Risk Management Implications on Performance of Deposit Money Banks in Nigeria (1998 - 2016)

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Abstract: *This study examined risk management implications on the performance of deposit money banks in Nigeria. Risk management is a core of lending function in the banking industry. Many Nigerian banks had failed in the past due to inadequate risk exposure. In modeling, bank performance was used as the dependent variable represented by return on assets (ROA), While for the influence of credit risk, the ratios of total loan to deposit (LDR), non-performing loans to total loans (NLTL) and total loans to total assets (TLTA) are used as the independent variables..The data were obtained from the Financial Statements and Reports of the sampled banks for the period 1988-2016, various issues of Central Bank of Nigeria Annual Report and the National Economic statistics from the National Bureau of Statistics. The analysis used time series data on capital market indicators for the period 1988-2016.. The availability of sufficiently long time series data on the aforementioned variables served as an additional criterion for their selection. Annual data spanning 1985 to 2016, a total of 31 observations, were employed; all variables were transformed logarithmically to homogenize the data and smoothen the fluctuations. The procedure adopted involved the use of multivariate regression analysis. Autoregressive Conditional Heteroskedasticity models and its extension were used. The result of the econometric tests leads us to conclude that there is a significant relationship between the various risk management indicators employed in this study and the performance of deposit money banks in Nigeria Hence, we recommend to the Central Bank of Nigeria, for policy making purpose should regularly assess the lending attitudes of deposit money banks and their effective cash management policies to avoid insolvency in the financial system.*

Keywords*: Risk Management, Shiftability Theory, Financial Institutions, Profitability*

1. INTRODUCTION

1.1 Background to the Study

Banks and other financial intermediaries play the important role in channeling funds from savers to borrowers. The traditional role of a bank is lending and loans make up the bulk of their assets. The various areas of financial management have been studies in relation to bank performance and growth usually depicted by profitability. Financial institutions (particularly deposit money banks) have faced difficulties over the years for a multitude of reasons and the major cause of serious banking problems continues to be directly related to lax credit standard for borrowers and counterparties, poor portfolio risk management, or lack of attention to changes in economic or other circumstances that can lead to a deterioration in the credit standing of a bank's counterparties (Ibe,2012). With unstable economic environments, bank earnings are fast overtaken by inflation and borrowers find it difficult to repay loans as real incomes fall. Insider loans abuses and over concentration in certain portfolio increasingly give rise to credit risk (Chen and Pan, 2012).

The Nigerian Banking industry for the past decades had witnessed series of banking distress and subsequent failures. Banks that had been doing well suddenly announced large losses due to credit exposures that turned sour, interest rate position taken or derivate exposures that may or may not have been assumed to hedge balance sheet risk. In response to this, there is indeed urgent need for banks in Nigeria to devote enough attention to the management of financial risks in the Nigerian Banking Industry (NDIC Report 2016). Bank failures in Nigeria and other emerging economics have been attributed to improper lending practices, lack of experience, organizational and informational systems to adequately assess credit risk.(Kolapo, Ayeni and Oke, 2012). There is sufficient empirical evidence to show that poor performance is manifested in bank's operations as indicated by low bank performance indicators including: high levels of credit risk, poor quality loans, limited and inadequate capitalization, operational inefficiencies, higher incidences of non-performing loans, higher levels of liquidity risk, and so on(Agbala and Osuji, 2013). Although these are mentioned as constraints affecting banks' performance, they are based on a few studies and non-elaborate methods to generate sufficient and valid conclusions. This study therefore becomes an

extension of the few studies undertaken with a view to generating more and detailed information based on empirical evidence on deposit money banks. Many Nigerian banks had failed in the past due to inadequate risk management exposure. This problem has continued to affect the industry with serious adverse consequences.

Banks are generally subject to wide array of risks in the course of their business operations. Nwankwo (1990) observes that the subject of risks today occupies a central position in the business decisions of bank management and it is not surprising that every institution is assessed an approached by customers, investor and the general public to large extent by the way or manner it presents itself with respect to volume and allocation of risks as well as decision against them. Others risks include abuse, poor corporate governance, liquidity risk, inadequate strategic direction, among others. These risks have increased, especially in recent times as banks diversify their assets in the changing market. In particular with the globalization of financial market over the years, the activities and operations of banks have expanded rapidly including their exposure to risks (Basel Accord Committee Report 2009).

The shortfalls of their previous studies have formed the bedrock of this study. This study is designed in such a way that there will be critical evaluation of risk management on performance of deposit money bank on each other and also their causal relationship both on aggregate level.

1.2   Statement of Problem

Risk management is the core of lending in the banking industry. Many Nigerian banks had failed in the past due to inadequate risk management exposure. The possibility of yet another round of systemic failure in the Nigerian banking industry, as raised by the Nigerian Deposit Insurance Corporation, calls for quick, concerted and pre-emptive action. NDIC revealed, that weak corporate governance and internal controls were tipping the financial sector towards crisis conflated with a similar alarm raised by the International Monetary Fund anchored on weak regulation and adverse operating conditions. The economy is falling short of growth projections, urgent, extraordinary measures have to be adopted to prevent a catastrophe. This is despite stringent and elaborate rules; weak corporate governance cultures had rebounded in the banking system and, along with ineffectual controls, have presented to the regulators the possibility of bank failures. For regulators, the fear had prompted the conduction of tests and moves to stave off adversity (NIDC Report 2018).

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1.3   Objectives of the Study

The main objective of the study is to examine risk management and its implication on performance of deposit money bank in Nigeria.

Consequently, the following are the specific objectives of the study:

1. To examine how deposits of banks affect the credit portfolio held by the banks.
2. To examine the effects of risk exposure on growth and profitability of Deposit Money Banks in Nigeria.

