BOARD CHARACTERISTICS AND RISK MANAGEMENT OF LISTED DEPOSIT MONEY BANKS IN NIGERIA

BY

Nasir IBRAHIM

M. Sc/Admin/0858/2010-2011

BEING A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, AHMADU BELLO UNIVERSITY ZARIA, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE DEGREE (M. Sc.) IN ACCOUNTING AND FINANCE

DEPARTMENT OF ACCOUNTING
FACULTY OF ADMINISTRATION
AHMADU BELLO UNIVERSITY,
ZARIA

APRIL, 2014

DECLARATION

I declare that this M. Sc. Thesis entitled "Board Characteristics and Risk Management of Listed Deposit Money Banks in Nigeria" has been carried out by me in the department of accounting. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this thesis was previously presented for another degree or diploma at this or any other institution.

_____ _____

Ibrahim, Nasir Date
M.Sc/Admin/0858/2010-2011

CERTIFICATION

This Thesis entitled “Board Characteristics and Risk Management of Listed Deposit Money Banks in Nigeria” by Ibrahim, Nasir meets the regulations governing the award of the degree of Master of Science in Accounting and Finance of Ahmadu Bello University, Zaria and is approved for its contribution to knowledge and literary presentation.

Dr. Ahmad Bello	_____	_____
Chairman, Supervisory Committee	Signature	Date
Dr. SalisuAbubakar	_____	_____
Member, Supervisory Committee	Signature	Date
Dr. Ahmad Bello Dogarawa	_____	_____
Head of Department	Signature	Date
Prof.KabirBala	_____	_____
Dean, Postgraduate School	Signature	Date

DEDICATION

This thesis is dedicated to God Almighty who created the pen and thought man how to use it. It is also dedicated to all those who have in one way or the other contributed to the advancement of knowledge all over the world. Special dedication also goes to my parents (Fatima and AbdullahiDagaji) who did all they could to put me on the way of seeking for knowledge.

ACKNOWLEDGEMENTS

The completion of this thesis would not have been possible without the contributions and suggestions of different people. The role played by my supervisors namely Dr. Ahmad Bello (Major) and Dr. SalisuAbubakar (Minor) through vital contributions and constructive criticisms in the course of this work cannot be over emphasized.

I also want to extend my appreciation to all the lecturers of the department of Accounting, A.B.U Zaria for their efforts in making me what I am today academically. Specifically, I want to acknowledge the role played by Dr. Ahmad Bello in his capacity as the Head of Department for encouraging me to enroll in the M.Sc. program. The same goes to Dr. SalisuAbubakar in his capacity as the M.Sc. Accounting and Finance coordinator.

Several other people whose support was vital in the course of this work include my friends and course mates-ModibboAbubakar, ZaidAbubakar and Maryam Ahmad Jibril. Special thanks also goes to my mentor Sen. Ahmad RufaiSani (YarimanBakura) for all his support and encouragement. I also thank the Nigeria-Sao Tome Joint Development Commission for their financial support during the course of my M.Sc. program.

Finally, my special appreciation goes to my wife Fatima and my sons,Abdussalam and Abdurrauf, for their patience and understanding throughout the period of my study.

ABSTRACT

This study has been undertaken with the objective of examining the impact of Board of Directors Characteristics on the Risk management Capacity of listed deposit money banks in Nigeria. Using a sample of eight (8) too big to fail banks for a period of 8 years (2005-2012), the study employs correlation research design and Generalized least squares method of analysis. The study found that board characteristics of the listed deposit money banks in Nigeria have significant impact on the risk management of the banks. Specifically, the study found that, board of directors' size and independence, board risk governance and board financial expertise have significantly improved the risk management (measured by Value at risk and non-performing loans ratio) of the deposit money banks in Nigeria. The study recommends among others that the regulators of deposit money banks in Nigeria should increase surveillance, and supervision to ensure proper overall risk management that could safeguard the interest of all stakeholders and the reputations of the banks. They should also emphasize the optimal size of the board.

TABLE OF CONTENTS

CHAPTERTHREE: RESEARCH METHODOLOGY

CHAPTER FOUR: RESULTS, ANALYSIS AND DISCUSSIONS

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The strategic role of banks in economic growth and development of any country makes them attract stringent operational and prudential regulations. Banks mobilize funds from surplus units of the economy, and channel them to the needy sectors of the economy; they provide the payment and settlement system and implement monetary policy. It is in this regard that banks are regarded as the central nervous system of any economy (Sunusi, 2012). The sole aim of stringent banking regulations is to have a sound and efficient financial system that can foster economic growth and development.

However, to achieve the aim of banking system, a sustained banking public confidence is necessary; confidence in this regard refers to peoples' faith in the banks, that is, the extent to which people generally believe that their money is safe and that the possibility of loss is remote (Emeka, 1997).According to Cranston (1995), Banks face risk in a variety of situations. He adds that the most serious risk is that of going out of business and that a more frequent risk for banks is that of default by a borrower. In order for regulators and banks management to safeguard the banking public confidence and improve performance, risk as a concept has been of great concern and enterprise risk management has been established in all jurisdictions around the world, including Nigeria.

The term Risk is usually associated with downside or bad outcomes, but when trying to understand financial risk, limiting the analysis to just the downside would be a mistake. In the words of Dorfman & Cathher, (2013), "the term Risk refers to the variation in possible outcomes that can result from an uncertain event based on chance". Enterprise Risk Management or Corporate Risk Management creates business value through an integrated process of identification, estimation, assessment, handling, and controlling of risk (Roggi, Garvey, & Damodaran, 2012). Risk management allows an enterprise to create value by managing risks; it takes a much broader perspective on risk.

Lam (2003) adds that risk management connotes a comprehensive and integrated framework for managing credit risk, market risk, operational risk and economic capital and risk transfer in order to maximize firm value.

Risk management is an essential activity in all business organizations, particularly financial institutions, because taking risks and dealing with uncertainty are essential parts of doing business. Moreover, risk management in recent times is beyond a mere mitigation activity, rather a value-creating activity (Roggi et al., 2012). It is based on this philosophy that, Tandelilin, Kaaro, Anom, & Supriyatna (2007) stated the interrelationship between Bank Performance and Risk Management. According to them, the interrelationship between the risk management and performance represents the risk and return trade-off; that is, when banks manage their risk better, they will get advantage to increase their performance (return).

Therefore, better risk management indicates that banks operate their activities at lower relative risk and at lower conflict of interests between parties. These advantages of implementing better risk management lead to better banks performance. On the other hand, better bank performance increases their reputation and image from the public or market point of view. The banks will get lower cost of risky capital and other sources of funds. Cebenoyan & Strahan (2004) add that the banks also get more opportunities to increase their productive assets, leading to higher bank profitability.

However, credit and liquidity crises have threatened the banking industry globally, both before and after the global financial crises, the event that left depositors, bankers and customers in crises of deposits recovery and crises of confidence. For instance, in the United State of America (USA), the banking system suffered distress between 1930 and 1933 which went with about one third of commercial banks (mostly small units), similarly, between 1987 and 1993 about 150 banks were reported to have failed annually (Emeka 1997). This necessitated the establishment of Federal Deposits Insurance Corporation (FDIC) in the USA to restore confidence in the system.

In the same vein, credit and liquidity problem as well as failures of banks in Nigeria was first reported in 1930, and with the establishment of Central Bank of Nigeria (CBN) in 1958, over 21 banks failures were recorded between 1930 and 1958 (Emeka,1997). The Nigerian banking crises of 1990s that caused the transfer of government's deposits from licensed banks to the CBN necessitated the bail-out of 13 banks by the Nigerian Deposits Insurance Corporation (NDIC) and CBN. According to Bello (2013), Nigerian banks have recently suffered wide spread of financial malfeasances which led to declaration of many banks as distress, and takeovers and mergers have left a historical landmark in the history of financial service sector of the country. This necessitated the CBN to embark on second turnaround since 1998 banking crises, which include the rescue of 8 banks through capital and liquidity injections, as well as prosecution of the banks' Chief Executives (Sunusi, 2012). He further states that such actions became necessary to restore confidence in the banking public and bring sanity in the Nigerian banking system.

Consequently, the CBN focused its policies on minimizing exposure to risk by banks operating in Nigeria, and different measures –regulatory, cyclical, financial and operational standards and modification of Corporate Governance code were done to sanitize the financial sector particularly the banking industry (Bello, 2013). Thus, existing literature on corporate governance stressed that both bank performance and risk management are dependent on implementing good corporate governance (Tandelilin et al., 2007). According to them, a better implementation of good corporate governance is not only concerned about better expected return but is also concerned about better risk management.

Risk management is therefore determined by mechanisms of corporate governance in the banking sector through different points of view, for instance, markets have no adequate power to control the operations of banks (Tandelilin et al., 2007). Hence, the need for government intervention to overcome market failure, the main role of regulators and regulation is to serve the public interest. In essence, regulation as external corporate governance controls managerial behavior in making decisions relevant to improving risk management.

Therefore, the regulatory agencies SEC and CBN generally agree that weak corporate governance has been responsible for some recent corporate failures in Nigeria, which prompted them to establish tight regulatory supervision and enforcement of new corporate governance codes. That is, the SEC Code of Corporate Governance for public companies in Nigeria 2003 (which was reviewed in 2008 and took effect in April 2011) and the CBN Code of Corporate Governance for Banks in Nigeria Post-Consolidation, 2006 (the Code hereafter).

The Code considers Corporate Governance as a system by which corporations are governed and controlled with a view to increasing shareholder value and meeting the expectation of other stakeholders. It therefore, emphasizes the need for the practice of good corporate governance to corporations particularly financial institutions (banks), the need is for the retention of public confidence through the enthronement of good corporate governance considering the utmost importance given to the banking industry. According to the Code, the primary responsibility for ensuring good corporate governance in banks lies with the board of directors. And, the principal objective of the board is to ensure that banks are properly managed and management performance is effectively overseen to protect and enhance the interest of all the banks stakeholders.

Some of the major characteristics of the board of directors of banks in Nigeria which are meant for the effectiveness of the board in piloting their operations properly include the board structure (Size and Independence), board risk governance, and board financial expertise. In terms of the board structure, the board should be of a sufficient size relative to the scale and complexity of the bank operations and should contain individuals in such a way as to ensure diversity of experience without compromising independence, compatibility, and integrity in carrying out their role. Based on this, board of directors is assumed to monitor and control the financial intermediation of banks as effectively as possible to avoid credit and liquidity problems of the banking system. On the other hand, independent/non-executive or outside directors should be the key members of the board capable of bringing independent judgment as well as necessary scrutiny to the proposals and actions of the

Management and executive directors especially on issues of strategy, performance evaluation and key appointments. They are therefore critical in the proper operations of the banks particularly with respect to financial intermediation. The code requires that, the number of non-executive directors should be more than that of executive directors subject to a maximum board size of 20 directors; and, at least 2 non-executive board members should be independent directors. Board risk governance is another critical feature of the board of directors. The Board is responsible for the risk management of banks; as such it should form its own opinion on the effectiveness of the risk management process and should appoint its members who will serve as risk officers to oversee the Board risk committees. On the other hand, management is accountable to the board for implementing and monitoring the process of risk management and integrating it into the day-to-day activities of the company. In addition to the approval of risk management framework of the bank, the board is to oversee the establishment of a management framework. Other issues in the board risk governance of the banks include board risk officers that are designated to oversee the banks risks profile through membership of board credit committee, board audit commtee and board risk management committee. However, despite all these risk governance frameworks of the board, credit and liquidity risks are synonymous with the Nigerian banking industry and is seriously undermining the extent of the financial intermediation of banks.

Vassileios (2011) argues that board of directors has an impact on risk management of banks, because of the failure of many large financial institutions around the world and some take overs resulting from the neglect of the basic rules of risk management and control. Therefore, he concludes that risk failure in banks is usually as a result of the inability of the board of directors to exercise effective control over senior management and to challenge the measures and strategic guidelines that were submitted to them for approval. Moreover, the code requires that all directors should be knowledgeable in business and financial matters and also possess the requisite experience. The expertise of board members is a critical component in

assuring that the monitoring role of the board is effectively discharged. Therefore, due to the uniqueness of banking operations which is generally financial services, board members expertise in financial matters is necessary and is at the heart of effective discharge of the board monitoring functions.

This study is motivated by the recent crises and default in the Nigerian banking industry which threatened public confidence in the banking system and is likely to affect the decision of customers to deposit their money in the banks despite the governance mechanisms and strict regulations of the industry. The study is further motivated by the designation of eight deposit money banks by the CBN as too big to fail, in light of the lingering credit and liquidity risks crises in the sector. Moreover, the near absence of empirical studies that logically examined the relation as well as the impact of board characteristics (board structure, board risk governance and board financial expertise) on the risk management of deposit money banks in Nigeria also motivated this study.

It is therefore against this background that this research sets to find out whether or not, Board of directors as a major control mechanism is effective in enhancing and enforcing sound risk management of deposit money banks in Nigeria.

1.2 Statement of the Problem

In order to keep banks in focus and ensure effective monitoring and control of banking operations, banks in Nigeria are mandated to comply with, in addition to SEC code of Corporate Governance for public companies 2008 (as amended), the CBN Code of Corporate Governance for Banks Post-Consolidation 2006. The codes provide thatthe board of directors is primarily responsible for ensuring good corporate governance in banks. The board is also to ensure that the banks are properly managed and management performance is effectively overseen to protect and enhance the interest of all the stakeholders. According to Dorfman & Cather, (2013), “two years after the US congress passed the Sarbanes Oxley Act, a law that brought sweeping changes to corporate governance and financial

accounting standards, the accounting profession also proposed a model for ERM that elevated the responsibility for risk management to the level of the corporate board of directors".

However, despite the explicit role of the board, banks have recently been facing default and distress in Nigeria. For instance, Sanusi (2010) posits that, in Nigeria, the economy faltered and the banking system experienced a crisis in 2009, triggered by global events. The stock market collapsed by 70% in 2008-2009 and many Nigerian banks had to be rescued. In order to stabilize the system and return confidence to the markets and investors, the CBN injected 620bn Naira of liquidity into the banking sector and replaced the leadership at 8 Nigerian banks. Furthermore, a joint examination of Nigerian banks by NDIC and the CBN in 2011 revealed that, there is an extreme weakness in corporate Governance of banks and weak credit administration. Thus, these prompted the research problem which this study sets to investigate. That is, whether or not the board of director's structure (size and independence) and other attributes that are peculiar to core banking operations such as board risk governance and board financial expertise, are ineffective in risk management of deposit money banks in Nigeria.

