to cover the likely losses on loans advanced to customers. On supervision, it should also lay more emphases in making sure that banks intensively adhere to the

issue of KYC (Know Your Customer) so that the likelihood of loan default is minimized as this will further enhance the performance of DMBs in the country.

iv. Also, the apex regulatory body should reemphasize policies on loan diversification so as to shift banks to a better position to assist members of the public both at individuals and corporate entities' level. More so, banks should be encouraged to finance long term projects that are of high economic value and benefit to the country either independently or collectively as a consortium of loan syndicates as this will further enhance their performance.

5.5 Suggestion for Further Studies

This study focused only on two determinants of risk (credit risk and liquidity risk) using micro data from individual selected banks. This suggests the urgent and high significance need of conducting more research to include other micro data for variables not included in the study such as market risks, operational risks as well as other additional core risks that are of more critical to affect the performance of DMBs in Nigeria.

The study also did not consider the impact of macroeconomic variables such as Gross Domestic Product (GDP), Interest Rate (IR), Price Level (PL), Exchange Rate (ER) and Foreign Direct Investment (FDI). All these are of more complex to the banking sector performance. Therefore, based on this fact, the preceding studies are expected to cover these gaps.

Finally, the same study can be replicated for another domain in the financial sector other than deposit money banks such as insurance and other financial services providing companies. In addition, the study is in fact pliable to replication.

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APPENDIX I: DESCRIPTIVE STATISTICS

```
  ___  ____  ____  ____  ____ (R)
 /__    /   ____/   /   ____/
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. edit

. *(8 variables, 50 observations pasted into data editor)

. summarize roa rnpl rllp ltdpr bsz
```

Variable	Obs	Mean	Std. Dev.	Min	Max
roa	50	.0129228	.0283931	-.081661	.0638171
rnpl	46	.1901402	.3954802	.0004572	2.44119
rllp	47	-.0954084	.2930226	-1.824618	.5207099
ltdpr	50	.5468821	.1534861	.2982926	.9600365
bsz	50	11.8745	.3201197	11.15469	12.4592

```
. summarize roa rnpl rllp ltdpr bsz, detail
```

ROA

Percentiles		Smallest		
1%	-.081661	-.081661		
5%	-.0441202	-.0604619		
10%	-.0216556	-.0441202	Obs	50
25%	.0048252	-.0377579	Sum of Wgt.	50
50%	.0148545		Mean	.0129228
		Largest	Std. Dev.	.0283931
75%	.0245407	.0527534		
90%	.04306	.0618037	Variance	.0008062
95%	.0618037	.0619866	Skewness	-1.008825
99%	.0638171	.0638171	Kurtosis	4.957814

RNPL

Percentiles		Smallest		
1%	.0004572	.0004572		
5%	.0092095	.0028602		
10%	.012	.0092095	Obs	46
25%	.0346241	.0111924	Sum of Wgt.	46
50%	.0696486		Mean	.1901402
		Largest	Std. Dev.	.3954802
75%	.1444642	.6763588		
90%	.4617585	.8037834	Variance	.1564046
95%	.8037834	.9686627	Skewness	4.412121
99%	2.44119	2.44119	Kurtosis	24.38835

RLLP

Percentiles		Smallest		
1%	-1.824618	-1.824618		
5%	-.4338953	-.4979964		
10%	-.1593048	-.4338953	Obs	47
25%	-.0980497	-.2009597	Sum of Wgt.	47
50%	-.0448522		Mean	-.0954084
		Largest	Std. Dev.	.2930226
75%	-.0290021	-.0110714		
90%	-.0150391	-.0104361	Variance	.0858622
95%	-.0104361	.3148096	Skewness	-4.337385
99%	.5207099	.5207099	Kurtosis	27.57835

LTDPR

	Percentiles	Smallest		
1%	.2982926	.2982926		
5%	.3025719	.3021018		
10%	.376268	.3025719	Obs	50
25%	.4529911	.317986	Sum of Wgt.	50
50%	.5046908		Mean	.5468821
		Largest	Std. Dev.	.1534861
75%	.6678505	.8019069		
90%	.7681782	.8130443	Variance	.023558
95%	.8130443	.8615501	Skewness	.5841551
99%	.9600365	.9600365	Kurtosis	2.824434