1.4   Research Questions

The study will seek to answer the following questions:
1. How does deposit of banks affect the portfolio of credit held by the banker?
2. What are the effect of credit risk exposures on growth and profitability of banks?

1.5   Research Hypotheses

Hypothesis One
H_0: Deposit does not have a significant positive impact on bank loans.
H_1: Deposit has a significant positive impact on bank loans.
Hypothesis Two
H_0: Credit risk exposure do not have a significant positive impact on profitability of banks.
H_1: Credit risk exposures have a significant positive impact on profitability of banks.

1.6   Significant of the Study

This study has a number of significant dimensions.
1. The result of this study provide information to the commercial banks risk management department on the progress so far made in identifying and evaluating risks as to enhance growth and profitability of the financial institutions
2. The result of this study show how much such progress, has impacted on the growth of the entire commercial banks in Nigeria.
3. Essentially, this work is a step in a right direction to assist and enlighten the general public on what risk management in commercial banks is all about and hence guide them in their immediate decision of handling risks.
4. Furthermore, it provides a reference document for further researches and evaluation of risk management conducted by Nigerians/banks. This research work will go a long way to increase the availability of literature in the field of risk management in the banks and other associated businesses that are involve risk taking in their day-to-day running of the business.

5. Finally, the study is of immense benefit to policy makers, investors, financial managers' lectures and the general public.

1.7 Scope of the Study

This study covers risk management and its implication on performance of deposit money banks in Nigeria using First Bank Nigeria Plc and Fidelity Bank Nigeria Plc. The period covered the Pre and Post banking consolidation era in Nigeria, specifically between 2003 and 2016.

2. REVIEW OF RELATED LITERATURE

2.1 Conceptual Review
2.1.1 Concept of Risk Management

Risk means the perceived uncertainty connected with some event. For example, will the customer renew his or her loan? Will deposit liabilities grow next month? Will the bank's stock price and its earnings increase in the future? Are interest rates going to rise or fall next week and will the bank lose income or value if they do? Bankers maybe most interested in achieving high stock values and high profitability, but none can fail to pay attentions to the risks they are attached to these decisions. Bankers are concerned with many types of risks such as credit risk, liquidity risk, market risk, interest rate risk, earnings risk, foreign exchange risk and solvency risk (Chen, 2012; Kargi, 2011).

Kithinji, (2010) assessed the effect of credit risk management on the profitability of commercial banks in Kenya. Data on the amount of credit, level of non-performing loans and profits were collected for the period 2004 to 2008. The findings revealed that the bulk of the profits of commercial banks are not influenced by the amount of credit and non-performing loans, therefore suggesting that other variables other than credit and non-performing loans impact on profits. The study did not examine the casual link between risk management and performance of deposit money bank rather the casual link was established on sectoral level. Also the Nigeria economy in specific and the world in general were partially explained by Felix and Claudine, (2008), the writers centered their work on impacts causes, natures of risk management.

A bank exist not only to accept deposit but also to grant credit facilities and therefore is inevitably exposed to credit risk. In other words, the intermediation function of a bank naturally exposes them to credit risk: Credit risk is by far the most significant risk faced by banks and the success of their business depends on accurate measurement and efficient management of credit risk more than any other risks (Gieseche, 2004). Chen and Pan (2012) argue that credit risk is the degree of value fluctuations in debt instruments and counterparties. Coyle (2000) defines credit risk as losses from the refusal or inability of credit customers to pay what is owed in full and on time. Credit risk is the exposure faced by banks when a borrower (customer) defaults in honouring debt obligations on due date or at maturity. The risk interchangeably called 'counterparty risk' is capable of putting the bank in distress if not adequately managed. The credit risk policies are measures employed by banks management and is crucial to banks so as to enhance profitability and guarantee its survival.

The main sources of credit risk include, limited institutional capacity, inappropriate credit policies, volatile interest rates, poor management, inappropriate laws, low capital and liquidity levels, direct lending, massive licensing of banks, poor loan underwriting, laxity in credit assessment, poor lending practices, government interferences and inadequate supervision by the regulators (Kithinji, 2010). An increase in bank credit gradually leads to liquidity and solvency problems. Credit risk may increase if the bank lends to borrowers, it does not have adequate knowledge about. Credit risk management maximizes bank's risk adjusted rate of return by maintaining credit risk exposure within acceptable limits in order to provide framework for understanding the impact of credit risk management on banks' profitability (Kargi, 2011).

2.1.2 Types of Risk in providing Banking Services

Nnanna (2003) observed that the risks associated with banking sector can be grouped into the following types: Credit risk, Liquidity Risk, Interest rate risk, Market risk, Currency risk, Balance sheet structure, income structure and capital adequacy country and transfer risk, legal risk. He further restated that the above types of risk, capture almost all the risk arising from the normal day-to-day activities of banks and are applicable to bank that operate both internationally and locally. The Basel Accord Committee, however, noted that the fundamental requirements for a good management of the above risks are for the banks to identify and measure the risk accurately. (Basel Accord Committee Report 2009)

The risks associated with the provision of banking service differ by the types of services rendered. For the sector as a whole, however the risk can be broken into five generic types: systematic/market risk, credit risk, counterpart risk, liquidity risk, and legal risks.

1. Systematic Risk:

This type of risk is referred as the risk arising from asset value change associated with systematic factors. It is sometimes referred to as market risk, which is somewhat an imprecise term. (Nnanna, 2003) observed that a market risk is the risk arising from capital loss resulting from adverse market price movement. By its nature, this risk cannot be diversified complete away.

In fact, systematic risk can be thought of an undiversifiable risk. All investors assume this type of risks, whenever assets owned or claims can change in value as a result of broad economic factors. Because the banks are

dependent on these systematic factors, they must try to estimate the impact of these particular risks on performance.