In light of the forgoing paragraph, Roggi et al., (2012) opined that in the 2008 economic crisis, several firms in emerging markets suffered major losses due to failed risk management and governance. They cited an example of Societe Generale Bank whose board, managers, the risk management systems, and internal controls failed to detect the risks and its subsequent demise. And this costs the bank money, and reputation.

Therefore, while the board of directors is required by law to be of a sufficient size relative to the scale and complexity of banking operations and be composed of competent and diverse experienced members, the size of the board does not seem to be effective in Nigeria with reference to frequent crises on the ground. Another board structure that is expected to provide objective decisions in carrying out the monitoring of banks operations is the installation of independent or outside directors within the board. The rationale behind composing independent directors in the board is that

they are more likely to defend the interests of outside stakeholders effectively. However, this also seems not to be the case in light of the frequent credit and liquidity risk crises in the Nigerian banking industry. Also, deposit money banks in Nigeria are required to comprise individuals of diverse experience, competence and entrepreneurial spirit with financial knowledge in the board. This is with the goal of enabling the board to carry out its' over sight function in an effective manner; however, the recent crises in the banks suggests otherwise. Hence, the need for studying the effects of these board characteristics (size and independence, presence of board risk officers and board financial expertise) that are more pertinent to the primary role of deposit money banks in Nigeria.

Although several researches have investigated the role of board of directors in relation to corporate goals and objectives in Nigeria, most of the studies did not use specific board attributes in specific context like this study. Therefore, this study is unique in testing the relationship between banks' risk management and those board features that are directly linked with the effective monitoring and control of banking risks.

In view of the foregoing paragraphs, the following research questions are put forward:

1. What is the impact of board size on the risk management capacity of deposit money banks in Nigeria?
2. Does board independence have any impact on the risk management capacity of deposit money banks in Nigeria?
3. What is the impact of board risk officers on the risk management capacity of deposit money banks in Nigeria?
4. How does board financial expertise impact on the risk management capacity of deposit money banks in Nigeria?

1.3 Objectives of the Study

The main objective of the study is to examine the impact of Board of Directors Characteristics on the Risk management of listed deposit money banks in Nigeria. However, to facilitate the achievement of the main objective, the following specific objectives are set to achieve:

i. To examine the impact of board size on the risk management capacity of deposit money banks in Nigeria.
ii. To evaluate the impact of board independence on the risk management capacity of deposit money banks in Nigeria.
iii. To assess the impact of board risk governance on the risk management capacity of deposit money banks in Nigeria.
iv. To investigate the impact of board financial expertise on the risk management capacity of deposit money banks in Nigeria.

1.4 Hypotheses of the Study

In line with the objectives of this study, the following hypotheses are formulated in null form;

H_{01}: Board size has no significant effect on the risk management capacity of deposit money banks in Nigeria.

H_{02}: Board independence has no significant effect on the risk management capacity of deposit money banks in Nigeria.

H_{03}: Board risk governance has no significant effect on the risk management capacity of deposit money banks in Nigeria.

H_{04}: Board financial expertise has no significant effect on the risk management capacity of deposit money banks in Nigeria.

1.5 Significance of the study

The critical role of the banking system in mobilizing funds from surplus units, lending credits to the real sector (productive sector) and governments at all levels to finance developmental projects, makes this study a necessity. Therefore, banks as financial intermediaries are very important not only because they are in the business of risk acceptance but also due to their special role within the economy in the mobilization and transfer of financial resources.

In addition, this study is significant in investigating the effectiveness of the major governance mechanism of banks (Board of Directors) responsible for the monitoring and control of banking operations. This is also relevant in view of the competitive business environment of banks and higher threats from the market for corporate control in Nigeria which is the main function of the Board of Directors. The finding from this study is expected to benefit the banking public, management, regulators such as SEC and CBN, shareholders and researchers.

The major asset of banks that to a large extent determine the profitability and the survival of banks are the deposits collected from the banking public. Thus, banking failures usually leave the banking public in the crises of the recovery of their deposits, inaccessibility to credit, and loss of confidence in the system. Therefore, the findings of this study will be of significant importance to the banking public, in that, the study will examine the effectiveness of the main control and monitoring mechanism in relation to the banks' risk management. That is, it could reveal how the impact as well as the ability of board of directors to preserve deposits or liquidity and recover loans, which in turn implies the safety of the banking public and influence their confidence in the banks. Similarly, regulators such as SEC and CBN could also find this study useful as the study will analyze some mechanisms of the code of best practices enshrined in the code of corporate governance issued by them. That is, the results of this study will provide them with empirical evidence on the effectiveness or otherwise of the board of directors attributes as required, in order to take necessary actions.

Shareholders as owners, who are usually concerned with maximization of their wealth, could also find this study useful. This is because the success of the banks is largely dependent upon an effective

board on one hand, and sound risk management on the other. Hence, this study is aimed at providing information on the impact of board characteristics on risk management, and offering logical recommendations from the findings, which could be relevant to the shareholders as owners.

Researchers and students on corporate governance and risk management are also part of the beneficiaries of this study, because they are usually interested in understanding how mechanisms of corporate governance affects corporate operations, activities and performance, this makes them the secondary consumers of the findings of this research. Hence, it will serve as a source of knowledge and point of reference to students and researchers.

1.6 Scope of the Study

Board of Directors possesses many characteristics particularly in banks. This study is however restricted to those board attributes that are expected to influence the risk management activities. These include the structure of the board (size and independence), the risk officers of the board and the board financial expertise.

The rationales for restricting the scope to these three attributes of the board are:

i. Their critical role in ensuring effective and efficient risk management.
ii. Their regulatory requirements, in view of the banking crises and failures that are linked to poor risk management and shattered banking public confidence.

The study focuses on all the deposit money banks quoted on the floor of Nigeria Stock Exchange (NSE) market for a period of eight years i.e. (2005 to 2012). This period is considered for two reasons:

i. It is the period after banking consolidation and major reforms in the industry with the sole aim of enhancing and improving risk management.
ii. Second, it is the period that witnessed an unprecedented credit and liquidity crises that affected the governance of many banks including the arrest of many chief executives. In essence, it is the period that necessitated the CBN to come up with the distinct Code of

Corporate Governance for Banks in Nigeria, Post-Consolidation in 2006, and a correspondent review of SEC 2003 Code of Corporate Governance for Public Companies in 2008 which became effective as at April 2011.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this section, related and relevant literature on the board of directors' characteristics and risk management are presented and critically reviewed. The chapter begins with the review of concept of risk and risk management; this is followed by 2.3which is on the concept of corporate governance. Chapter 2.4 reviewed empirical studies on board characteristics and risk management. In chapter 2.5,

we review literature on board characteristics and finally in 2.6, we present the theoretical framework of the study.

2.2 Concept of Risk and Risk Management

According to Rowe (2013), a central weakness of financial risk management has been to neglect the important distinction between "risk" and "uncertainty". Rowe quoted the work of Knight (1921) titled "*Risk, Uncertainty and Profit"*. In the work, Knight defines "risk" as randomness that can be analyzed using a distributional framework and "uncertainty" as randomness that cannot be so analyzed. Rowe adds that, situations in the "risk" domain are characterized by repeated realizations of random events generated by a process that exhibits stochastic stability or, at least, a high degree of stochastic inertia.

In this context, risk and risk management are defined by different scholars; however, there is no consensus on a single formal definition of risk. Given this lack of consensus, risk is usually defined based on the circumstances, environment, purpose and subject matter at hand.

Roggi et al., (2012) see risk as a concept linked to human expectations, that indicates a potential negative effect on an asset that may derive from given processes in progress or given future events. They conclude that, risk in the common language, is often used as a synonym of probability of a loss or of a danger. In the assessment of professional risk, the concept of risk combines the probability of an event occurring with the impact that event may have and with its various circumstances of happening (Roggi et al., 2012).

Risk, in traditional terms, is viewed as a negative. The Oxford dictionary defines risk as "exposure to danger or hazard", making risk a mix of danger and opportunity. By linking the two, the definition emphasizes that you cannot have one (opportunity) without the other and that offers that look too good to be true (offering opportunity with little or no risk) are generally not true (Roggi et al., 2012). Hence, emphasizing the upside potential as well as the downside dangers, this definition also serves

the useful purpose of reminding us of an important truth about risk. According to the International Finance Corporation IFC, (2012), Risk in financial theory is defined as potential loss from some aspect of financial activity. Also, the banking regulation and supervision board of turkey (as cited by Haneef et al, 2012) defines Risk as "the probability of decrease in economic benefit due to a monetary loss or an unexpected expense or loss occurred concerning a transaction." Also, Dorfman and Cather, (2013) see Risk as the possibility of P&L being different from what is expected or anticipated; risk is uncertainty or randomness measured by the distribution of future P&L.

Risk Management, on the other hand, is a strategic support activity, which creates business value through an integrated process of identification, estimation, assessment, handling, and controlling of risk (Roggi et al., 2012). According to Lam (2003) risk management is a comprehensive and integrated framework for managing credit risk, market risk, operational risk and economic capital and risk transfer in order to maximize firm value. In the words of Monhanan (2008), risk management is the dealing with uncertainty for the organization. Andersen (2010) defined risk management as the identification, assessment, and handlings of risk enacted through (coordinated) corporate actions to monitor, control, and minimize the adverse effect of unfortunate events or maximize the realization of opportunities.

Risk management is therefore a central part of any organization's strategic management activity that involved identification, estimation, assessment, handling, and controlling of risk by those responsible (management). Roggi et al., (2012) opined that a good risk management process must help an enterprise to; define risks acceptable to the enterprise as a whole—risk policy; develop a list of actual and potential risks; assess both likelihood and consequences (impact) of the previously identified risks; build a value-based model that can estimate the impact of risks on firm value through impacts on cash flows and/or cost of capital; determine risks the company should retain, transfer, or avoid. Furthermore, Haneef et al (2012), posit that "risk management has moved to the center stage

in defining superior performance." They add that "differences in risk management philosophy and technique can produce prosperity, mediocrity or failure."

2.2.1 Risk Management Process and Analysis

According to the Professional Risk Managers International Association of, PRMIA (2013), risk analysis process requires the analysis to be carried out in four sequential stages; identification of risk management and organization objectives; Risk assessment; Risk treatment; and Risk monitoring. Also in the words of the International Finance Corporation IFC (2012), the risk management process goes continuously through a cycle of identification, assessment, mitigation/control, and monitoring/reporting/evaluation of all risks. It adds that the goal of the risk management process is to forecast potential losses, ensure institutional survival in periods of distress and to help direct capital and incentives to the most profitable activities.

2.2.1.1 Identification of Risk Management and Organization Objectives

This is primarily a managerial phase. It begins with determining the enterprise's approach to risks, including planning for the resources made available for risk management and selecting the general criteria for treating risks. It is a discovery and categorization exercise performed at every organizational level to look for all sources and types of risk arising from every product and service (IFC, 2012).

2.2.1.2 Risk Assessment

The second, largely technical, phase of the risk management process is divided into two sub-phases; Risk analysis and Risk evaluation. The risk analysis consists of risk identification and estimation. In the identification of enterprise risks we must identify the potential sources of negative events that are capable of compromising achievement of strategic and operational objectives. Due to

the potential losses that might arise, the emphasis will be on identifying downside risk, but the process should also elicit the upside risk and its beneficial effects on enterprise performance (PRMIA, 2013).

2.2.1.3 Risk Treatment

All risks that are identified, estimated, and evaluated are subject to a risk treatment decision. There are four potential outcomes of the decision; Risk avoidance; Risk transfer; Risk reduction and Risk retention. The risks are alternatively avoided or accepted. If accepted, they can be retained by the firm, reduced through diversification (risk reduction) or transferred to third parties (risk transfer). The risk treatment decision should be consistent with the guidance criteria of value maximization (PRMIA, 2013).

2.2.1.4 Monitoring Incurred Risks

The last phase of the integrated risk management process is monitoring. This phase is both technical and managerial. Senior decision makers, including board members, must identify the risks to be monitored and middle managers need to ensure that these risks are reported. Regardless of who is responsible for which tasks, it should be noted that retained risks require monitoring. This monitoring is a check on the business variables identified as potential sources of risk that management has voluntarily decided to assume (PRMIA, 2013).

2.2.2 Types and Classification of Banks Risk

Based on the Basel II framework and adapting the classifications to non-financial firms, divides organizational risks into three categories: operational, financial, and market-based. Coleman, (2011) classifies financial risks into market risk, credit risk, liquidity risk, operational risk and other (legal and regulatory, business, strategic, reputational).

2.2.3 Measures of Risk

According to Mitra (2009), “the current ongoing global credit crunch has highlighted the importance of risk measurement in finance to companies and regulators alike.” He adds that “poor risk measurement can result in bankruptcies and threaten collapse of an entire finance sector.” Christoffersen, Hahn & Inoue (2007) and Roggi et al. (2012) opine that there are many ways to make uncertainty explicit in an analysis. The simplest way is to ask “what if?” questions about key inputs and look at the impact on value. This is called sensitivity analysis. It allows analysts to examine extreme outcomes and evaluate the sensitivity of the outcome to changes in individual assumptions.

Another approach is to estimate the outcomes and value under viable scenarios in the future, ranging from very good scenarios to very bad ones. Attaching probabilities to these scenarios yields a result.

A third approach—and arguably the most robust—is to use probability distributions for key inputs rather than expected values and run simulations in which a single outcome from each distribution is selected and the value is calculated. This simulation process is repeated many times and the resulting outcomes for the investment are presented to decision makers.Christoffersen & Pelletier (2010), Chritoffersen, Hahn &Inoue (2007) and Roggi et al.,(2012) documented the following analysis of risk measurement.