BSZ

	Percentiles	Smallest		
1%	11.15469	11.15469		
5%	11.31311	11.30781		
10%	11.4	11.31311	Obs	50
25%	11.67945	11.3447	Sum of Wgt.	50
50%	11.89661		Mean	11.8745
		Largest	Std. Dev.	.3201197
75%	12.13192	12.33339		
90%	12.28235	12.34585	Variance	.1024766
95%	12.34585	12.38684	Skewness	-.2923468
99%	12.4592	12.4592	Kurtosis	2.317469

APPENDIX II: NORMALITY TEST

```
. swilk roa rnpl rllp ltdpr bsz

                    Shapiro-Wilk W test for normal data

    Variable |   Obs        W           V         z       Prob>z
-------------+--------------------------------------------------
         roa |    50     0.91608      3.946     2.928     0.00171
        rnpl |    46     0.44603     24.404     6.780     0.00000
        rllp |    47     0.45744     24.307     6.780     0.00000
       ltdpr |    50     0.95479      2.126     1.609     0.05381
         bsz |    50     0.97716      1.074     0.152     0.43954
```

APPENDIX III: CORRELATION MATRIX

```
. correlate roa rnpl rllp ltdpr bsz
(obs=46)
```

	roa	rnpl	rllp	ltdpr	bsz
roa	1.0000				
rnpl	-0.3493	1.0000			
rllp	0.1083	-0.7838	1.0000		
ltdpr	0.2856	-0.3515	0.2389	1.0000	
bsz	0.4062	-0.4967	0.5002	0.2166	1.0000

APPENDIX IV (a): FIXED EFFECT REGRESSION RESULT

```
. xtreg roa rnpl rllp ltdpr bsz, fe

Fixed-effects (within) regression               Number of obs      =        46
Group variable: firms                           Number of groups   =        10

R-sq:  within  = 0.2195                         Obs per group: min =         3
       between = 0.6723                                        avg =       4.6
       overall = 0.3053                                        max =         5

                                                F(4,32)            =      2.25
corr(u_i, Xb)  = -0.7018                        Prob > F           =    0.0856

------------------------------------------------------------------------------
         roa |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        rnpl |  -.0474086   .0194147    -2.44   0.020    -.0869551    -.007862
        rllp |  -.0570403   .0275832    -2.07   0.047    -.1132255   -.0008552
       ltdpr |   .0339206   .0514864     0.66   0.515    -.0709537    .1387949
         bsz |   .0610746   .0396383     1.54   0.133     -.019666    .1418151
       _cons |   -.727182   .4800458    -1.51   0.140    -1.705003    .2506392
-------------+----------------------------------------------------------------
     sigma_u |  .01461026
     sigma_e |  .02682273
         rho |  .22880838   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(9, 32) =     0.57                 Prob > F = 0.8148

. est store fe
```

APPENDIX IV (b): RANDOM EFFECT REGRESSION RESULT

```
. xtreg roa rnpl rllp ltdpr bsz, re

Random-effects GLS regression                   Number of obs      =        46
Group variable: firms                           Number of groups   =        10

R-sq:  within  = 0.2051                         Obs per group: min =         3
       between = 0.7005                                        avg =       4.6
       overall = 0.3204                                        max =         5

                                                Wald chi2(4)       =     19.33
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0007
```

roa	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
rnpl	-.0389151	.0163336	-2.38	0.017	-.0709283	-.0069018
rllp	-.052257	.02119	-2.47	0.014	-.0937887	-.0107254
ltdpr	.027539	.0260838	1.06	0.291	-.0235842	.0786622
bsz	.0342983	.0137866	2.49	0.013	.0072772	.0613195
_cons	-.4067569	.1645401	-2.47	0.013	-.7292496	-.0842643
sigma_u	0					
sigma_e	.02682273					
rho	0	(fraction of variance due to u_i)				

```
. est store re
```