2.   Credit Risk:

Credit risk refers to delinquency and default by borrowers, that is failure to make payment as at when due or make payment by those owing the firm. The need to include delinquency derives from the importance usually attached to the time value of money in financial analysis: one naira received today is worth more than one naira received in the future. While delinquencies indicate delay in payment, default, denotes nonpayment and if the former is unchecked, leads to the latter. The exposure to credit risk is particularly large for financial institutions such as commercial and merchant banks. When firms borrow money, they are in turn, exposes to credit risk.

However, credit risk arises from non-performance by a borrower. It may arise from either an inability or unwillingness to perform in the contacted transactions. This can affect the entity holding the loan contract as well as other lenders to the creditors. As a consequence, borrowing exposes the firm's owners to the risk that the firm generally will have to pay more to borrow money because of credit risk.

1.   It reduces the business value of the bank that granted the loan and destabilized the credit system.
2.   Cost of administration of overdue loan tends to increase and defaults push up lending costs without any corresponding increase in loan turnover.
3.   Default reduces the resources base for further lending, weaken staff morale, and affect the borrower's confidence. The identification of credit risks and exposure to loss is perhaps the most important element of the credit risk management process. Unless the sources of possible losses delinquencies and defaults are recognized. It is impossible to consciously choose appropriate, efficient methods for dealing with these losses when they occur. The credit risk management unit of the bank will need to draw a checklist of causes of delinquencies and default in their operations.

Counter Party: Nnanna (2003) referred this type of risk arising from the economic, social and political environment in the borrower's home country (country risk) and the risk present in loans that are denominated in the borrower's local currency (Transfer risk).

Moreover, counterparty risk comes from non-performance of a trading partner. The non-performance may arise from counter party's refusal to perform due to an adverse price movement caused by systematic factor or form some other political or legal constraint that was not anticipated by the principal. Diversification is the major tool for controlling non-systematic counterparty risk. Counterparty is like credit risk, but generally viewed as a more transient financial risk associated with trading that standard creditor default risk.

3. Liquidity Risk:

Nnanna (2003) defined liquidity risk as the risk from bank having insufficient funds on hand to meet its current obligation. Santomero (1984) described liquidity risk as the risk of finding crisis. While some would include the need to plan for growth and unexpected expansion of credit, the credit here is seen more correctly as the potential for a funding crisis. Such a situation would inevitably be associated with an unexpected event, such as a large charges off, loss of confidence or crisis of national proportion such as a currency crisis.

One of management's fundamental responsibilities is to maintain sufficient resources to meet liquidity requirements, as when cheque are presented for payment, deposits mature and loan request are funded. Managing liquidity risk forces a bank to estimate potential deposit losses and renew loan demanded.

4. Legal Risk

Legal risks are endemic in financial contracting and are separate from the legal ramification of credit, counter party and operational risk. Risk that a bank's contract or claims will be enforceable or that court will impose judgment against them. It covers the risk of legal uncertainty due to the lack of clarity of laws in localities in which the bank does business (Nnanna, 2003); examples of legal risk are fraud violation of regulation or laws and other actions that can lead to catastrophic loss.

2.1.3   Classification of Risks

Generally, banking can be classified broadly into four categories: These are financial risks, operational and event risk, business risk and event risk

Financial Risks: Financial risks are further disaggregated into pure and speculative risks. Pure risks which include liquidity, credit and solvency risks can result in a loss for bank, if they are not properly managed. Speculative risks, based on financial arbitrage, can result in a profit if the arbitrage is positive or loss, if it is negative. The main categories of speculative risks are interest rate, currency and market price (or position) risks.

Operational Risks: Operational risks are related to a bank's overall organization and functioning of internal systems, including: computer related and other technologies, compliance with bank policies and procedure and measure against management and fraud.

Business Risks: Business risk are associated with a bank business environment including: macroeconomic and policy concern, legal and regulatory factors and the overall financial sector infrastructure and payment system.

Event Risks: Event risks include all type of exogenous risk which, if they are to materialize could jeopardize a bank's operations or undermine its financial condition and capital adequacy.

2.2 Theoretical Framework
1. Commercial Loan Theory

The oldest theory of banking is the commercial loan theory, also called the real bills doctrine. The commercial loan theory holds that banks should lend only on short term, self-liquidating, commercial paper. The commercial loan theory is geared to influence persuasively both the bank lending and the general economic activities. Strict adoption of this theory will reveal that it is expected to serve as a monetary supply to changes in aggregate economic activity. The popularity of this doctrine among Deposit Money Banks (DMBs) in Nigeria is evident. Nigerian bankers believe that since their resources were repayable at short notice, such depositors' monies should be employed accordingly in short-term loans. Kargi (2011) posited that the strong tie to this conception is rather orthodox if consideration is given to the fact that at the time of the supremacy of the theory, there were little or no secondary reserve assets, which could have served as a liquidity buffer for the bank. More so, this theory fails to consider the credit needs of developing economy like Nigeria. It has not encourage banks to fund the purchases of plants, equipment, land and home ownership, finance the required critical infrastructure which are long term in nature. For a theory to maintain that all loans should be liquidated in the normal course of business shows its failure to recognize the relative stability of bank deposits. Whereas, demand deposits are on demand, all depositors are not likely to demand payment at the same time. Thus, stability of deposits enables a bank to extend funds for a reasonable long period without danger of illiquidity.