2.2.3.1 Sensitivity Analysis

The value of an investment and its outcome will change as the values ascribed to different variables change. One way of analyzing uncertainty is to assess the sensitivity of decision outcomes to changes in key assumptions. With the advent of more powerful computers and more data this process has become easier. The analysis should focus on the two or three most important variables. The sensitivity analysis output should be presented succinctly, in a way that helps decision makers.

2.2.3.2 Scenario Analysis

Scenario analysis is best employed when the outcomes of a project are a function of the macroeconomic environment and/or competitive responses. As an example, suppose that

Boeing, a leading global aircraft manufacturer, is considering the introduction of a new, large capacity airplane, capable of carrying 650 passengers, called the *Super Jumbo*, to replace

the Boeing 747. Cash flows will depend on two major, uncontrollable factors:

• The growth in the long-haul, international market, relative to the domestic market. Arguably, a strong Asian economy will play a significant role in fueling this growth, since a large proportion of it will have to come from an increase in flights from Europe and North America to Asia.

• The likelihood that the company's primary competitor— Airbus—will come out with a larger version of its largest capacity airplane over the period of the analysis.

2.2.3.3 Decision Trees

Some firms face sequential risks, a situation in which it is necessary to move through one stage successfully before proceeding to the next stage. Decision trees are useful for such risks. A classic example is the drug development process in the United States. The new drug must be developed and tested. Then, it must pass through various stages in the Federal Drug Administration's approval process before it can be produced. At each stage, the drug could be rejected. The information gathered at each of the stages can help refine estimates of what will happen in subsequent periods.

2.2.3.4 Simulations

A simulation allows for the deepest assessment of uncertainty because it lets analysts specify distributions of values rather than a single expected value for each input about which they feel uncertain. Thus, if you are uncertain about operating margins, you can allow the margins to be normally distributed, for example, with an 8 percent expected value and a 2 percent standard

deviation. After specifying distributions and parameters for the key inputs, a value picked from each distribution is extracted and the outcomes are computed. This single simulation is repeated multiple times and the computed values are plotted as a distribution of possible outcomes.

2.2.3.5 Value at Risk (VAR)

Value at Risk, or VaR, measures the potential loss in value of a risky asset or portfolio over a defined period for a given confidence interval. VaR is comprised of Specified level of loss in value, fixed time period over which risk is assessed, and Confidence interval (Christoffersen, Hahn & Inoue, 2007). Also, Coleman, (2011) defines "VaR as the P&L level Y such that there is a probability Z that the P&L will be worse than Y and a probability 1-Z that it will be better than Y. He adds that the idea behind VaR is simple: The loss is specified in such a way that a worse loss happens with a pre-defined probability".

The VaR can be specified for an individual asset, portfolio of assets, or for an entire firm. For an individual asset, the VaR is a simple extension of the probabilistic approaches.

Berkowitz & O'Brien (2008) state that VaR has been used most widely at financial service firms, where the risk profile is constantly shifting and a big loss over a short period can be catastrophic. This is partly because these firms have comparatively small amounts of equity, relative to the bets that they make. It also is due, in part, to regulatory constraints. Thus, an investment bank will compute the VaR at the end of each trading period by aggregating the risks of all of the open positions in which the bank has capital at risk, including long and short positions.

Therefore, Christoffersen & Pelletier (2010) opine that to manage risk and keep it at levels that do not imperil survival, the investment bank will set a limit on the VaR. Typically, this limit is set by looking at the amount of the bank's capital and how close the bank is operating to regulatory limits. Other things remaining equal, the more capital reserves a bank has, the greater its capital buffer in

excess of the regulatory limit. If the internal VaR limit is exceeded, trading positions should be closed or modified to bring the VaR back within prudent limits.

2.3 Concept of Corporate Governance

Bello (2010) opines that "concern about governance of corporate bodies has dominated accounting and finance literature since Enron's saga. The concern was triggered by 1998 global economic crisis and fall of leading world financial bodies. He adds further that "this concern will continue to be in the forefront of academic discuss in as much as corporate entities continue to default or perform poorly." Also, Ailemen & Ajoke, (2013) posit that the impetus for the development of corporate governance system in Nigeria came through the activities of the Securities and Exchange Commission (SEC) which in 2003 adopted a code of best practices for public companies. They add that "a major development in the history of corporate governance in Nigeria is the recent intervention by the Central Bank of Nigeria (CBN)" which was forced to issue new corporate governance guidelines in 2006 following the "incessant collapse experienced in the banking sector due to poor corporate governance and recent bank consolidation exercise.

The Organization for Economic Cooperation and Development (OECD, 2004) defines Corporate Governance as "a set of relationships between a company's management, its board, its shareholders and other stakeholders.In providing answer to the question-what is corporate governance? Justice Owen (2003) (as cited by theAustralian SecuritiesExchange Corporate Governance Council(ASX,2002 pg. 3), says corporate governance is "the framework of rules, relationships, systems and processes within and by which authority is exercised and controlled in corporations." The UK Corporate Governance Code (2014) posits that "corporate governance is the system by which companies are directed and controlled." It adds that corporate governance is about what the board of a company does and how it sets the values of the company. According to Sanda, Mikailu & Garba, (2010), Corporate Governance is concerned with ways in which all parties interested in the wellbeing of a firm (or stakeholders) attempt to ensure that managers and other insiders take measures (or adopt

mechanisms) that safeguard the interests of the stakeholders. They add that, one of the major mechanisms of ensuring this is the board of directors, which they refer to as the apex decision making body that monitor and control corporate entities. In the words of SEC and CBN in their Codes, Corporate Governance is a system by which corporations are governed and controlled with a view to increasing shareholder value and meeting the expectation of the other stakeholders. The code further emphasizes that, the need for the practice of good corporate governance by corporations particularly financial institutions (banks), is the retention of public confidence through the enthronement of good corporate governance considering the utmost importance given to the banking industry. According to the Code, the primary responsibility for ensuring good corporate governance in banks lies with the board of directors. And, the principal objective of the board is to ensure that, banks are properly managed and management performance is effectively overseen to protect and enhance the interest of all the banks stakeholders.

The board of directors according to SEC Code of Corporate Governance is accountable and responsible for the performance and affairs of the company; it should define the company's strategic goals and ensure that its human and financial resources are effectively deployed towards attaining those goals. The code further described the composition and structure of the board; the Board should be of a sufficient size relative to the scale and complexity of the company's operations and be composed in such a way as to ensure diversity of experience without compromising independence, compatibility, integrity and availability of members to attend meetings; membership of the Board should not be less than five and should comprise a mix of executive and non-executive directors, headed by a Chairman. The majority of Board members should be non-executive directors, at least one of whom should be an independent director. Moreover, the code requires the members of the board should be individuals with upright personal characteristics, relevant core competences and entrepreneurial spirit, and should have a record of tangible achievement and should be knowledgeable in Board matters.

Members should also possess a sense of accountability and integrity and be committed to the task of good corporate governance, should be independent of management to enable them carry out their oversight function in an objective and effective manner.

Specifically, SEC requires that the Executive Directors should be persons knowledgeable in relevant areas of the company's activities in addition to possessing such other qualifications as may be needed for their specific assignments or responsibilities. They should also be involved in the day-to-day operations and management of the company. In particular, they should be responsible for the departments they head and should be answerable to the Board through the Chief Executive Officer/Managing Director. On the other hand, Non-executive directors should be key members of the board, who should bring independent judgment as well as necessary scrutiny to the proposals and actions of the management and executive directors especially on issues of strategy, performance evaluation and key appointments. The code also requires that Non-executive directors should be persons of high caliber with broad experience, integrity and credibility. SEC defines independent director as a non-executive director who: is not a substantial shareholder of the company, that is, one whose shareholding, directly or indirectly, does not exceed 0.1% of the company's paid up capital; is not a representative of a shareholder that has the ability to control or significantly influence Management; has not been employed by the company or the group of which it currently forms part, or has served in any executive capacity in the company or group for the preceding three financial years.

SEC requires the board to carry out its duties and responsibilities through committees. It should determine the number and composition of such committees ensuring that each committee comprises the relevant skills and competences and that its members are able to devote sufficient time to the committee's work. The Board may in addition to the Audit Committee required by the Companies and Allied Matters Act (CAMA) establish a

Governance/Remuneration Committee and a Risk Management Committee and such other committees as the Board may deem appropriate depending on the size, needs or industry requirements of the company. It is worth noting that only directors should be members of board committees while senior management may be in attendance. In addition, the board is responsible for the process of risk management; it should form its own opinion on the effectiveness of the process, while the management is accountable to the board for implementing and monitoring the process of risk management and integrating it into the day-to-day activities of the company. However, concerned about the uniqueness of the banking industry the CBN came up with its owncorporate governance code.

Some of the additional requirements in the CBN code include, that the maximum board size of 20 directors and at least two non-executive board members should be independent directors who do not represent any particular shareholder interest and hold no special business interest with the bank appointed by the bank on merit. It is alsorequired as a minimum, the following board committees- Risk Management Committee, Audit Committee, and the Credit Committee. As a matter of emphasis and to ensure quality of the board, the CBN requires that all directors should be knowledgeable in business and financial matters and also possess the requisite experience. According to the code, banks should be headed by an effective board composed of qualified individuals that are conversant with its oversight functions, and only people of proven integrity and who are knowledgeable in business and financial matters should be on the board.

Therefore, it is in view of these heavy regulations and requirements with regards to corporate governance that banks' stakeholders, professionals and researchers are concerned about the frequent defaults and distress that have become the second name of the Nigerian banking industry. Hence, this study isaimed at examining the impact ofselect corporate governance mechanisms (board of directors' characteristics) on the actions of the board with regards to the risk management of deposit money banks in Nigeria.

2.3.1 Overview of Banking Business

Banks are defined by Afolabi (1994) as intermediaries collecting savings of people who have more money than they immediately require and lending such money to people who require more money than they can immediately generate, thus matching the savings requirements of depositors with investment requirements of borrowers; in other words, this is known as financial intermediation. In another effort, Nwankwo (1991) sees bank as a risk managing institution in which some constituencies must hold; the surplus clients from which it borrows, and these clients will demand the best possible terms- in the rate of interest and maturity structures and maximum liquidity to enable them to have the funds back when they want them or as agreed; the bank debtors, those that borrow from the bank. The borrowers want to borrow at affordable rate. Like the lenders, the borrowers also impose the obligation of maximum liquidity on the banks to enable them meet the depositors' requirements as agreed or when their funds are needed. This intermediation role of banking business make the operations of banks more intricate as it's heavily centered on money as the main commodity of trade. It is based on this; Emeka (1997) asserts that, it is essential for every banker to bear in mind that the obligation to repay depositors' funds remain no matter what happens to the banks. He termed the inability of any bank to see this as a giving principle may lead to failure.

While commenting on the banks' financial intermediation, Ebhodaghe (1993) states that, the broad objective and aspiration of a typical financial institution will be to meet its obligations to customers as and when due as well as to its owners and the economy within which it operates. Complementing this view, Ologun (1994) opines that a financial institution will be described as unhealthy if it exhibits severe financial, operational and managerial weaknesses. Financial and operational weaknesses can be in two forms, insolvency and illiquidity. Insolvency according to CBN and NDIC (1995) refers to a condition in which the sum of assets of an institution is less than the sum of its liabilities, a situation which prevents it from honoring its obligation to depositors and other stakeholders. Insolvency is therefore, a product of inability of a bank to generate funds from

depositors, the banking public and the inability to collect the loans and advances given to customers or borrowers which will lead to high or excessive non-performing loans and advances. On the other hand, illiquidity is seen as the problematic cash flow position of a bank. In an effort to conceptualize the two terms, Emeka (1997) advance that a technically insolvent bank remains sufficiently liquid long after it became insolvent if it has a large and stable deposit base, while a solvent bank could run into liquidity problems arising from a mismatch between the maturity profiles of its assets and liabilities.

Ebhodaghe (1993) summarizes factors that lead to financial institution failures that is, when a bank depicts poor condition in all or most of the following performance matrices; gross under capitalization in relation to the level of operations; high level of classified loans and advances; illiquidity reflected in the inability to meet customers cash withdrawals; low earnings resulting from huge operational losses; and weak management as reflected by poor credit or asset quality, inadequate internal control, high rate of fraud and forgeries, and labor turnover. In essence, an effective and efficient bank financial intermediation is a product of liquidity of the bank and the credit or asset quality of a bank.

2.3.1.1 Bank Liquidity

According to the Office of the Superintendent of Financial Institutions (OSFI, 2012) of Canada, liquidity is the capacity of a bank to generate or obtain sufficient cash or its equivalent in a timely manner at a reasonable price to meet its commitments as they fall due and to fund new business opportunities as part of going concern operations. Therefore, it refers to liquidity risk as the potential for losses to be incurred from holding insufficient liquidity, to survive a contingent stress event. Emanating from this adverse consequence of liquidity, the board of directors is responsible for the determination of the bank's liquidity risk tolerance; this risk tolerance should be in agreement with the size, sophistication, business objectives, relevant funding markets and overall risk appetite of the bank. It is also expected to represent a yardstick for operationalizing the bank's liquidity strategies, policies, risk management and control functions (OSFI, 2012). In this regard, the board of directors

should review and approve senior management's articulation and communication of the bank's liquidity risk tolerance to all relevant levels of the bank.

Liquidity according to the US Comptroller of Currency (2012) refers to the bank's capacity to readily meet its cash and collateral obligations at a reasonable cost. He further explains that, maintaining an adequate level of liquidity depends on the bank's ability to efficiently meet both expected and unexpected cash flows and collateral needs without adversely affecting either daily operations or the financial condition of the bank. Moreover, a bank's liquidity exists in its assets readily convertible to cash; net operating cash flows, and its ability to acquire funding through deposits, borrowings, and capital injections. In this context, he terms liquidity problem as liquidity risk which he defined as risk that a bank's condition or overall safety and soundness is adversely affected by an inability or perceived inability to meet its obligations. An institution's obligations, and the funding sources used to meet them, depend significantly on its business mix, its balance sheet structure, and the cash flow profiles of its on- and off-balance sheet obligations.