APPENDIX IV (c): HAUSMAN SPECIFICATION TEST RESULT

```
. hausman fe re
```

	Coefficients (b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
rnpl	-.0474086	-.0389151	-.0084935	.010495
rllp	-.0570403	-.052257	-.0047833	.0176583
ltdpr	.0339206	.027539	.0063816	.0443901
bsz	.0610746	.0342983	.0267762	.0371635

```
                b = consistent under Ho and Ha; obtained from xtreg
     B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                        =        1.92
              Prob>chi2 =      0.7512

. Xttest 0
unrecognized command:  Xttest
r(199);

. Xttest o
unrecognized command:  Xttest
r(199);
```

APPENDIX IV (d): MULTICOLINEARITY TEST

```
. vif
```

Variable	VIF	1/VIF
rnpl	2.89	0.346602
rllp	2.72	0.367181
bsz	1.39	0.718257
ltdpr	1.15	0.869150
Mean VIF	2.04	

APPENDIX IV (e): HETEROSCEDASTICITY TEST

```
. hettest

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

         chi2(1)      =    22.64
         Prob > chi2  =   0.0000
```

APPENDIX IV (h): ROBUST SIMPLE ORDINARY LEAST SQUARE (OLS) REGRESSION

```
. regress roa rnpl rllp ltdpr bsz
```

Source	SS	df	MS	Number of obs =	46
Model	.012579646	4	.003144911	F(4, 41) =	4.83
Residual	.026683418	41	.000650815	Prob > F =	0.0028
				R-squared =	0.3204
				Adj R-squared =	0.2541
Total	.039263064	45	.000872513	Root MSE =	.02551

roa	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
rnpl	-.0389151	.0163336	-2.38	0.022	-.0719015	-.0059287
rllp	-.052257	.02119	-2.47	0.018	-.0950512	-.0094629
ltdpr	.027539	.0260838	1.06	0.297	-.0251382	.0802162
bsz	.0342983	.0137866	2.49	0.017	.0064558	.0621409
_cons	-.4067569	.1645401	-2.47	0.018	-.7390524	-.0744615

```
. regress roa rnpl rllp ltdpr bsz, robust
```

Linear regression

Number of obs =	46
F(4, 41) =	3.47
Prob > F =	0.0157
R-squared =	0.3204
Root MSE =	.02551

roa	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
rnpl	-.0389151	.0159512	-2.44	0.019	-.0711292	-.0067009
rllp	-.052257	.0173154	-3.02	0.004	-.0872261	-.017288
ltdpr	.027539	.0188907	1.46	0.153	-.0106115	.0656896
bsz	.0342983	.0136327	2.52	0.016	.0067665	.0618302
_cons	-.4067569	.1692938	-2.40	0.021	-.7486526	-.0648612

APPENDIX V: BREUCH/PAGAN LANGRANGIAN MULTIPLIER TEST

Breusch and Pagan Lagrangian multiplier test for random effects

roa[firms,t] = Xb + u[firms] + e[firms,t]

Estimated results:

	Var	sd = sqrt(Var)
roa	.0008725	.0295383
e	.0007195	.0268227
u	0	0

Test: Var(u) = 0

chibar2(01) = 0.00

Prob > chibar2 = 1.0000

APPENDIX IV: THE EXTRACTED DATA

FIRMS	YEARS	TOTAL ASSETS	EBIT	NPL	LOANS & ADV	LLP	DEPOSITS
DIA BNK	2009	6.04362E+11	9055793000	6210114100	2.95538E+11	-30295434000	4.4902E+11
DIA BNK	2010	5.48403E+11	9468016000	42605507000	2.94921E+11	-19749088000	3.7873E+11
DIA BNK	2011	7.22966E+11	-2.7298E+10	36878353000	2.97858E+11	-13080622000	5.4428E+11
DIA BNK	2012	7.14064E+11	28364965000	25734646000	5.23375E+11	-23650330000	5.4516E+11
DIA BNK	2013	1.35493E+12	33250965000	20262042000	5.852E+11	-22400302000	1.0938E+12
UBA	2009	1.40088E+12	22989000000	39637000000	5.43289E+11	-29301000000	1.1511E+12
UBA	2010	1.43263E+12	16359000000	39822000000	5.69312E+11	-21061000000	1.1191E+12
UBA	2011	1.21646E+12	-441000000	9088000000	5.96457E+11	-9860000000	1.2165E+12
UBA	2012	1.92726E+12	46180000000		5.70714E+11	-8583000000	1.4611E+12
UBA	2013	2.21742E+12	51841000000		7.96942E+11	-8317000000	1.7974E+12
FIDELITY	2009	5.04164E+11	4568520000	27518706000	2.15112E+11	-29483816000	3.7973E+11
FIDELITY	2010	4.7802E+11	8325000000	47116000000	1.58516E+11	-25136000000	3.2735E+11
FIDELITY	2011	7.39508E+11	8221000000	20618000000	2.55257E+11	-7403000000	5.6109E+11