2. The shiftability Theory

The theory assumes that assets need not be tied on only self-liquidating bills, but also held in other shiftable open-market assets, such as government securities (Moti, Masinde and Mugenda, 2012). It must be noted that the shiftability theory did not replace the commercial loan theory or made it to be invalid. Instead, the shiftability theory took a more general view of the banking business by broadening the list of assets deemed legitimate for bank investment. The stability theory does not say that commercial loans are not the only appropriate asset. The ability to shift its assets to someone else at a predictable price. Thus, for example, it would be quite acceptable for a bank to hold short-term open market investments in its portfolio of assets. The shiftability theory, profound effect on banking practices can hardly be denied. What it did, basically was to redirect the attention of bankers and the banking authorities from loans to investments as a source of bank liquidity. Indeed, proponents of the theory argued that the liquidity of short-term, commercial loans was

largely fictional in any case. According to Kargi (2011), as with the commercial loan theory, however, the shiftability theory contained a serious flaw. The defect of the theory was simply this: Although one bank could obtain needed liquidity by shifting is assets, the same thing was not true of all banks taken together.

3. The Anticipated Income Theory

Out of a comprehensive study in 1949, Prochnow formulated a new loan theory which he called "the Anticipated Income Theory". According to Afriyie and Akotey (2011) they found in their study that: In every instance, regardless of the nature and character of the borrower's business, the bank planned liquidation of term loans from anticipated as in commercial or traditional theory of liquidity or by shifting the term loan to some other lenders as in the shifting theory of liquidity but by anticipating income of the borrower. In effect, this theory assumes that banks should make loans on the basis of the anticipated income of the borrower and not on his present value. In works of Kolapo, Ayeni, and Oke, (2012) one striking thing with this theory is it "future-oriented approach" to bank loans and advances. It is generally known as "cash flow approach" to lending. Properly understood, this theory was a rival only to the commercial loan theory, not the shift ability theory. It does not question the shiftability view that a bank's most fundamental source of liquidity is its secondary reserves. Rather, it again focused attention on the types of loan appropriate for a bank to make but came to quite a different conclusion than that reached by the advocates of the commercial loan theory (Moti, Masinde, and Mugenda, 2012).

4. The Credit Risk Theory

Credit risk refers to the risk that a borrower will default on any type of debt by failing to make required payments. The risk is primarily that of the lender and includes lost principal and interest, disrupt loss may be complete or partial and can arise in a number of circumstances, such as an insolvent bank unable to return funds to depositor.

To reduce the lenders risk, the lender may perform a credit check on the prospective borrowers, may require the borrower to take appropriate insurance, such as mortgage insurance or seek security or guarantees of third parties. In general, the higher the risk, the higher will be the interest rate the debtors will be asked to pay on the debt (Owojori, Akintoye and Adidu, 2011).

5. The Liability Management Theory

This theory holds that it is unnecessary to observe traditional standards since reserve money can be borrowed or obtained in the money market using short term debt instruments whenever a bank experiences reserve deficiency. According to Shafiq and Nasr, (2015), it does not mean that the bank manages only its liabilities and passive with respect to its assets.

Rather, the theory continues to recognize that the asset structure of the bank has a prominent role to play in proving the bank with liquidity. But the theory takes a one dimensional approach to liquidity and argues that the bank can also use its liabilities for liquidity purposes. A bank wants liquidity for deposit withdrawal purpose and also to meet the reasonable loan requests to its customers. Not only are bank loan profitable but a bank that won't grant loans to its depositors when they need funds is not likely to keep those depositors for very long.

2.3 Empirical Literature Reviewed

Harvey and Merkowsky (2008) used descriptive, correlation and regression techniques to study whether credit risk affects banks' performance in Nigeria from 2004-2008. They found that risk management has a significance impact on profitability of Nigerian banks

Boland (2013) in their work examined bank performance in the presence of risk for Costa-Rican banking industry during 1998-2007 using regression analysis. The result of their study showed that performance improvements follow regulatory changes and that risk explains differences in banks and non-performing loans negatively affects efficiency and return on assets (ROA) while the capital adequacy ratio has a positive impact on the net interest margin.

Kithinji, (2010) assessed the effect of credit risk management on the profitability of commercial banks in Kenya. Data on the amount of credit level of non-performing loans and profits were collected for the period 2004 to 2008. The findings revealed that the bulk of the profits of commercial banks are not influenced by the amount of credit and non-performing loans, therefore suggesting that other variables other than credit and non-performing loans impact on profits.

Chen and Pan, (2012) examined the credit risk efficiency of 34 Taiwanese commercial banks over the period 2005-2008. Their study used financial ratios to assess credit risk and the analysis employed Data Envelopment Analysis (DEA). The credit risk parameters were credit risk technical efficiency (CR-TE), credit risk allocative efficiency (CR-AE), and credit risk cost efficiency (CR-TE). The results indicated that only one bank is efficient in all types of efficiencies over the sample period overall, the DEA results show relatively low average efficiency levels in CR-AE and CR-CE in 2008.

Felix and Claudine, (2008) investigated the relationship between bank performance and credit risk manegmnet focusing on emerging economies. It were inferred from their findings that return on equity (ROA) and return on assets (ROA) both measuring profitability were inversely related to the ratio of non-performing loans to total loans and advances of financial institutions thereby leading to a decline in profitability.

Kargi, (2011) evaluated the impact of credit risk on the profitability of Nigerian banks using financial ratios as measures of bank performance and credit risk data were collected from the annual reports and accounts of sampled banks from 2004-2008 and analyzed using descriptive, correlation and regression techniques. The findings revealed that credit risk management has a significant impact on the profitability of Nigerian banks. It concluded that banks' profitability is inversely influenced by the levels of loans and advances, non-performing loans and deposits thereby exposing them to great risk illiquidity and distress. Kargi, (2011) concluded that liquidity and bank size affected strongly on effectiveness that effective risk manegmnet was critical to any bank for achieving financial soundness.