However, in managing cash flows, banks come across different factors that can give rise to increased liquidity risk, these are funding mismatches, market constraints on the ability to convert assets into cash or in accessing sources of funds (i.e., market liquidity), and contingent liquidity events (US Comptroller of Currency, 2012). He also cited changes in economic conditions or exposure to credit, market, operational, legal, and reputation risks as other factors that can affect bank's liquidity risk profile and should be considered in the assessment of liquidity and asset or liability management.

According to Delis et al., (2009) banks need liquid assets for two major reasons; first to satisfy the demand for new loans without having to recall existing loans or realize term investments such as bond holdings and, second, to meet both daily and seasonal swings in deposit so that withdrawals can be met in a timely and orderly fashion. In view of these reasons, they relate holding liquidity by banks to liquidity risk, which is generally regarded to be one of the most important types of bank risk and its proper management has a significant role in the health and growth of a bank in both good and bad

times. Liquidity is therefore at the center of banks financial intermediation, which according to Delis et al., (2009) must be judged in light of a bank's ultimate ability to fund its obligations. They further emphasize that bank managers should determine the optimal level of liquidity in order to meet market obligation without hurting future profits. In terms of high level of liquidity, Delis et al (2009) maintain that a higher level of liquid assets will enable a bank to withstand a temporary loss of confidence on the part of its depositors, but excessive high liquidity level will result in future loses owing to the holding of excess low-yield assets.

2.3.1.2 Bank Asset Quality

Asset quality refers to the quantity of existing and potential credit risk associated with the loan and investment portfolios, other real estate owned, other assets, and off-balance sheet transactions (US Comptroller of Currency, 2012). Asset quality is maintained by the management through identifying, measuring, monitoring, and controlling credit risk. Therefore, directors are required to ensure the existence of adequate underwriting and risk selection standards, sound credit administration practices, and appropriate risk identification practices (US Comptroller of Currency, 2012). Credit risk according to Basel Committee (1998) is defined as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms. The Committee further states that, the goal of credit risk management is to maximize a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters. Banks need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions

In this context, in evaluating asset quality directors should consider the adequacy of the allowance for loan and lease losses; the level, distribution, severity, and trend of the problem, classified, nonaccrual, restructured, delinquent, and non-performing assets; the existence of concentrations of credit; credit risk arising from off-balance-sheet transactions; loan growth;

and the volume and nature of credit policy and documentation exceptions (US Comptroller of Currency, 2012).

Basel Committee on Banking Supervision in 1997 established twenty-five comprehensive core principles for effective banking supervision to ensure effective and efficient financial intermediation; the principles are endorsed by the Central Banks of the Group of Ten Countries, and many non-member countries have subscribed to the principles including Nigeria. Tseng and Huang (1997) opine that about 25% of these principles are meant to address the relevant issues of bank asset quality or credit risk management. Hence, asset quality is generally considered important in the banking business, and is also a major concern for financial supervisory agencies in all countries of the world (Chisti, 2012). For instance, the Federal Reserve Bank of USA requires all financial institutions to establish asset quality monitoring system for identifying possible emerging problems of bank asset quality; it also requires US financial institutions to present regular asset quality reports to the board of directors so as to evaluate the risks associated with asset quality deterioration (Chisti, 2012).

2.4 Board Characteristics and Banks Risk Management

Banks failure means failure in financial intermediation resulting from poor risk management. Despite the stringent regulations and governance mechanisms in the banking industry, the industry is not free from major default and distress of which governance weaknesses have taken a higher share of the causes of failures (Afolabi, 1994). At the center of the corporate governance is the board of directors which is responsible for the overall performance of the firm.

According to the UK Corporate Governance Code (2014), "the board is responsible for determining the nature and extent of the significant risks it is willing to take in achieving its objectives." However, the effectiveness with which boards perform their risk management function may vary across boards as a result of different structures, director characteristics and board processes (McNulty, Florackis&Ormrod, 2012). Therefore, board of directors characteristics relate with risk management from different aspects as shown by the literature. For instance, Yun (2009) analysis of

effective financial intermediation with respect to liquidity reveals that corporate governance influences forms mix of cash and lines of credit and therefore, corporate liquidity is a channel through which governance work. This assertion confirm the work of Dittmar&Mahrt-Smith (2007) who found that firms with good corporate governance guard their cash resources better, while firms with poor governance results in a quick misspend of excess cash in ways that mostly decreases operating performance.It is in light of this that, most regulators and in particular Basel committee (2008) positions the board of directors in the heart of banks liquidity risk management, by holding the board responsible for the level of liquidity risk of banks and the way this risk is managed. Moreover, the principles of Basel Committee also require the board of directors to review and approve annually the strategy, policies and practices in relation to liquidity management.

Therefore, researchers have investigated different attributes of the board of directors with regards to risk management; with respect to board size, it is safe to say that there exists no consensus between both researchers and regulators on the optimal size of boards and its effect on risk management. For instance,Brokovich et al (2004) investigated the effectiveness of board of directors in risk reduction and on a basis of arguments reveal the presence of a positive relationship between small board size and risk. Also, McNulty, et al. (2012) found that "financial risk taking was lower in boards that were smaller in size, that is fewer than eight directors." After controlling for bank characteristics in a sample of 40 large publicly traded European banks, Battaglia, Curcio& Gallo, (2013) found that a small bank board is associated with less bank risk taking both in terms of tail and systemic risk. In contrast, Blanchard & Dionne (2003) suggested that the use of sophisticated instruments to hedge risk increase with an increase of the number of directors constituting the board. Switzer &Sahut (2015) in an analysis of credit risk and corporate governance found that larger board size is associated with lower credit risk. This view is also supported by Rachdi, Trabelsi&Trad (2013) who used a GMM in system approach in an analysis of 11 Tunisian conventional banks and found that the larger the number of directors, the lower banking risks. On Board composition, there seems to be reasonable agreement on the right formula that facilitates risk reduction in banks. According to the NYSE (2002), the board of

directors must be composed of mostly independent directors. In line with this position, Bello (2010) in an examination of corporate governance and risk exposure of banks in Nigeria, posits that "board composition a metric which shows independence of the board measured as proportion of non-executive directors to total directors reveals a negative relationship interpreted as the proportion of independent directors increases, the lower the risk exposure." In a similar effort, Marques et al (2014) investigated the role of governance and executive pay on risk taking by banks and found that board independence is associated with lower risk. They opine that a board that is more independent of management may be better placed to supervise and control risk taking.This view is further confirmed by the work of Pathan (2009) who found that a significant percentage of outside directors sitting on the board contribute to a strong reduction of various banking risks.

Board risk governance has also been an area of great concern to regulators and researchers in the field of risk management. In this regard, there are mixed opinions on whether the establishment of board committees (Risk management committee, Audit committee and the Credit committee) which the code requires as a minimum, along with the installation of a Chief Risk Officer (CRO) will go a long way in enhancing banks risk governance. This is evident in the work of Marques et al (2014) who on one hand found a weak relationship between a board risk committee and low risks in banks "after addressing the possible endogeneity of the risk management function using instruments." On the other hand, they found a significant relationship between a risk committee and less risk taking "only when simultaneously controlling for all governance variables." In addition, Aebi, Sabato&Schmid (2011) opine that simply having a risk committee does not seem to be beneficial for the banks crisis performance. This assertion is supported by McNulty, et al. (2012) who posit that "the existence of risk committees was not found to have any significant effect on corporate risk. However, since it is a regulatory requirement for all banks to have board committees that are tasked with assisting the board to fulfill its oversight responsibility relating to the establishment of policies, standards and guidelines for risk management, this study is of the opinion that having these committees will go a long way in enhancing sound risk management by banks.

The financial expertise of the board has also been considered as a mechanism for ensuring the effectiveness of corporate activities and operations. The debate on board of directors expertise started with official reports such as the California Public Employees' Retirement System Corporate Governance Market Principles (CalPERS) issued in 1997 and the National Association of Corporate Directors (NACD) Blue Ribbon Commission Report issued in 1998. These two reports recognized the importance of the board's independence but also recommended financial literacy/expertise for directors given their important function in monitoring the firm's performance. However, in USA the new regulation provided by the SOX and the NYSE rules do not require financial knowledge for the board as a whole entity but only for its members who sit on the audit committee.

Joseph, Hermanson, Neal, Riley (2000) state that the expertise of board members is a critical component in assuring that the monitoring role of the board is effectively discharged. They add that a greater number of experts on the board enhance quality of oversight by the board, that is, greater expertise results in higher quality oversight. According to Strebel (2010), "a meaningful discussion of risk at the top presupposes directors with sufficient industry expertise and power to challenge management about major risks facing the firm as well as the appropriate degree of risk to take in pursuit of value creation." He concludes that "in brief, effective risk management at the top requires executives and board members with financial expertise." In the same vein, Dionne &Triki (2005) find financially knowledgeable non-executive directors improve firms hedging and risk management activities. This view is contradicted by the findings of Fich&Fernandes (2009) and Marques et al (2014) who found that board financial expertise is associated with increased risk in banks. Also, Stulz (2014) posits that there is no evidence that banks whose board had more financial expertise performed better. This view is supported by McNulty et al. (2012) who reveal that their findings did not indicate any statistically significant association between board expertise and risk. This study is premised on the assumption that board members with financial expertise are generally more comfortable with the bank taking more risk.

Emanating from different arguments in the literature with regardsto board characteristics and risk management as well as the overall performance of banks, this study will empirically investigate the impact of the board of directors with respect to risk management of deposit money banks in Nigeria.

2.5 Review of Empirical Studies on Board Characteristics

Extant literature on corporate governance or board of directors' characteristics usually centered on the effects of the board on corporate performance, with some studies using specific aspects to measure performance. However, these studies reported mixed and inconclusive results. Therefore, in this section empirical literatures on the effectiveness of corporate governance on performance are firstly reviewed, this is followed by studies that used specific mechanisms and financial institutions.

De Angelo & De Angelo (1985) studied the impact of managerial ownership of voting right on performance using a sample of public corporations. Their results provide a positive effect of managerial ownership on performance. Using the role of outside directors to proxy corporate governance, Mehran (1995) and Pinteris (2002) report a positive relationship between outside directors and firm performance. In contrast, Yermack (1996) and Bhagat and Black (2001) document an absence of significant effect of outside directors on firm performance.

Monks &Minow (1995) investigated the impact of Board Size on firm performance and found an evidence of the effectiveness of optimal board size on performance. In the same vein, Yermack (1996) provide evidence in support of small board size, emphasizing that large boards tend to be slow in taking decisions and hence can be an obstacle to change. In line with this argument, Lipton &Lorsch (1992) provide evidence in support of small board size; they proposed an optimal board size of ten members.

Another element of corporate governance mechanism commonly studied is ownership concentration. According to Wruck (1989), firm performance tend to rise at low levels of ownership concentration and to fall after a point as additional levels of concentration may be harmful and huge enough to offset the positive effect of monitoring. Gorton &Schmid (1996) studied the relationship between ownership concentration and firm performance; their results showed a positive effect of ownership concentration on firm performance. In contrast, Renneboog (2000) reports a weak association between performance and ownership concentration. In another study by Morck, Schleifer, &Vishney (1988), the results support the tendency for firm performance to rise at low levels of concentration and to fall at higher levels.

Andres &Vallelado (2008) studied the effect of board characteristics (board size and composition) and performance of banks and report a positive and significant relationship. They conclude that larger boards are more effective because the large size facilitates intensive management supervision. Contrary to this finding, Dennis (2001) argues that, smaller boards are more effective because they hold and are less easily controlled by management.

Dionne and Triki (2005) investigate risk management, board independence and financial knowledge of the board of directors, they found that independence has effect in hedging risk, while financially active directors encourage corporate hedging and financially educated directors (defined as those with accounting background) play no active role in risk management. However, their results when combined show that firms are better off with financially educated directors on their boards. The result also suggests that, having directors with a university education on the board is an important determinant of the level of hedging.

With respect to the board financial expertise, Booth & Deli (1999) and Guner, Malmendier& Tate (2004) report a positive relation between the presence of a commercial banker in the board and the firm's debt level (credit level or asset quality). Their findings suggest that commercial bankers as a proxy for financial expertise provide the financial expertise needed to enable the firm to contract

more debt. Rosenstein & Wyatt (1990) find that the positive relation between abnormal returns and the addition of an outside director with financial knowledge to the board. This result has subsequently been confirmed by Lee, Rosenstein & Wyatt (1999). Agrawal&Chadha (2005) found evidence supporting the benefit of having outside financial directors on the board. They report that the probability of earnings restatement is lower in firms whose boards have an independent director with a background in accounting or finance.

Belkhir (2008) examine the board behavior in banks and found that, the number of directors leaving the board and the number of those joining the board for the first time increase following a poor performance, but the net change in board size is not affected by past performance. The study concludes that the board size performance relationship goes from board size to performance and that the calls to reduce the number of directors in banks might have adverse effects on performance.

Delis et al., (2009) investigated the relationship between the level of bank liquidity and the structure of the board of directors, in terms of board size and independence. Their empirical results using a sample of banks operating in 10 OECD countries, during the period 2000-2006 showed a negative relationship between board size and bank liquidity, while the impact of board independence is U-shaped. Suggesting that liquidity increases only after a certain value on the ratio of independence directors over total director is reached.

Chisti (2012) used the actual operating data of Indian banks and investigated the relevance of Indian bank asset quality and operating performance. The results indicate that the higher the profitability, the higher the asset quality (quality loan imputed).

McNulty, et al. (2012) in an examination of the formal structures of boards, found that financial risk-taking was lower in boards that were smaller in size, that is, fewer than eight directors. The proportion of non-executive directors and the existence of risk committees were not found to have any significant effect on corporate risk. Second, in examining the impact of

director characteristics, financial risk-taking was lower where the board tenure of executive directors was significantly greater than that of non-executives. Also, there was some evidence of higher financial risk-taking in companies where executive director remuneration was significantly greater than that of non-executives.

Similarly, McNulty et al., (2012) revealed no significant relationship between any of the board variables (size and independence) and the measures of business risk. Hence, the result appears contrary to common expectations, assumptions and prescription. This could be a function of using inappropriate risk measures, but other studies have found a significant relation with business risk. Alternatively, the finding is indicative of a lack of board involvement in risk; or, that business risk management is primarily an executive function.