FIDELITY	2012	7.52905E+11	21349000000	61224000000	3.455E+11	-16573000000	7.1675E+11
FIDELITY	2013	9.17762E+11	9028000000	194814120	4.26076E+11	-13383000000	1.0812E+12
ZENITH	2009	1.5732E+12	31753000000	46413000000	6.69261E+11	-46969000000	1.1113E+12
ZENITH	2010	1.78946E+12	42957000000	41832000000	6.6786E+11	-29225000000	1.2696E+12
ZENITH	2011	2.15471E+12	51141000000	31476000000	7.87372E+11	-31557000000	1.576E+12
ZENITH	2012	2.43689E+12	94048000000	28457000000	8.75354E+11	-21437000000	1.802E+12
ZENITH	2013	2.87869E+12	94108000000		1.12656E+12	-21819000000	2.0799E+12
GTB	2009	1.07818E+12	35012534000	6431000000	5.74587E+11	-22227325000	6.6692E+11
GTB	2010	1.16805E+12	47568458000	1727278000	6.03907E+11	-32392032000	7.5309E+11
GTB	2011	1.52353E+12	64745101000	6256532000	6.79359E+11	-23706478000	9.6249E+11
GTB	2012	1.62032E+12	1.00142E+11	81484586000	7.42437E+11	-16820099000	1.0541E+12
GTB	2013	1.90437E+12	1.00462E+11	43147618000	9.26967E+11	-18938677000	1.2619E+12
SKY	2009	6.22164E+11	2148000000	69100000000	3.17674E+11	-36931000000	4.5292E+11
SKY	2010	6.74064E+11	14445000000	49639000000	3.85435E+11	-31562000000	4.7406E+11

SKY	2011	8.76527E+11	8022000000	25341000000	4.89251E+11	-21944000000	6.4575E+11
SKY	2012	1.07131E+12	15775000000		5.40036E+11	-26294000000	7.8695E+11
SKY	2013	1.11664E+12	17136000000		5.49858E+11		8.2333E+11
STERLN	2009	2.05641E+11	-9072908000	22289082000	78140098000	-15703009000	1.6047E+11
STERLN	2010	2.5958E+11	3688251000	11639976000	99312070000	-7321085000	1.9927E+11
STERLN	2011	5.04428E+11	3459744000	8227240000	1.59735E+11	-6121765000	4.0615E+11
STERLN	2012	5.80226E+11	7499651000		2.29421E+11	-6740398000	4.6373E+11
STERLN	2013	7.07797E+11	9310198000		3.21744E+11	-6921156000	5.7051E+11
UNION	2009	1.10678E+12	-6.6918E+10	3.22756E+11	4.01546E+11	2.09089E+11	7.5839E+11
UNION	2010	8.45231E+11	-1.2393E+10	82495000000	1.78654E+11	56242000000	5.9892E+11
UNION	2011	8.25033E+11	51141000000		1.44694E+11	-13867000000	3.9978E+11
UNION	2012	8.75009E+11	9793000000	9920000000	1.33518E+11	-13125000000	4.4128E+11
UNION	2013	8.82097E+11	4201000000	13644000000	2.10118E+11	-20602000000	4.7996E+11
UNITY	2009	2.56798E+11	-2.097E+10	59396134000	87817499000	-38103602000	2.1482E+11
UNITY	2010	3.05222E+11	13314750000	19624886000	1.13934E+11	-8785051000	2.2215E+11