Moti, Masinde and Mugenda, (2012) investigated the impact of bank's specific risk characteristics, and the overall banking environment on the performance of 43 commercial banks operating in 6 of the GULF Co-operation Council (GCC) countries over the period of 1998-2008. Using regression analysis, he observed that bad debts or credit risks, liquidity risk and capital risk are the major factors that affects bank performance when profitability is measured by return on equity is liquidity risk.

Boland (2012) in their work examined performance in the presence of risk for Costa-Rican banking industry during 1998-2007 using regression analysis.The result of their study showed that performance improvement follow regulatory changes and that risk explains differences in banks and non-performing loans negatively affect efficiency and return on assets (ROA) while the capital adequacy ratio has a positive impact on the net interest margin.

Kargi, (2011) concluded that liquidity and bank size affected strongly on effectiveness of credit risk management. Boland (2012) discovered that effective risk management was critical to any bank for achieving financial performance had been affected by sound credit risk manegmnet and capital adequacy.

The results showed that performance improvements follow regulatory changes and that risk explains differences in banks and non-performing loans negatively affect efficiency and return on assets while the capital adequacy ratio has a positive impact on banks profitability as measured by return on equity (ROE) and return on assets (ROA).

Shafiq and Nasr, (2015) examined the key determinants of credit risk of commercial banks on emerging economics banking bank's ability to meet its business objectives,

Kolapo, Ayeni and Oke showed that the effect of credit risk on bank performance measured by ROA was affected was not captured by the method of analysis employed in the study.

Osuka and Amak, (2015) using time series data from 2001-2011 appraised the impact of the credit risk management in bank's financial performance in Nepal. The result of the study indicates that credit risk manegmnet is an important predictor of banks' profitability and financial performance.

Alshatti, (2015) revealed that the variable of credit risk manegmnet influenced banks' profitability. This research improve on some of the existing studies, in that it investigates the sub-total and overall effect of credit risk

management and its indicators on the lending ability of Nigerian deposit money banks by combining certain risk management indicators and other financial indicators to determine which variable influence bank profitability and loan creation in broader scope.

2.4   Summary of Literature Reviewed

The review of literature for this research work identified risk categories that can potentially cause financial loss to commercial banks businesses. The risk categories can be group into two: those that are directly within the control of bank industry (commercial banks) and those that arises from macroeconomic factors beyond the direct control of the banks (systematic risks).

The various control measures available for the control of these risks have been identified and discussed. It has been noted that elimination of risk is difficult and in many instance impossible. If follows therefore that some risk can be minimized and some others can be transferred interestingly, all the authors cite in the course of the review like Schuh (2002), and Santomero et al (1997) among others whose work were reviewed have all written on a number of areas concerning the topic especially the need for adequate risk management and control measures, but more have written on the impact of risk management in the Nigeria Banking Industry and that is what this study is set to achieve.

Research Method

This section deals with the methodology used by the researcher in the course of this study. It shows the design of the study as well as the techniques of data collection as contained in this section, and also the data sources: primary and secondary, sample size, models of the study and techniques of data analysis.

3.2 Research Designs

Planning is essential in research: Planning is an academic or scientific method of designing a research work. The planning in research generally is a research design. It is used in purely research context "as the total constructional plan or structure of the research framework"(Iwueze 2009). He further observed that research design therefore means the structure and planning of the entire approach to the problem that generated the research.

Both quantitative and historical design will be adopted for this study. The choice of these methods of research design was informed by the fact that extensive use of raw data was made on risk correlated variables as well be analyzed in chapter four of this project work. Historical research on other is a "systematic collation of data related to past occurrences in order to test hypotheses or research questions concerning causes, impact/effect or tends of those events anticipate future trends.

3.3 Population and Sample Size

The population of this study is all the 22 Deposit Money Banks (DMBs) in Nigeria and the study essentially examined the risk management philomena in deposit money banks. However, considering the size of these deposit money banks

and time constrained, this work was narrowed down to two banks: First Bank Nigeria Plc and Fidelity Bank Nigeria Plc".

3.4 Source of Data

This research employed only the use of secondary source of data. The use of secondary data was informed by the fact that quantitative data analyses are required in the analysis of the research work. However, primary data will be unnecessary since a good number of people are not familiar with commercial banks operations and its related risk exposure.

3.5 Method of Data Collections

In this study, performance is the dependent variable represented by return on assets (ROA), defined as profit after tax divided by total assets and return on equity (ROE), defined as profit after tax divided by equity. The above performance indicators have been used extensively in previous studies and with satisfactory results (Aziz, Ibrahim and Isa, 2009). We have therefore chosen to use return on equity (ROE) and return on assets (ROA) as measures of performance representing the dependent variable.

Independent Varaiables

Risk is the risk of counter-party failure in meeting the payment obligation on the specific date. Risk management in an important challenge to deposit money banks in Nigeria and failure of banks. In modeling the influence of credit risk, the ratios of total loan to deposit (LDR), non-performing loans to total loans (NLTL) and total loans to total assets (TLTA) are used.

Model Specification

The empirical models to be estimated in this study are specified functionally as:

ROA = F (LDR, NLTL, TLTA)

$$\text{equation 1}$$

ROE = F (LDR, NLRL, TLTA)

$$\text{equation 2}$$

Econometrically, the regression models are transformed as:

$$ROAt = P_0LDRt + P_2NLTLt + P_3TLTAt + Ut$$

$$\text{equation 3}$$

$$ROEt = P_0 + P_1LDRt + P_2NLTLt + P_3TLTA + Ut$$

$$\text{equation 4}$$

Where:

ROA = Return on Assets

ROE = Return on Equity

LDR = Total loans and advances-to-total deposit ratio

NLTL = Non-performing loans-to-total loans ratio

TLTA = Total loans and advances-to-total assets ratio

T = Time series data

P_0 = Intercept

P_1, P_2, P_3 = Parameters of the coefficients

U = Error or disturbance Term

$P_n \wedge <^{0;P}3>^0$

3.6   Method of Data Analysis

The techniques of data analysis used are purely quantitative method of data analysis. In this method, the researcher uses

correlation/regression analysis techniques. This method(s) of data is chosen because it establishes the impact of relationship between risk the associated variables and creditability of growth and profitability in the banking industry.