In an examination of corporate governance mechanisms and firms' financial performance in Nigeria, Sanda, et al. (2010) report a significantly negative correlation between director shareholding and performance; positive relationship between board size and performance; while outside directorship is found insignificant and ownership concentration has significant effect on performance.

Still in Nigeria, Babatunde&Olaniran (2009) examined the relationship between internal and external governance mechanisms and corporate firm's performance. Their results showed a lack of significant relationship between director shareholding, board size and Return on Assets (ROA). However, the result showed a high negative significant effect of the board size on Tobin's Q and a negative relationship between Tobin's Q and board composition. In a similar study in Nigeria by Ayorinde (2001), the results produced a lack of relationship between insider ownership and performance.

Alash (2002) examined the efficiency of corporate governance mechanism in Nigeria as a means of increasing firm performance between 1996 and 1999 using a sample of ten banks. The

results show that small boards perform better than large board size. In an examination of corporate governance of banks in Nigeria by Chukwu& Kama (2010), the findings present a positive and significant relationship between board size and bank performance (measured by Tobin's Q and ROA). This suggest that the admittance of additional members into the board improves bank performance, but with a diminishing marginal growth. They conclude that, for Nigeria banks the optimal number is between thirteen and fourteen members. This according to them is the optimum board size that maximizes the objective function of banks that is financial intermediation. On the other hand, they report a positive and significant relationship between the proportion of non-executive directors (outsiders) and bank performance. Suggesting and validating the theory, that admitting non-executive directors into the board improves its monitoring and advisory role to management and helps to align the interest of various classes of stakeholders.

Furthermore, Chukwu& Kama (2010) report a negative and significant relationship between bank board meeting and bank performance, suggesting that frequent meetings by bank board are a response to bank's poor performance, implying that the board rather than being proactive are reactive to poor performance, thereby meeting often to design, monitor and advice management on strategies to adopt.

Fatimoh (2012) examined the impact of corporate Governance on bank performance in relation to asset quality (defined as the in Nigeria ratio of non-performing loan to credit and loan-deposit ratio). The study found that corporate Governance has positive effect on the bank performance and poor asset quality has a negative effect on financial performance.

Bello (2013) investigated corporate governance and risk exposure of banks in Nigeria where the study argued that risk exposure is beyond that of a country but financial dependency and global chain of financial institutions. However, the study modelled corporate governance mechanisms and level of risks, and the results obtained show that among corporate governance mechanisms studied; board Composition or independence, Audit Quality and Capitalization have significant inverse relationship

with risk. Other variables in the model though not significant statistically, revealed also a negative association. The aggregate results indicated the effectiveness of corporate governance in reducing risk exposure.

In summary, most of these studies are conducted in the advanced economies and do not adequately address other attributes of governance with respect to board of directors. Moreover, they did not focus on core operations of banks in relation to the board, thus, a gap for this study to fill. To the best knowledge of this study, there is no logical study that assessed the impact of board of directors' characteristics (board size, board independence, board risk governance and board financial expertise) on the banks' risk management (using Value at Risk and Non- Performing loans Ratio).

2.6 Theoretical Framework

Boards of directors are an economic institution required by law to help mitigate the agency problems inherent in managing any organization, they exist primarily because of the conflict of interests they are designed to address (Hermalin&Weisbach**,** 2000). Therefore,"it seems reasonable to urge the adoption of Agency theory when investigating the many problems that have a principal-agent structure" (Eisenhardt, 1989). This follows the definition of the agency relationship by Jensen and Meckling (1976).Eisenhart (1989) posit "that Agency theory provides a unique, realistic and empirically testable perspective on problems of co-operative effort. She adds that it extends organizational thinking by pushing the ramifications of outcome uncertainty to the implications for creating risk." According to her, "the implication is that outcome uncertainty coupled with differences in willingness to accept risk should influence contracts between principal and agent." It is therefore appropriate to premise this study within the Agency theory. This is because Directors are primarily situated in bank boards to protect the interest of the shareholders who appointed them and "regardless of the data examined, one of the most consistent empirical results in the corporate governance literature is that directors are more likely to lose their jobs if they are poor performers" (McColgan, 2001). In line with

the objectives of this study, Eisenhardt (1989) opines that “researchers should focus on information systems, outcome uncertainty and risk.”

Theoretical discussion in relation to banking system is situated in the financial intermediation theory; financial intermediation theory is a form of microeconomic theory of banking in a wider perspective, which is applicable in the financial world of the agency theory and the theory of asymmetric information of adverse selection and moral hazard (Scholtens&Wensveen, 2003). Financial intermediation present and explain several behaviors of financial intermediaries in the market in their relation to savers and to investors. The theory is based on the paradigm of the classical idea of perfect market introduced by Marshall andWalras. According to the paradigm, financial intermediaries have a function only because financial markets are not perfect. Therefore they exist because of the market imperfections, but as soon as markets are perfect, banks are redundant. They have lost their function because savers and investors dispose of the information needed to find each other directly immediately and without any impediments, so without costs, and deal at optimal prices (Diamond &Rajan, 2001).

Moreover, financial Intermediation theory is based on the notion that intermediaries serve to reduce transaction costs and informational asymmetries (Scholtens&Wensveena, 2003). It is therefore, considered as a value-creating economic process, according to them it is risk and risk management that drives this value creation. They conclude that absorption of risk is the central function of banks, where the risk function bridge a mismatch between the supply of savings (liquidity) and the demand for investments (assets) as savers are on average more risk averse. In the context of the theory, the supply of savings entails Bank liquidity which board of directors is responsible for effective and efficient monitoring and control to avoid liquidity risks. On the other hand, the demand for investments or lending credit entails asset quality which is also part of responsibilities of the board of directors.

In this regard, banks according to financial intermediary theory are not only agents who screen and monitor on behalf of savers they are active counterparts offering a specific product that cannot be offered by individual investors to savers, that is, cover for risk (Scholtens&Wensveen, 2003).

Allen (1991), Bhattacharyon&Thakor (1993), Van Damme (1994) and Garton& Winton (2002) describe the three doctrines and reasons of the theory of financial intermediation, which are information problems, transaction costs and regulatory factors. This study adopts regulatory aspect of financial intermediation theory that is the legal based view of banks. This view according to Fama (1980) and Mankiw (1986), financial intermediaries are based on the regulation of money production and of saving in and financing of the economy. Regulation in this regard affects solvency and liquidity with the bank; that is, bank capital affects bank safety, the ability of bank to refinance, and the ability of bank to extract repayment from borrowers or its willingness to liquidate them (Diamond &Rajan, 2000).

The legal based view of financial intermediation sees regulation as a crucial component that shapes the financial economy; and is exogenous to the financial industry (Laporta, Lopez, Sheifer, &Vishny 1998). The assumption of regulation view of financial intermediation theory assumes that, banks' activities (qualitative asset transformation) are inherently insolvent and illiquid. In addition, money and its value, the key raw material of the financial services industry is generally defined and determined by the central government (Merton and Bodie, 1993; Scholtens&Wensveen, 2003). Therefore, safety and soundness of the financial system are the major reasons for regulating the financial services industry (Goodhart, 1987; Boot &Thakor, 1993).

Nigerian financial services industry is heavily regulated; the body responsible for the administration, monitoring and control in banks is the board of directors. The regulatory pronouncements require the board to be of sufficient size, independent, and be composed of financial experts to help manage solvency and liquidity situations efficiently. However, despite these regulations, Nigerian banking system has been painting an ugly picture in the financial system and the

entire economy. Therefore, this study is theoretically underpinned by the Agency theory and the financial intermediation theory and is designed to investigate the impact of board of directors' characteristics on the risk management of Deposit money banks in Nigeria.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the methods and technique adopted to achieve the research objectives are critically evaluated. Research methodology deals with the systematic process of conducting research which includes planning and techniques used in drawing conclusions and reporting findings. Therefore,

the essence of methodology is structuring researcher's actions according to the objectives of the study, the nature of the questions at hand, and the desired answers one wishes to generate. Thus, this study adopts quantitative research methodology which is founded in positivists' epistemology. The chapter begins with research design, then population and sample of the study, sources and method of data collection for the study and the technique of data analysis. The models as well as the justification of the methods used in the study are also discussed.

3.2 Research Design

The study employs correlation research design to investigate the impact of board of directors' characteristics on the risk management (market risk and credit risk) of the deposit money banks in Nigeria. This design is chosen because of two major reasons; one, the aim of correlation research design is to investigate the relationship between variables and to observe the impact of the independent variable(s) on the dependent variable, so as to establish the causal relationship or otherwise among the variables. Thus, the design is in agreement with the objectives of this study; two, correlation research design according to the positivists' paradigm involves the use of quantitative data and quantitative methods of analysis and hypothesis that are based on theory. This is also consistent with this study as quantitative data as well as quantitative tools of data analysis are applied.

3.3 Population and Sample of the Study

The population of this study consists of all the 17 banks listed on the floor of Nigerian Stock Exchange market as at 31st December, 2012. The study of board of directors' characteristics using the population of the deposit money banks in Nigeria is informed by the increasing concern both from regulators and researchers about the poor risk management in the Nigerian banking industry during the period after the 2005 banking consolidation which has generally been considered to be the result of boards of directors inability to exercise effective control over senior management and to challenge

the measures and strategic guidelines that were submitted to them for approval, despite their sufficient size, risk governance framework, and financial expertise.

However, the eight (8) banks(Access Bank Plc, Guaranty Trust Bank Plc, First Bank Plc, Diamond Bank Plc, Skye Bank Plc, United Bank for Africa Plc, EcobankPlc and Zenith Bank Plc) designated as too big to fail by the CBN in 2012 are used as a sample of this research (see appendix B). The choice of these banks is informed by the CBN assertion that the banks are sound with effective risk management despite the prevailing credit crises and failures in the industry.

Moreover, according to the CBN, the eight banks are designated too big to fail owing to the fact that their failure could pose a systemic risk to the banking industry and the larger economy because they alone account for 75% of the banking sector in terms of earnings, profitability assets, customer deposits and branch networks. Similarly, CBN has adopted a more robust regulatory regime to monitor and scrutinise the eight banks, in order to ensure that the banks are healthy.

3.4 Sources and Method of Data Collection

The study uses secondary sources of data due to the fact that the estimation of the models of the study requires the use of quantitative data. Therefore, the method of data collection for the study involves the use of financial statements of the sample banks for all the years covered by the study (2005-2012).

3.5 Technique of Data Analysis

In this study, panel regression technique of data analysis is adopted. Based on the robustness tests conducted on the data, Generalized Least Square (GLS) multiple regression method of analysis is employed. The choice of GLS as a tool of data analysis in this study is informed by the effectiveness of

the technique in testing relationships among theoretically related variables and estimating the effects of one variable on the other (Gujarati, 2004); particularly, where the panel is heteroskedastic.

However, following the classical regression assumptions which do not usually hold in panel data, the study carries out some robustness test to deal with the effects of Serial correlation, multicollinearity, and Heteroskedasticity. For instance, Granger &Newbold (1974) and Gujarati (2004) state that, the presence of these factors usually biased the OLS estimators and thus, any conclusion drawn from the results will be spurious.

Therefore, estimation with GLS in the presence of Serial correlation, multicollinearity, and Heteroskedasticity is capable of producing estimators that are Best Linear Unbiased Estimators (Gujarati, 2004). However, other techniques of data analysis such asFixed Effects Model and Random Effects Model are used. The analysis is conducted using Statistics/Data Analysis Software (STATA).

3.6 Variables Measurement and Models Specification

The dependent variable in this study is risk management (Value at risk and Non-performing loans ratio), while the independent variable is the board characteristics (board size, board independence, board risk governance and board financial expertise). The measurements of the variables are as follows:

i. **Value at Risk:** Value at risk (VAR) is a ratio of value at risk of individual bank to mean cross section value at risk of banks (based on all samples). It is represented by 5% annual profit and loss measure. Jorion (2001) opines that VAR summarises the worst loss over a target horizon with a given level of confidence. It is computed using the following steps:

Step I: Computation of the arithmetic mean of profits or losses (Average Net Profits (ANP)) of each bank for 8 years.

Step II: Calculation of standard deviation of profits and losses (δANP or VAR), of each firm for 8 years.

Step III: Using 95% confidence level of interval (2δANP), the absolute number of value at risk is computed as follows;

VAR = ANP - 2δANP

Step IV: in order to eliminate size effect bias of absolute number of VAR, the VAR is deflated by mean cross section VAR of all the sampled banks, as follows;

$$\textbf{VAR} = \frac{\textbf{VAR for individual banks}}{\textbf{Mean cross section VAR based on all samples}}$$

VAR represent risk sharing in banking business, higher VAR suggests thatbanks address a bigger problem in risk exposure, thus the bank should manage the risk carefully (Tandelilin et al., 2007).

ii. **Credit Risk**: is measured by the ratio of Non-Performing Loans to Total loans, at the end of accounting year.

$$\textbf{NPLR} = \frac{\textbf{Non-Performing loans}}{\textbf{Total Loans}}$$

Higher ratio indicates poor credit risk management, which is higher default by the debtors.

iii. **Board of Directors Size:** is measured as the total number of directors sitting on the board of a bank.

iv. **Board of Directors Independence:** is measured as the proportion of independent/outside/non-executive directors sitting on the board of a bank.

v. **Board Risk Governance:** is measured as the number of main board risk management mechanisms in place (chief risk officer, board credit committee, board risk management committee).

vi. **Board Financial Expertise:** is measured by a dichotomous variable, 1 if there is a director with accounting and/or finance background sitting on the board of a bank, and 0 if otherwise.

3.6.1 Models Specification

In order to test the hypotheses formulated in this study and to achieve the objectives of the research, the following models will be used;

$VAR_{it} = \alpha + \beta_1 BSIZ_{it} + \beta_2 BIND_{it} + \beta_3 BRSG_{it} + \beta_4 BFEX_{it} + \varepsilon_{it}$……i

$NPLR_{it} = \alpha + \beta_1 BSIZ_{it} + \beta_2 BIND_{it} + \beta_3 BRSG_{it} + \beta_4 BFEX_{it} + \varepsilon_{it}$……ii

Where;

VAR_{it}= Value at Risk of bank I in year t

$NPLR_{it}$= Non-performing loan ratio of bank I in year t

$BSIZ_{it}$= board of directors size of bank I in year t

$BIND_{it}$= board of directors independence of bank I in year t

$BRSG_{it}$= board risk governance of bank I in year t

$BFEX_{it}$= board financial expertise of bank I in year t

α= intercept

β = coefficients and ε = error term or residual

Therefore, the study will draw conclusion about the impact of board of directors' characteristics on the risk management of deposit money banks in Nigeria from the results of these two models.