UNITY	2011	3.73859E+11	3077459000	7072274000	1.13635E+11	-1258100000	2.6688E+11
UNITY	2012	3.9572E+11	6456727000		1.89041E+11	-5739824000	2.7007E+11
UNITY	2013	4.03629E+11	133639000		1.9523E+11		3.0327E+11
WEMA	2009	1.42786E+11	-3309254000	69907288000	28636557000	-52250768000	9.4791E+10
WEMA	2010	2.03145E+11	12964108000	37427005000	38637809000	-19241488000	1.2151E+11
WEMA	2011	2.21157E+11	-3270926000		67236605000	-10711114000	1.4739E+11
WEMA	2012	2.45705E+11	-4947211000		73745728000	-10001172000	1.473E+11
WEMA	2013	3.30872E+11	1596531000		98631825000		2.1773E+11

FIRMS	YEARS	ROA	RNPL	RLLP	LTDPR
DIA BNK	2009	0.014984	0.021013	-0.10251	0.658184
DIA BNK	2010	0.017265	0.144464	-0.06696	0.778704
DIA BNK	2011	-0.03776	0.123812	-0.04392	0.547248
DIA BNK	2012	0.039723	0.049171	-0.04519	0.960037
DIA BNK	2013	0.024541	0.034624	-0.03828	0.535023
UBA	2009	0.01641	0.072957	-0.05393	0.47198
UBA	2010	0.011419	0.069948	-0.03699	0.50874

UBA	2011	-0.00036	0.015237	-0.01653	0.49032
UBA	2012	0.023962	0.019	-0.01504	0.390597
UBA	2013	0.023379	0.012	-0.01044	0.443392
FIDELITY	2009	0.009062	0.127927	-0.13706	0.566488
FIDELITY	2010	0.017416	0.297232	-0.15857	0.484239
FIDELITY	2011	0.011117	0.080773	-0.029	0.454931
FIDELITY	2012	0.028356	0.177204	-0.04797	0.482038
FIDELITY	2013	0.009837	0.000457	-0.03141	0.394071
ZENITH	2009	0.020184	0.06935	-0.07018	0.602217
ZENITH	2010	0.024006	0.062636	-0.04376	0.52606
ZENITH	2011	0.023734	0.039976	-0.04008	0.499609
ZENITH	2012	0.038594	0.032509	-0.02449	0.485766
ZENITH	2013	0.032691	0.0305	-0.01937	0.541651
GTB	2009	0.032474	0.011192	-0.03868	0.86155
GTB	2010	0.040725	0.00286	-0.05364	0.801907
GTB	2011	0.042497	0.009209	-0.0349	0.705838
GTB	2012	0.061804	0.109753	-0.02266	0.704317
GTB	2013	0.052753	0.046547	-0.02043	0.734565
SKY	2009	0.003452	0.217519	-0.11625	0.701394

SKY	2010	0.02143	0.128787	-0.08189	0.813044
SKY	2011	0.009152	0.051795	-0.04485	0.757652
SKY	2012	0.014725		-0.04869	0.686239
SKY	2013	0.015346			0.66785
STERLN	2009	-0.04412	0.285245	-0.20096	0.486944
STERLN	2010	0.014209	0.117206	-0.07372	0.498369
STERLN	2011	0.006859	0.051506	-0.03832	0.393288
STERLN	2012	0.012925	0.03812	-0.02938	0.494733
STERLN	2013	0.013154	0.02105	-0.02151	0.563957
UNION	2009	-0.06046	0.803783	0.52071	0.529472
UNION	2010	-0.01466	0.461758	0.31481	0.298293
UNION	2011	0.061987	0.1076	-0.09584	0.361939
UNION	2012	0.011192	0.074297	-0.0983	0.302572
UNION	2013	0.004763	0.064935	-0.09805	0.437786
UNITY	2009	-0.08166	0.676359	-0.4339	0.408794
UNITY	2010	0.043623	0.172248	-0.07711	0.51288
UNITY	2011	0.008232	0.062237	-0.01107	0.425796
UNITY	2012	0.016316	0.0501	-0.03036	0.699974
UNITY	2013	0.000331			0.643747

WEMA	2009	-0.02318	2.44119	-1.82462	0.302102
WEMA	2010	0.063817	0.968663	-0.498	0.317986
WEMA	2011	-0.01479	0.1508	-0.1593	0.45619
WEMA	2012	-0.02013	0.1409	-0.13562	0.500642
WEMA	2013	0.004825			0.452991