The formular in mathematically calculated thus:

$$r = \frac{n\sum XY - (\sum X)(\sum Y)}{n\sum X^2 - (\sum X)^2 \ (n\sum 2 - (\sum Y)^2}$$

r = Correlation and Coefficient

n = Number of Paired value

x = independent variable

y = dependent variable

That is,

r = + 1 indicates positive correlation

r = -1 indicated negative correlation

r = 0 indicates neutral correlation

For simple model type 1 show below

Y = F(X)(1), the regression equation

Is shown in 2 below as

Y = a + bx ………………………….. (2)

Where:

Y = Dependent variable

X = Independent variable

A = constant indicating the point of interception with the Y

b = Parameter that defines the specific relationship Y and X

The constant a and b can be calculated using:

B = Ixy   (4)

A = Y – bx
        (5)

However, for the research, all calculation are done via the computer using relevant regression packages.

DATA PRESENTATION AND ANALYSIS

4.1   Introduction

This section focuses on the presentation, analysis and interpretation of data collected through the secondary sources. This analysis of data is necessary to bring out the result of the research work done and be able to comment on data results and draw conclusion based on it.

4.2   Data Presentation

Various description statistics are calculated from the variables under study in order to describe the basic characteristics of these variables. As can be seen from table 4.1, all the variables are asymmetrical. More precisely, skewness is positive for all the variables except the ratios of loans and advances to deposit and total loans and advances to total assets. Kurtosis values of all the variable also shows data is not normally distributed as the values of Kurtosis are deviated from 3. The Jarque Bera statistics and p-values accept the normality assumption at 5% level of significant for all the variables.

TABLES 4.1 DESCRIPTIVE STATISTICS

	ROA	ROE	LDR	NL/TL	TL/TA
Mean	529.6319	402.7062	63.88115	23.51962	0.382077
Median	543.2500	401.4250	64.93000	21.50000	0.380000
Maximum	684.5600	478.2200	85.66000	45.40000	0.530000
Minimum	410.0200	326.2900	36.25000	3.000000	0.210000
Std. Dev.	69.06888	36.57816	12.81796	13.98437	0.79570
Skewness	0.087669	0.173143	0.475953	0.045553	-0.137823
Kurtosis	2.663357	2.825027	2.497870	1.7755412	2.488850
Jarque-Bera	0.156078	0.163073	1.254782	1.633575	0.365359
Probability	0.924928	0.921699	0.533983	0.441849	0.833035
Sum	13770.43	10470.36	1660.910	611.5100	9.924000
Sum Sq. Dev	119262.7	33449.05	4107.505	4889.066	0.158284
Observation	26	26	26	26	26

Source: Authors compilation from Eviews 10 Software

4.3 Test of Hypotheses
4.3.1 Interpreting Pearson Result

A positive correlation means that as one variables increase in value the second variable also increase in value. Similarity, as one variable decrease in value the second variable also decrease in value. Likewise a negative correlation means that

as one variable increase in value the second decrease in value.

Decision Rule: Reject the null and accept the alternative hypothesis if p-value < 0.05, if otherwise, we accept the null.

Table 4.3: Correlation Matrix

	ROA	ROE	LDR	NL/TL	TL/TA
ROA	1				
ROE	0.7557	1			
LDR	-0.3257	0.3332	1		
NL/TL	0.6555	0.6073	0.2147	1	
TL/TA	0.3144	0.4461	0.3233	0.6295	1

Source: Authors compilation from Eviews 10 Software

Table 4.2 above shows variables are return on Assets (ROA), return on Equity (ROE), total loans and advances-to-total deposit ratio (LDR), non-performing loans-to-total loans ratio (NL/TL), total loan and advances-to-total asset ratio (TL/TA).

From Table 4.2 above, it shows that the variables return on assets ROA and return on return on equity (ROE) are positively related with a significant value of 0.7557.

Table 4.2 also indicates that the variables return on assets (ROA) and total loans and advances to total deposit ratio

(LDR) are negatively related with a significant value of -0.3257.

Table 4.2 above also implies that the variables return on assets (ROA) and non-performing loans to total loans ratio (NL/TL) are negatively related with a significant value of -0.6555.

Table 4.2 also indicates that the variables return on assets (ROA) and total loans and advances to total ratio are positively related with a significant value of 0.3144.

TABLE 4.3: UNIT ROOT RESULT

VARIABLES	AT LEVEL	1ST DIFFERENCE	ORDER OF
ROA	-2.545	-4.278	Kd
ROE	-2.778	-7.081	Kd
LDR	-3.846	0	1(0)
NL/TL	-1.527	-6.122	1(1)
TL/TA	-1.334	-4.810	1(1)

Critical Values: 1% -3.7385%: -2992 version 24
Source: Authors compilation from Eviews 10 Software

Table 4.3 above presents the summary results of the ADF unit root tests. All the variables are tested at levels and first difference for stationary using the ADF test.

The result shows that all the Variables are stationary at first difference except the ratio of total loans and advances to total deposit which is stationary at level. This indicates that

the regression is no more spurious but real. That is to say, all the variables are individually stationary and stable.