CHAPTER FOUR

RESULTS PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

Thischapter presents, discusses and analyses the results of the tests conducted on the data collected for the study. The results are presented using tables. The chapter begins with descriptive statistics and then inferential statistics. This is where the analysis of the results to test the hypotheses of the study is conducted. The chapter ends with discussion of findings and policy implication of findings.

4.2 Descriptive Statistics

This part deals with the descriptive statistics of the data collected for the study. This could aid the understanding of the data and suggest the possible consequences of the nature and uniqueness of the data on the results produced from such data. The descriptive statistics of the data collected for the variables of the study are presented in table 4.1 as follows:

Table 4.1 Summary of Descriptive Statistics

VARIABLES	**Min**	**Max**	**Mean**	**SD**	**Skewness**	**Kurtosis**	**N**
VAR	0.0033	5.1290	1.0000	1.0939	2.1458	8.1278	64
NPLR	0.0479	27.5317	7.2184	5.8063	1.3163	4.4752	64
BSIZ	6.0000	20.0000	14.4219	2.5685	-0.3737	4.7934	64
BIND	0.4286	0.8333	0.5879	0.0708	1.1245	4.8056	64
BRSG	2.0000	4.0000	3.6719	0.5057	-1.0989	3.0074	64

BFEX	0.0000	1.0000	0.7813	0.4167	-1.3607	2.8514	64

Source: STATA Output (Appendix A1)

The results in Table 4.1 show that one of the two measures of risk management (VAR) has an average value of 1.0000 with standard deviation of 1.0939, and minimum value of 0.0033 and 5.1290 as the maximum value. The standard deviation of 1.0939 signifies that there is highervolatility (higher risk) within the too big to fail banks in Nigeria. That is, the VAR deviate from the mean from both sides by 1.0939, implying that there is a wide dispersion of the data from the mean (as also indicated by the range between the minimum and maximum VAR of 0.0033 and 5.1290 respectively).The coefficient of the kurtosis (8.1278) on the other hand, provides evidence that majority of the values are higher than mean, hence the data does not meet theGausian distribution assumption. Similarly, the coefficient of Skewness2.1458 implies that the data is positively skewed (i.e. most of the data are on the right side of the normal curve), thus, the data does not meet the symmetrical distribution.

The table also indicates that the other measure of risk management (NPLR) has a minimum and maximum value of 0.05% and 27.53% respectively; the mean value of NPLR is 7.22%with standard deviation of 5.8063. This indicates that the data is widely dispersed from the mean in the sampled banks by 5.81% from both sides of the mean. Moreover, the kurtosis value of 4.4752 shows that most of the values are higher than mean, thus the data does not meet the Gausian distribution while the coefficient of Skewness value of1.3163 implies that the data is positively skewed, and thus, the data does not meet the symmetrical distribution. Overall, the analysis of NPLR of too big to fail banks in Nigeria suggests that the banks' risk is high on average, because the mean NPLR of 7.22% is more than the current 3% benchmark set by the CBN and AMCON.

The summary descriptive statistics in Table 4.1shows that the board of directors size (BSIZ) of the too big to fail banks in Nigeria has a minimum and maximum value of 6 and 20 respectively. On average,the sampled bankshave a size of 14.4219 with standard deviation of 2.5685. This implies that the data in the sampledbanksdeviate from the mean by 2.5685. The coefficient of Skewness value of-

0.3737 implies that the data is negatively skewed, and therefore does not conform to the symmetrical distribution requirement. Similarly, the coefficient of Kurtosis value of4.7934 also indicates that the BSIZ variable does not meet the Gausian distribution criterion.

The table also indicates that the board of directors' independence (BIND) of too big to fail banks in Nigeria has an average value of 0.5879 with standard deviation of 0.0708. This implies that on average 58.79% of the total directors sitting on the board of the too big to fail banks in Nigeria are outside/non-executive/independence directors. The minimum and maximum proportions ofBINDare 0.4286 and 0.8333 respectively (42.86% and 83.33%). The skewness value of 1.1245 indicates that the data is positively skewed, that is, the mean is less than the mode, and thus, the variable does not meet the symmetrical distribution requirement. This is also supported by the coefficient of kurtosis of 4.8056 which implies that the Gausian distribution is not met.

Table 4.1 also shows that, the minimum and maximum values of the board risk governance (BRSG) of too big to fail banks in Nigeria are 2 and 4 respectively, with the mean value of 3.6719 and standard deviation of 0.5057. This implies that the data is widely dispersed from the mean value;the coefficient of Skewnessvalue of -1.0989 implies that the data is negatively skewed, and therefore does not conform to the symmetrical distribution requirement. Moreover, the coefficient of Kurtosis value of 3.0074 also indicates that the BRSG variable does not meet the Gausian distribution criterion.

The results from Table 4.1 also show that, the minimum and maximum values of the board of directors' financial expertise (BFEX) represented by a dummy variable are 0 and 1 respectively, with the mean value of 0.7813 and standard deviation of 0.4167. The mean value of 0.7813 implies that about 78.13% of the too big to fail banks have directors that are experts in accounting and or finance in their boards. The standard deviation of 0.4167 implies that there is wide dispersion from the mean value; the coefficient of Skewness value of-1.3607 implies that the data is negatively skewed, and therefore does not conform to the symmetrical distribution requirement. Moreover, the coefficient of Kurtosis 2.8514 also indicates that the BFEX variable does not meet the Gausian distribution criterion.

The analysis of the descriptive statistics of the data collected for the variables of the study shows the nature and the extent of the dispersion of the data, which to a large extent suggests that the data did not follow the normal curve. Therefore, the test of normality is conducted and the results of data normality test of the variables are presented in appendix A2.

The study applied Shapiro-Wilk (W) test for normal data.Under this technique, null hypothesis principle is used to check a variable that came from a normally distributed population. The null hypothesis of the test is that the data is normally distributed. In this study, the test indicates that data from all the variables of the two models of the study are not normally distributed because the P-values are significant at 1% level of significance. Based on these, the null hypothesis (that, the data is normally distributed) is rejected. However, this suggests a more generalized tool for inferential analysis.Therefore, the inferential statistics of the data collected from which the hypotheses of the study are testedare presented and interpreted in the following section.

4.3 Correlation Results

In this section, the summary of the Pearson correlation Coefficients of the variables of the study are presented in Table 4.3 as follows:

Table 4.2 Coefficient of Correlation

Variables	VAR	NPLR	BSIZ	BIND	BRSG	BFEX
VAR	1.0000					
NPLR	-0.1901	1.0000				
BSIZ	-0.2229***	0.0253	1.0000			
BIND	-0.1133	0.2684**	-0.2309***	1.0000		
BRSG	0.2197***	-0.1482	0.3038**	-0.2393***	1.0000	
BFEX	0.0972	-0.2780**	0.2359***	-0.0731	0.6333*	1.0000

*correlation is significant at the 1% level (2-tailed)

**correlation is significant at the 5% level (2-tailed)

***correlation is significant at the 10% level (2-tailed)

Source: STATA Output (Appendix A2)

The results in Table 4.3 showthe relationships between the board of directors' characteristics variables (board size, board independence, board risk governance and board financial expertise) and the risk management (value at risk and non-performing loans ratio) of the too big to fail banks in Nigeria. The table indicates that there is a significant negative relationship between board size (BSIZ) andrisk (VAR) of the too big to fail banks in Nigeria, from the correlation coefficient of -0.2229, which is significant at 10% level of significance. This result suggests that risk likely decreases with increase in the size of the board. The result from the table shows a negative relationshipbetween board independence (BIND) and risk (VAR) from the correlation coefficient of -0.1133 which is not significant at all levels of significance. This implies that risk decreases with an increase in the number of independent directors in the board of too big to fail banks in Nigeria.

The results of correlation from the table also show a significant statistical positive relationship between board risk governance (BRSG) and risk (VAR), from the correlation coefficient of0.2197 which is significant at 10% level of significance. This implies that the risk of too big to fail banks likely increases with an increase in risk governance mechanisms.On the other hand, the table shows that there is a positive relationship between the financial expertise of the board (BFEX) and risk (VAR) going by thecorrelation coefficient of 0.0972 which is not significant at all levels of significance.

Moreover, the table indicates that there is a positive relationship between board size (BSIZ) and risk (NPLR) of too big to fail banks in Nigeria, from the correlation coefficient of 0.0253, which is not significant at all levels of significance. This implies that the risk (NPLR) of too big to fail banks in Nigeria likely increases with an increase in the size of the board. The result from the table shows a significant positive relationship between board independence (BIND) and risk (NPLR) from the correlation coefficient of 0.2684 which is significant at 5% level of significance. This implies that risk (non-performing loans) increases with an increase in the number of independent directors in the board of too big to fail banks in Nigeria.

The results of correlation from the table also show negative relationship between the board risk governance (BRSG) and risk (NPLR), from the correlation coefficient of -0.1482 which is not significant at all levels of significance. This implies that the risk (NPLR) of too big to fail banks likely decreases with an increase in the risk governance mechanisms. On the other hand, the table shows that there is a significant negative relationship between the financial expertise of the board (BFEX) and risk (NPLR), judging by the correlation coefficient of -0.2780 which is significant at 5% level of significance.

In view of the forgoing discussion of the relationships between the risk management and the characteristics of the board of the too big to fail banks in Nigeria, the study can now proceed with the analysis of the regression results of the models of the study from which the hypotheses of the study aretested and the relevant conclusionsare drawn.

4.4 Presentation of Regression Results and Hypotheses Testing

This section presents and analyzes the regression results of the models of the study. The hypotheses formulated for the study are also tested in this section based on the results,as presented in table 4.4 below:

Table 4.3 Summary Regression Results

Model One		**Model Two**	
Variables	**Statistics**	**Variables**	**Statistics**
R^2	0.1547	**R^2**	0.1684
Wald Chi2	43.73	**Wald Chi2**	71.20
P-Value	0.0000	**P-Value**	0.0000
HausmanChi2	5.18	**HausmanChi2**	5.45
HausmanProb>Chi2	0.2691	**HausmanProb>Chi2**	0.2439
Random Effect Test: Chi2	0.38	**Random Effect Test: Chi2**	0.13
Prob>Chi2	0.5381	**Prob>Chi2**	0.7164

Source: STATA Output (AppendixA9, A10, A11, A17, A18 &A19)

The panel data used in this study was subjected to other regression models (Fixed and Random Effects) in addition to OLS, because of the uncertainty as to the conformity with the classical assumptions of the OLS regression model, as indicated by the normality test in Appendix A2. The results in table 4.4 present the regression results and the relevant tests conducted on themodels.The study applied Generalized Least Squares (GLS) in heteroskedastic panel with cross-sectional correlation.

This is because of two reasons; one, while the Hausman Specification tests of the two models suggested random effects regression models (Hausman Chi2 of 5.18 with chi2 p-value of 0.2691 for model one, and Hausman Chi2 of 5.45 with chi2 p-value of 0.2439 for model two), the Breusch and Pagan Lagrangian Multiplier Test for Random Effects for model one indicated that there is no statistical significant variance among the units in the panel (from the Random Effects Chi2 of 0.38 with p-value of 0.5381 for model one, and Chi2 of 0.13 with p-value of 0.7164), implying that OLS technique can be used for the study with respect to the two models.This conflict suggests that a more generalized test is needed for the study, and hence the study used Generalized Least Squares coefficient in panel heteroskedastic with cross-sectional correlation. This is because of the evidence from Breuch Pagan/Cook-Weisberg test for heteroskedasticity coefficient of in the two models which suggested the presence of the effects of heteroskedasticity, that is, the variance of the error term is not constant in the models (see table 4.5)

The results from table 4.4 indicate that the independent variables of the study (board size, board independence, board risk governance and board financial expertise) explained 15.47% of the variations in the risk management (VAR) of the too big to fail banks Nigeria, from the coefficient of determination (R^2 value of 0.1547). The table also shows that the model is fitted as evident by the Wald Chi2 of 43.73 which is significant at 1% level of significance (as indicated by the P-value of 0.0000).

The table on the other hand shows the independent variables of the study (board size, board independence, board risk governance and board financial expertise) explained 16.84% of the variations in the risk management (NPLR) of the too big to fail banks Nigeria, from the coefficient of determination (R^2 value of 0.1684). The table also shows that the model is fitted as evident by the Wald Chi2 of 71.20 which is significant at 1% level of significance (as indicated by the P-value of 0.0000).

4.4.1 Results of Robustness Test

This section presents and discusses the results of collinearity test and heteroskedasticitytest, as shown by table 4.5 as follows;

Table 4.4 Result of the Robustness Test of the Model of the Study

Model One		**Model Two**	
Multicolinearity Test		**Multicolinearity Test**	
Variables	**VIFTV**	**Variables**	**VIFTV**
BRSG	1.83 0.5473	**BRSG**	1.83 0.5473
BFEX	1.70 0.5888	**BFEX**	1.70 0.5888
BSIZ	1.14 0.8757	**BSIZ**	1.14 0.8757
BIND	1.11 0.9028	**BIND**	1.11 0.9028
Hettest: Chi2	18.50	**Hettest: Chi2**	3.03
Prob>Chi2	0.0000	**Prob>Chi2**	0.0817

Source: STATA Output (AppendixA6, A5, A13 &A14)

The major classical assumptions of OLS regression model are that the error terms are normally distributed and independent (that is the error terms are uncorrelated); the explanatory variables are not perfectly correlated (absence of multicollinearity); the variance of the error terms is constant (Homoskedastic). When these assumption are not been met, the estimators are biased and cannot be used in drawing any inference. However, the results from table 4.5 proved the absence of perfect multicollinearity among the independent variables, because the smallest tolerance value (TV) is 0.5473 for model one and two, while the highest variance inflation factor (VIF) is 1.83 for both model one and

two. The decision criteria for the Tolerance Value is that any value of 0.1 and below implies the presence of perfect multicollinearity in the estimates, while for the Variance Inflation Factor a value of 10 and above is an indication of perfect multicollinearity. The evidence from Breuch Pagan/Cook-Weisberg test for heteroskedasticity coefficient of 18.50 with p-value of 0.0000 confirms the presence of the effects of heteroskedasticity, that is, thevariance of the error terms is not constant in model one, but applying GLS addressed the problem. While, the test in model two also shows the presence of heteroskedasticity, as indicated by the p-value of 0.0817 and Chi2 value of 3.03.