Table 4.4: Johansen Co-integration Test Results

Model	Variables		No. of Co-integrating equal ion @ 5%		
	Dependent Variables	Independent Variables	Trace Test	Maximum Eigenvalue	Lag Intervals
1	ROA	LDR, NL/TL, TL/TA	2	2	1 to 2
2	Roe	LDR, NL/TL, TL/TA	2	2	1 to 2

Source: Authors complications from Eviews version 26

Tables 4.4 shows the summary results of the Johansen Co-integration test employed to test for the long run co-integration relationship between bank performance represented by return on assets (ROA) and return on equity (ROE); and asset quality management of deposit money banks represented by the ratios of total loans and advances to total deposit, total non-performing loans to loans and advances and total loans and advances to total assets. There are two co-integrating equations each for both the trace tests and the maximum-eigen values test with one or two leg intervals taken at 5 percent significant level.

Table 4.5 Parsimonious ECM result with ROA as the dependent variable

Dependent Variable: D(ROA)				
Method: Least Squares				
Date: 11/22/17 Time: 16.57				
Sample (adjusted): 1992-2016				
Included observations: 23 after adjustments				
Variable	Coefficient	Std. Error	t-	Prob.
C	-3.079485	8.004890		0.7055
D(LDR)	1.054446	0.688977	1.53045	0.1454
D(NLTL)	-3.191229	0.948006		0.0039
D(NLTL(-1))	-2.090412	0.911430		0.0357
D(TLTA(-2))	316.6873	181.5407	1.74444	0.1003
D(ROA(-1))	0.246834	0.194719	1.26764	0.2231
ECMI (-1)	0.599575	0.188684		0.0058
R-squared	-0.595606	Mean dependent var		9.671739
Adjusted R-squared	0.443958	S.D. dependent var		47.14857

S.E. of regression	35.15756	Akaike infor criterion	10.20336
Sum of regression	19777.20	Schwarz criterion	10.54895
Log likelihood	-110.3387	Hannan-Quinn criter	10.29028
F-statistic	3.927558	Durbin-Waston stat	1.328450
Prob (F-statistic)	0.013257		

Source: Authors compilation from Eviews 10 Software

Tables 4.5 shows that R-squared os 0.60 while adjusted is 0.44 indicating that about 44% total changes in ROA is caused by the combined effect of the independent variables. On the other hand, the remaining 56% is caused largely by factors exogenous to the model which is accounted for by the error term. The result also shows that the entire model is significant at 5% confidence internal. The coefficient of the ECMI (-1) shows the expected negative sign and is significant at 5% level. The speed of adjustment to equilibrium is about 60% every year. Also from the parsimonious except the ratio of total loans and advances total deposit (LDR) which is positively signed against the ROA but insignificant. The ratio of non-performing loans to total loans and advances to total deposit (LDR) which is positively signed against the ROA but insignificant. The ratio of non-performing loans to total loans and advances (NLTL) is negatively signed and significant at 5% confidence interval. While the ratio of total loans and advances to total assets (TLTA) as expected is positively signed but insignificant at 5% significant level.

Table 4.5 Parsimonious ECM Result with ROE as the Dependent Variable

Dependent Variable: D(ROA)		
Method: Least Squares		
Date: 11/22/17 Time: 16.44		
Sample (adjusted): 1992-2016		
Included observations: 23 after adjustments		

Variable	Coefficient	Std. Error	t-	Prob.
C	6.591684	5.506453	1.197084	0.2499
D(TLTA)	315.9583	171.5101	1.842214	0.0853
D(NLTL(-1))	-206.2842	116.3681	-1.772687	0.9066
D(TLTA(-2))	-160.3000	191.7488	-0835989	0.4163
D(LDR)	-0.802685	0.673837	-1.191216	0.2521
D(LDR(-2))	1.345358	0.797931	1.686057	0.1125
D(NLTL(-2))	-0.459264	0.564697	-0.813292	0.4288
ECM1 (-1)	-0.883077	9.234967		-3.758305

R-squared	0.710406	Mean dependent var	5.001304
Adjusted R-squared	0.575263	S.D. dependent var	35.05688
S.E. of regression	22.84723	Akaike infor criterion	9.363745
Sum of regression	7829.939	Schwarz criterion	9.758700
Log likelihood	-99.68307	Hannan-Quinn criter	9.463075
F-statistic	5.256671	Durbin-Waston stat	1.572307
Prob (F-statistic)	0.013257		

Source: Authors compilation from Eviews 10 Software

Table 4.6 shows that R-squared is 0.71 while adjusted R-squared is 0.58 indicating that about 58% initial changes in ROE is caused by the combined effect of the independent variables. On the other hand, the remaining 42% is caused largely by factors exogenous to the model which accounted for by the error term. The result also shows that the entire model is significant at 5% confidence interval. The coefficient of the ECM (-1) shows the expected negative sign and is significant at 5% level. The speed of adjustment to equilibrium is about 88% every year. Also from the parsimonious result, all the independent variables conform to the apriori expectation except the ratio of total loans and advances to total deposit (LDR) which also positively signed against the ROE but insignificant. The signed but insignificant at 5% confidence interval. While the ratio of total loans and advances to total assets (TLTA) as expected is positively signed but insignificant at 5% significant level.