In view of some problems in the results, the GLS estimators are used in the test of hypotheses formulated in this study.

4.4.2 Hypotheses Testing

In this sectionof the chapter, the study tests the hypotheses formulated for the study using univariate analysis (one of the two models), Table 4.6 presents the coefficients of the variables of the study from which the hypotheses are tested.

Table 4.5Generalized Least Squares Regression Coefficients

Model One			**Model Two**		
Variables	**Coefficients**	**P-Values**	**Variables**	**Coefficients**	**P-Values**
BSIZ	-0.0989	0.000	**BSIZ**	0.31240.000	
BIND	-0.0980	0.016	**BIND**	20.6559	0.000
BRSG	0.5379	0.000	**BRSG**	0.8553	0.106
BFEX	-0.1176	0.307	**BFEX**	-5.6737	0.000
CONSTANT	1.03330.014		**CONSTANT**	-9.0376	0.010

Source: STATA Output (Appendix A11&A19)

Table 4.6 shows that board of directors' size(BSIZ) has a significant negative impact on the risk management (VAR) of too big to fail banks in Nigeria as indicated by the coefficient of -0.0989 which is significant at 1% level of significance (from the P-value of 0.000). Based on this, the study rejects the null hypothesis one (H_{01}) which states that, board of directors' size has no significant impact on the risk management of too big to fail banks in Nigeria. Therefore, the study infers that board of directors'

size has significant negative impact on the risk management of too big to fail banks in Nigeria. That is, the size of the too big to fail banks in Nigeria has significantly improved the market risk management of the too big to fail banks in Nigeria during the period covered by the study.

However, while the results from the table shows that the size of the board has improved the overall risk management (VAR), the results indicate that the size of the board has positive significant statistical impact on the credit risk (NPLR) of the too big to fail banks in Nigeriafrom the coefficient of 0.3124 which is significant at 1% level of significance (from the p-value of 0.000). This suggests that board size of too big to fail banks in Nigeria has not improved the credit risk management of the banks during the period of the study.

The table also indicates that board of directors independence (BIND)has a significant negative effect on the risk management (VAR) of too big to fail banks in Nigeria, from the coefficient of -1.0980 which is significant at 5% level of significance (from the p-value of 0.016). Based on this, the study rejects the null hypothesis two (H_{02}) which states that, board of directors' independence has no significant impact on the risk management of too big to fail banks in Nigeria. Therefore, the study infers that board of directors' independence has significant negative impact on the risk management of too big to fail banks in Nigeria. That is, the independence of the boards of too big to fail banks in Nigeria has significantly improved the market risk management of the banks in Nigeria during the period covered by the study.

However, the table shows that BIND has significant positive impact on the credit risk management (NPLR) of the too big to fail banks in Nigeria, from the coefficient of 20.6559 which is significant at 1% level of significance (from the p-value of 0.000). Based on this, the study infers that the independence of the board did not significantly improve the credit risk management via non-performing loans of the too big to fail banks in Nigeria during the period under review.

Moreover, the table indicates that the board risk governance (BRSG) mechanism has a significant positive effect on the risk management (VAR) of too big to fail banks in Nigeria, from the coefficient of 0.5379 which is significant at 1% level of significance (from the p-value of 0.000). Based on this, the study rejects the null hypothesis three (H_{03}) which states that, board risk governance has no significant impact on the risk management of too big to fail banks in Nigeria. Therefore, the study infers that board of risk governance has significant positive impact on the risk management of too big to fail banks in Nigeria. That is, the independence of the boards of too big to fail banks in Nigeria has not improved the market risk management of the banks in Nigeria during the period covered by the study. Similarly, the table shows that board risk governance (BRSG) mechanism has a positive effect on the risk management (NPLR) of too big to fail banks in Nigeria, from the coefficient of 0.8553 which is not significant at all levels of significance (from the p-value of 0.106) implying that the board risk governance mechanisms of the banks has not improved their credit risk management during the period under study.

Table 4.5 shows that board financial expertise (BFEX) has a significant negative impact on the credit risk management (NPLR) of the too big to fail banks in Nigeria, from the coefficient of -5.6737 which is significant at 1% level of significance (from the p-value of 0.000). Based on this, the study rejects the null hypothesis four (H_{04}) which states that, board financial expertise has no significant impact on the risk management of too big to fail banks in Nigeria. Therefore, the study infers that board financial expertise has significant negative impact on the risk management of too big to fail banks in Nigeria. That is, the financial expertise of the boards of too big to fail banks in Nigeria has significantly improved the risk management of the banks in Nigeria during the period covered by the study

The table on the other hand shows that board financial expertise (BFEX) has negative impact on the risk management (VAR) of the too big to fail banks in Nigeria, from the coefficient of -0.1176 which is not significant at all levels of significance (from the p-value of 0.307). Therefore, the study

infers that board financial expertise has improved the risk management of the banks in Nigeria during the period covered by the study, but the results is not statistically significant.

4.5 Discussion of Major Results

From the results and hypotheses tested, the study found that the independent variables of the study (board size, board independence, board risk governance and board financial expertise) explained 15.47% of the variations in the risk management (VAR) of the too big to fail banks in Nigeria. On the other hand, the study found that the independent variables of the study (board size, board independence, board risk governance and board financial expertise) explained 16.84% of the variations in the risk management (NPLR) of the too big to fail banks Nigeria.

The study also found that, board of directors' size (BSIZ) has a significant negative impact on the risk management (VAR) of too big to fail banks in Nigeria. That is, the size of the boards the too big to fail banks in Nigeria has significantly improved the risk management of the too big to fail banks in Nigeria during the period covered by the study. This finding corroborates the findings of McNulty et al. (2012) and Battaglia et al. (2012) and contradicts that of Blanchard and Dionne (2003) and Rachdi et al. (2013). On the contrary, the study provide evidence that the size of the board has positive significant statistical impact on the credit risk (NPLR) of the too big to fail banks in Nigeria which supports the findings of Brokovich et al. (2004). This suggests that board size of too big to fail banks in Nigeria has not improved the credit risk management of the banks during the period of the study. These findings are in line with the first objective of this study and also provide sufficient answer to our first research question. They also provide the basis upon which the first hypothesis of the study is rejected.

The study also found that board of directors' independence (BIND) has a significant negative effect on the risk management (VAR) of too big to fail banks in Nigeria. That is, the independence of

the boards of too big to fail banks in Nigeria has significantly improved the risk management of the banks in Nigeria during the period covered by the study. This finding corroborates the findings of Bello (2010) and Marques et al. (2014) On the other hand, the study discovered that board independence has significant positive impact on the credit risk management (NPLR) of the too big to fail banks in Nigeria. These set of findings meet the second objective of this study and also address the second question raised by this research which leads to the rejection of the second hypotheses.

Similarly, the study found that the board risk governance (BRSG) mechanism has a significant positive effect on the risk management (VAR) of too big to fail banks in Nigeria. That is, the risk governance mechanism of the boards of too big to fail banks in Nigeria has not improved the risk management of the banks in Nigeria during the period covered by the study. In the same vein, the study found that board risk governance (BRSG) mechanism has a significant positive effect on the risk management (NPLR) of too big to fail banks in Nigeria. These findings are supported by the findings of Aebi et al. (2011) and McNulty et al. (2012) but contradicted by that of Marques et al. (2014). With these findings, our third research question is answered even as the third objective of the study is achieved. They also provide evidence upon which we reject the third hypotheses.

Lastly, the study found that board financial expertise (BFEX) has significant negative impact on the credit risk management (NPLR) of the too big to fail banks in Nigeria. That is, the financial expertise of the boards of too big to fail banks in Nigeria has significantly improved the risk management of the banks in Nigeria during the period covered by the study. In contrast, the study found that board financial expertise (BFEX) has positive impact on the risk management (VAR) of the too big to fail banks in Nigeria, but the result is not statistically significant. These findings corroborate the findings of Dionne &Triki (2005) but contradict the works of Fich&Fernandes (2009), McNulty et al. (2012), Marques et al. (2014) and Stulz (2014). It is also on the basis of these findings that fourth objective of this study is met and the last research question is answered leading to the rejection of the fourth hypotheses.

4.6 Policy Implications of Major Findings

The findings from this study have implication to policy makers and the managers of deposit money banks in Nigeria. The findings imply that if regulators fail to achieve the goal of banks' risk management, the lingering credit and liquidity crises would persist.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

The sole aim of stringent banking regulations is to have a sound and efficient financial system that can foster economic growth and development. However, to achieve the aim of banking system, a sustained banking public confidence is necessary; and, in order for regulators and banks management to safeguard the banking public confidence and improve performance, enterprise risk management has been established in all jurisdictions around the world, including Nigeria.

The main objective of this research is to examine the impact of Board of Directors Characteristics on the Risk management of listed deposit money banks in Nigeria. The specific objectives are; to examine the impact of board of directors' size on the risk management of deposit money banks in Nigeria; to examine the impact of board of directors' independence on the risk management of deposit money banks in Nigeria; to assess the impact of board risk governance on the risk management of deposit money banks in Nigeria; to investigate the impact of board of directors' financial expertise on the risk management of deposit money banks in Nigeria.

Correlation research design was used and multiple regression technique of data analysis was employed. From the tests conducted on the data collected and theanalyses of the results the study found that, board characteristics of the deposit money banks have significantly impacted on the risk management of banks in Nigeria. The study also found that, board of directors' size has a significant negative impact on the risk management of the deposit money banks in Nigeria. On the contrary, the study found that the size of the board has positive significant impact on the credit risk of the banks in Nigeria.

Moreover, the study found that board of directors' independence has a significant negative effect on the risk management of the banks in Nigeria. On the other hand, the study discovered that board independence has significant positive impact on the credit risk management of the banks in

Nigeria. Similarly, the study found that the board risk governance mechanisms have a significant positive effect on the risk management of deposit banks in Nigeria. In the same vein, the study found that board risk governance mechanism has a significant positive effect on the risk management (credit risk) of the banks in Nigeria.

Lastly, the study found that board financial expertise has significant negative impact on the credit risk management (non-performing loans) of the too big to fail banks in Nigeria. In contrast, the study found that board financial expertise has positive impact on the risk management (VAR) ofbanks in Nigeria, but the result is not statistically significant.

5.2 Conclusion

Based on the findings from the tests conducted, the study concludes that the board of directors' size has a significant negative impact on the risk management of the deposit money banks in Nigeria and a significant positive impact on the credit risk of the banks. The study also concludes that board of directors' independence has a significant negative effect on the market risk management, and a significant positive impact on the credit risk management of the banks. Similarly, the study concludes that the board risk governance mechanisms have a significant positive effect on the risk management (market risk) of deposit banks in Nigeria;and a significant positive effect on the risk management (credit risk) of the banks in Nigeria.

Lastly, the study concludes that board financial expertise has significant negative impact on the credit risk management (non-performing loans) of the deposit money banks in Nigeria;and a positive impact on the market risk management (VAR) of the banks in Nigeria, but the result is not statistically significant.

5.3 Recommendations

Basedon the findings and conclusions from this research, the following recommendations are offered:

i. The regulators of deposit money banks in Nigeria should increase surveillance and supervision to ensure proper overall risk management that could safeguard the interest of all stakeholders and the reputations of the banks.

ii. The regulators and the managements of the deposit money banks in Nigeria should emphasize the optimal size of the board. Because of the evidence that the size helps bring more experts into the board who could give proper judgments with regard risk management.

iii. The study also recommends that, the board of directors of the deposit money banks in Nigeria should composed of more independent/non-executive directors who are experts in the financial services industry. This could help in bringing more independent and expert based judgments and opinions with regard risk management and the overall performance of the banks.

iv. The management of deposit money banks in Nigeria should increase surveillance and control over the risk governance mechanisms of their banks, so as to achieve the desired objectives of installing them. Theyshould also adopt more robust customer relations and orientation policies, in order to educate them on the importance of meeting their credit obligation as at when due to avoid higher tendencies of credit risk through non-performing loans.

5.4 Limitations of the Study

The findings from this study are limited to the listed deposit money banks in Nigeria. Moreover, there are many proxies of risk management, but this study is restricted to value at risk which is a measure of market risk, and non-performing loans which is a measure of credit risk, therefore, the findings cannot be generalized to other measures of risk management.

5.5 Area for Further Research

In view of the extensive nature of risk management**,** and the scope of this research, the study suggests that further researchers in this area should expand the scope to include other measures of risk management and also extend the period of the study, and the sample size too. It is also suggested that other attributes of the board should be investigated with regards to their influence on risk management activities of deposit money banks in Nigeria.

REFERENCES

Adams, R., &Mehran, H., (2002):"Board structure and Banking Firm Performance", working paper, Federal Reserve Bank of New York.

Aebi, V., Sabato, G., &Schmid, M. (2012):"Risk Management, Corporate Governance and Bank performance in the financial crisis",*Journal of Banking and Finance.* 36, 3213-3226.

Aileme, I. O. &Ojeka, S. A., (2013): "Corporate Governance as a Tool for Curbing Bank Distress in Nigeria Deposit Money Banks: Empirical Evidence", *Research Journal of Finance and Accounting*, 4(13):2222-2847.

Afolabi, L. (1994):"Bank Failures and the Rest of Us, the Nigerian Banker",*Journal of the Chartered Institute of Bankers of Nigeria* (April – January 1994).

Agrawal, A., &Chadha, S., (2005):"Corporate Governance and Accounting Scandals", *Journalof Law and Economics.*

Alashi, S. O. (2002): "Bank Failure Resolution: The Main Options",*NDIC Quarterly* (June1993) 3(2).