TABLE 4.7 PAIRWISE GRANGER CAUSALITY TEST RESULT

Pairwise Granger Causality Tests			
Date: 11/22/17 Time: 00:55			
Sample: 1991 2016			
Lags: 1			
Null Hypothesis:	Oba	F-	Prob.
ROE does not Granger Cause ROA	25	0.01006	0.9210
ROA does not Granger Cause ROE		2.74653	0.1117
LDR Does not Granger Cause ROA	25	5.80824	0.0248*
ROA does not Granger Cause LDR		1.2248	0.2770
NLTL does not Granger Cause ROA	25	0.51752	0.4795
ROA does not Granger Cause NLTL		0.88709	0.3565
TLTA does not Granger Cause ROA	25	0.13994	0.7119
ROA does not Granger Cause TLTA		0.80472	0.3794

LDR does not Granger Cause ROE	25	3.06056	0.0942
ROE does not Granger Cause LDR		0.99283	0.3299
NLTL does not Granger Cause ROE	25	7.19860	0.0136
ROE does not Granger Cause NLTL		0.96492	0.3366
TLTA does not Granger Cause ROE	25	0.32765	0.5729
ROE does not Granger Cause TLTA		1.73768	0.2010
NLTL does not Granger Cause LDR	25	0.264479	0.6120
LDR does not Granger Cause NLTL		0.11808	0.7344
TLTA does not Granger Cause LDR	25	0.29695	0.5913
LDR does not Granger Cause TLTA		0.61204	0.4424
TLTA does not Granger Cause NLTL	25	3.50879	0.0744
NLTL does not Granger Cause TLTA		3.51556	0.0741

Source: Authors compilation from Eviews 10 Software

The Granger causality test results presented in Table 4.7 reveals the direction of causality the various variables representing bank performance (ROA and ROE) and credit risk management variables. The results above indicates that there is a unidirectional granger causality relationship running from LDR to ROA and also from NLTL to ROE respectively.

4.4 Discussion of Findings

This study shows that there is a significant relationship between bank performance and risk management. Loans and advances and non-performing loans are major variables in determining asset quality of a bank. These risky items are important in determining the profitability of banks in Nigeria. Where a bank does not effectively manage its risk, its profit will dwindle. This means that the profit after tax has been responsive to the credit policy of Nigerian banks. Banks become more concerned because loans are usually among the resident of all assets and therefore may threatened their liquidity position and lead to distress. Better credit risk management results in better bank performance. Thus, it is of crucial importance for banks to practice prudent risk management to safeguard their assets and protest the investors' interests.

SUMMARY OF FINDINGS, CONCLUSION RECOMMENDATION

This section highlights the summary of findings, conclusion and the necessary recommendations based on the data or findings from the research works.

5.1 Summary of Finding

Based on the test carried out it was discovered that:

1. Deposits have a significant positive impact on bank loans.
2. Credit risk exposure have a significant positive impact on profitability of bank

5.2 Conclusion

This work is an analysis of the impact of risk management on the performance of deposit money banks. In summary, the findings demonstrate succinctly, that the selected risk management indicators under study significantly affect the performance of deposit money banks in Nigeria. But the measure of relationship differs according to the different performance indicators in line with Moti, Masinde, and Mugenda, (2012) who observed that bad debts or credit risks, liquidity risk and capital risk are the major factors that affect bank performance when profitability is measured by return on assets while the only risk that affects profitability when measured by return on equity is liquidity risk.

Therefore, the result of our econometric tests leads us to conclude that there is a significant relationship between the various risk management indicators employed in this study and the performance of deposit money banks in Nigeria and is in line with the findings of Kargi, (2011), Chen and Pan (2012), and Boland (2012)

5.3 Recommendations

The following strategies are recommended in other to improve banks performance and profitability in Nigeria.

1. Management need to be cautions in setting up a credit policy that will not negatively affect the operations of their banks in order to ensure judicious utilization of deposits and maximization of profit.
2. CBN for policy making purpose should regularly assess the lending attitudes of deposit money banks and their effective cash management policies to avoid insolvency in the financial system.
3. Determining the credit worthiness of a customer whether individual or corporate organization must be carefully planned. A rush into the approval of loan without sourcing adequate and relevant information on the prospective borrowers must be avoided if the bank wishes to circumvent delays in the recovery of debt.
4. To increase credit volume, the interest rate policy must be considered within the frame of economic circumstances of the time for low interest rate does facilities quick repayment and drastically minimize debt failure.

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2006	5.92	17.36	0.06	22.50	7.92
2007	4.29	36.83	0.08	22.66	8.30
2008	-9.28	34.11	0.06	16.62	6.25
2009	3.91	-64.72	0.30	135.70	32.80
2010	-0.04	16.00	0.10	250.85	15.04
2011	2.62	-0.28	0.03	17.13	4.95
2012	2.89	22.20	0.02	14.34	3.51
2013	2.47	23.21	0.0	20.54	4.12
2014	3.6	13.89	0.0	32.51	17.59
2015	2.7	21.65	0.0	12.34	10.46
2016	6.73	18.67	0.0	10.05	8.6

Sources: Central Bank of Nigeria Annual Reports Various Issues.

APPENDIX

Year	ROA	ROE	LDR	NL/TL	TL/TA
1989	17.5	65.50	0.83	356.00	40.80
1990	7.14	63.20	0.30	344.00	44.10
1991	1.97	26.40	0.23	222.00	39.00
1992	-5.69	9.70	0.26	289.00	45.40
1993	0.33	33.90	0.24	380.56	41.00
1994	1.29	12.62	0.20	567.70	43.00
1995	1.99	44.84	0.27	496.00	32.90
1996	3.35	56.78	0.27	419.80	33.90
1997	4.52	96.56	0.36	253.09	25.81
1998	4.13	86.08	0.17	89.20	19.35
1999	3.96	80.59	0.68	102.00	25.61
2000	4.82	99.45	0.55	92.20	21.50
2001	2.63	114.29	0.50	77.10	16.90
2002	2.00	41.63	0.66	85.90	21.27
2003	2.58	29.11	0.70	89.70	21.59
2004	0.49	27.23	0.79	105.30	23.08
2005	2.65	4.81	0.74	57.18	20.13