Allen, F. (1991):"The Market for Information and the Origin of Financial Intermediation", *Journal of Financial Intermediation* 1, 3-30.

Alexander K., (2006):"Corporate Governance and Banks: The Role of Regulation in Reducing the Principal-Agent Problem",*Journal of Banking Regulation* 7, 17-40.

Andres, P., &Vallelado, E. (2008):"Corporate Governance in Banking: The Role of the Board of Directors",*Journal of Banking and Finance*, 2570-2580.

Ayorinde, F. (2001):"Ownership Structure, Corporate Governance and Corporate performance: The Case of Nigerian Quoted companies", Final Report presented at the AERC Biannual Research Workshop, Nairobi.

Babatunde, M. A. &OLanaran, O., (2009):"The Effects of Internal and External Mechanisms on Governance and Performance of Corporate Firms in Nigeria", *Corporate Ownership and Control Journal*, 7(1), winter 2009.

Basel Committee on Bank Supervision (BCBS), (2004):"International Convergence of Capital Measurement and Capital Standards: A Revised Framework", In Basel Committee Publications, No 107.

Basel Committee on Banking Supervision, (1997):"Core Principles to Effective Banking Supervision".

Basel Committee on Banking Supervision, (2008):"Principles for Sound Liquidity Risk Management and Supervision", Bank for International Settlements, September.

Belkhir, M. (2008):"Board of Directors' Size and Performance in the Banking Industry", *International Journal of Managerial Finance.*

Belkhir, M. (2003):"Board Structure, Ownership Structure, and Firm Performance: Evidence from Banking",*InternationalJournal of Managerial Finance.*

Bello, A. (2010): "Corporate Governance and Accounting Ethics in Nigeria", Malaysia International Conference, Paper No. 187.

Bello, A. (2013):"Corporate Governance and Risk Exposure of Banks in Nigeria",*British Journal of Arts and Social Science* 12(1).

Berkowitz, J. (2000): “A Coherent Framework for Stress Testing”, *Journal of Risk*

Berkowitz, J. (2001): “Testing Density Forecasts’ Applications to Risk Management”, *Journal of Business and Economic Statistics*, 19:465-474.

Berkowitz, J., & J. O’Brien (2008): “How Accurate are the Value at Risk Models at Commercial Banks?” *Journal of Finance*, 57:1093-1112.

Bhagat, S., & B. Black (1999):“The Uncertain Relationship between Board Composition and Firm Performance”,*Business Lawyer*, 54, 921-963.

Bhagat, S. & Black, B. (2001): “The non-correlation between board independence and long Term firm performance”, *Journal of Corporation Law*27, 231-271.

Bhattacharya, S., &Thakor, A.V. (1993):“Contemporary Banking Theory”,*Journal of FinancialIntermediation*3, 2-50.

Blue Ribbon Committee (1999):Report and Recommendations of the Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees. New York: NYSE and NASD.

Boo, A.W.A. (2000):“Relationship Banking: What do we know?”*Journal of Financial Intermediation*9, 7-25.

Boot, A.W.A., &Thakor, A.V. (1993):“Self-Interested Bank Regulation”,*American Economic Review*83, 206-212.

Booth, J., & Deli, D., (1999):“On Executives of Financial Institutions as Outside Directors”, *Journal of Corporate Finance* 5(3), 227-250.

Brokovich, K.A., Brunarski K.R., Crutchley, C.E.,&Simkins, B.J., (2004): "Board Composition Corporate Use of the Interest Rate Derivatives", Journal of Financial Research, 2(2):199-216.

CBN (2006): Code of Corporate Governance for Banks in Nigeria Post-consolidation.

CBN/NDIC, (1995):"Distress in the Nigeria Finance services Industry",Lagos: Page Publishers Service Ltd.

Chisti, K. A. (2012):"The Impact of Asset Quality on Profitability of Private Banks in India: A Case Study of JK, ICICI, HDFC and YES Banks", *Journal of African Macroeconomic Review*, 2 (1).

Christoffersen, P. F (2003): *Elements of Financial Risk Management.* Academic Press and Imprint of Elsevier Science, printed in the United States of America.

Christoffersen, P., & F. Diebold (2000): "How Relevant is Volatility Forecasting for Financial Risk Management?" *Review of Economics and Statistics*, 82:12-22

Christoffersen, P., J. Hahn., & A. Inoue (2007): "Testing and Comparing Value at Risk Measures", Journal of Empirical Finance, 8:325-342.

Christoffersen, P., & D. Pelletier (2010): "Back testing Portfolio Risk Measures: A Duration Based Approach", Manuscript, McGill University and CIRANO.

Cranston, R. (1995): Banks, Liquidity and Risk: London, Lloyd's Publishing Limited.

Coleman, T. S. (2011): *A Practical Guide to Risk Management:* Research Foundation of CFA Institute.

DeAngelo, H. &DeAngelo, L. (1985): "Managerial Ownership of Voting Rights: A Study of Public Corporations with Dual Classes of Common Stock",*Journal of Financial Economics* 14(1), 33–69.

Deep, A., & Schaefer, G., (2004):"Are Banks Liquidity Transformers?" Harvard University working paper (May).

Delis, M. D., Gaganis, C. &Fotios, P. (2009):"Bank Liquidity and the Board of Directors", MPRA paper NO. 18872.

Denis, D. (2001): "Twenty-Five Years of Corporate Governance Research and Counting", *Review of Financial Economics* 10, 191-212.

Diamond, D. W., (1984):"Financial intermediation and delegated monitoring",*Review of Economic Studies* 51: 393-414.

Diamond, D. W., and Philip H. D., (1983):"Bank Runs, Deposit Insurance, and Liquidity", *Journal of Political Economy* 91: 401-419.

Dionne, G. &Triki, T. (2005):"Risk Management and Corporate Governance: The Importance of Independence and Financial Knowledge for the Board and the Audit Committee", Working paper, HEC Montreal.

Diamond, D. W., &Rajan, R. G., (2000):"A Theory of Bank Capital", *Journal of Finance* 55: 2431-2465.

Diamond, D. W., &Rajan, R. G., (2001):"Liquidity Risk, Liquidity creation, and Financial Fragility: A Theory of Banking",*Journal of Political Economy* 109: 287-327.

Dittmar A., &Mahrt-Smith J., (2007): "Corporate Governance and the Value of Cash Holdings",*Journal of Financial Economics* 83, 599-634.

Dorfman, M. S. & Cather, D. A. (2013): *Introduction to Risk Management and Insurance*. 10th Ed. Delhi: PHI Learning Private Limited

Donaldson, L., and Muth, M.M. (1998):"Stewardship Theory and Board Structure: A Contingency Approach",*Corporate Governance- An International Review*, 6(1), 5-28.

Ebhodaghe, J. U. (1993): "Context, Content and Indices of Distress in Banks: Practical Approach in Definition of Distressed Banks",*NDIC Quarterly*, 3(2).

Emeka, O. (1997):"Review of Distress Syndrome in Nigerian Banks with a View to Preventing Recurrence".

Faccio, M., &Lasfer, M.A. (2000):"Managerial Ownership, Board Structure and Firm Value: The UK Evidence", Working paper.

Fatimoh, M., (2012): "Impact of Corporate Governance on Banks Performance in Nigeria", *Journal of Emerging Trends in Economics and Management Sciences*, 3(3):257-260.

Fama, E.F. (1980):"Agency Problems and the Theory of the firm",*Journal of Political Economy,* 88(2):288–307.

Fama, E. and M. Jensen (1983): "Separation of Ownership and Control," *Journal of Law and Economics*, 26: 301-325.

Fich, E., &Fernandes. N., (2009):"Does Financial Experience help Banks during Credit crisis?" Unpublished manuscript, Dexel University.

Granger, C. and P. Newbold (1974):"Spurious Regressions in Econometrics",*Journal of Econometrics*, 111-120.

Goodhart, C.A.E. (1987):"Why do Banks Need a Central Bank?"*Oxford Economic Papers* 39, 75-89.

Gorton, G., & Winton, A. (2002):"Financial Intermediation", NBER Working Paper 8928, Cambridge, MA.

Gorton, G. &Schmid, F. (1996):"Universal Banking and Performance of German Firms", National Bureau of Economic Research, Working Paper No. 5453.

Gujarati, D. (2004):*Basic Econometrics*. 4th Ed. New York: McGraw-hillCompany.Guner, B, Malmendier, U. &, Tate, G., (2004):"The Impact of Boards with Financial Expertise on Corporate Policies",Working Paper, NBER.

Haneef, S. Riaz, T. Ramzan, M. Ishaq, H.M. &Karim, Y., (2012): "Impact of Risk Management on Non-Performing Loans ans Profitability of Banking Sector of Pakistan", *International Journal of Business and Social Science*, 3(7).

Hermalin, B.E. &Weisbach, M.S. (2003):"Boards of Directors as an Endogenously Determined Institution: A Survey of the Economic Literature",*Economic Policy Review*, 9: 7–26.

Jensen, M. (1993):"The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems",*Journal of Finance*, 48 (3): 831-880.

John, K., & L.W. Senbet (1998):"Corporate Governance and Board Effectiveness",*Journal of Banking and Finance*, 22: 371–403.

Kashyap, A. K., R. G. Rajan, & J. C. Stein, (2002):"Banks as Liquidity Providers: An Explanation for the Coexistence of Lending and Deposit-Taking",*Journal of Finance* 57: 33-73.

Kama, U. &Chukwu, C. (2010):"The Corporate Governance of Banks in Nigeria: How Effective are the Board of Directors?"Central Bank of Nigeria (CBN).

Kupiec, P. (2005): "Techniques for Verifying the Accuracy of Risk Measurement Models",*Journal of Derivatives*, 3:73-84

Lawal, B., (2012):"Board Dynamics and Corporate Performance: Review of Literature and Empirical Challenges",*International Journal of Economics and Finance*, 4(1).

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., &Vishny, R.W. (1998):"Law and Finance", *Journal of Political Economy*106: 1113-1155.

Lee, Y. S., Rosenstein, S &Wyatt,J., (1999):"The Value of Financial Outside Directors on Corporate Boards",*International Review of Economics and Finance*, 8(4): 421-431.

Lipton, M. &Lorsch, J.W. (1992):"A Modest Proposal for Improved Corporate Governance", *Business Lawyer*, November, 48(1).

Liquidity Management Guide (2011):"Measuring Liquidity on the Balance Sheet", SEEP Network Financial Services Working Group.

Mankiw, N.G. (1986):"The Allocation of Credit and Financial Collapse",*Quarterly Journal of Economics* 101: 455-470.

Marques, L. B., S.E. Oppers., I. A. Ribeiro., K. Asai., J. Beauchamp., P. Deb.,…P. Kulkarni (2014):"Risk Taking by Banks: The Role of Governance and Executive Pay", International Monetary Fund.

McColgan, P. (2001): "Agency Theory and Corporate Governance: A review of the Literature from a UK Perspective", Retrieved from http://www.citeseerx.ist.psu.edu

McNulty, T., Florackis, C. &Ormrod, P., (2012):"Corporate Governance and Risks: A Study of Board Structure and Process", ACCA Research report 129, Certified Accountants Educational Trust (London).

Mehran, H. (1995):"Executive Compensation Structure, Ownership and Firm Performance", *Journal of Financial Economics*, 38(2): 163–184.

Merton, R.C. (1995a):"A Functional Perspective of Financial Intermediation",*Journal of Financial Management*24 (2): 23-41.

Merton, R.C. (1995b):"Financial Innovation and the Management and Regulation of Financial Institutions.*Journal of Banking and Finance*19: 461-481.

Merton, R.C., &Bodie, Z. (1993):“Deposit Insurance Reform: A Functional Approach”, Carnegie-Rochester Conference Series on Public Policy 38: 1-34.

Mitra, S., (2009): “Risk Measures in Quantitative Finance”, Retrieved from http//:www.arxiv.org.

Mongiardino, A., & C. Plath (2010): “Risk Governance at Large Banks: Have any lessons been learned?”*Journal of Risk Management in Financial Institutions* 3: 116-123.

Morck, R., Schleifer, A. &Vishny, R.W. (1988):“Management Ownership and Market Valuation: An Empirical Analysis”,*Journal of Financial Economics*, 20(1–2):293–315.

Monks, R.A.G. &Minow, N. (1995):“Corporate Governance”, Basil Blackwell, Cambridge.

National Association of Corporate Directors(1996):Report of the NACD BlueRibbon Commission on Director Professionalism. Washington D.C.: NACD.

Nigeria Security and Exchange Commission (2003):Nigeria Code for Corporate Governance.

Nwankwo, G. (1991):*Bank Management, Principles and Practice*, United Kingdom, Mattheus Press Ltd.

Nicholson, G. & Kiel, G. (2007):“Can Directors Impact Performance? A Case-Based Test of Three Theories of Corporate Governance”,*Corporate Governance: An International Review*, 15(4): 585 – 608.

NYSE (2002):“Amendment no.1 to the NYSE’S Corporate Governance Rule proposals”, Retrieved from http://www.nyse.com/listed.

Office of the Comptroller of Currency (2010):“Detecting Red Flags in the Board Reports: AGuide for Directors, Washington D.C.

Office of the Comptroller of Currency (2012):“Safety and Soundness: Liquidity”, Washington D.C

Ologun, S. O. (1994):“Bank Failure in Nigeria: Genesis, Effects and Remedies”,*CBN Economic and Financial Review* (September 1994), 32(3).

OECD (1999):OECD Principles of Corporate Governance.

Pathan, S. (2009): “Strong Boards, CEO Power and Bank Risk Taking”, Journal of Finance, 1- 22.

Pinteris, G. (2002): “Ownership structure, Board Characteristics and Performance of Argentine banks”, working paper, University of Illinois, fall.

Professional Risk Managers’ International Association (2012): PRMIA: Risk Management, Retrieved from http://www.prmia.org/search/node/risk%20management.

Ramakrishnan, Ram T.S., &Anjan V. Thakor, (1984):“Information Reliability and a Theory of Financial Intermediation”,*Review of Economics Studies,* 51: 415-432.

Rosenstein, S. & J. Wyatt (1990):“Outside Directors, Board Independence, and Shareholder Wealth”,*Journal of Financial Economics*, 26: 175-184.

Renneboog, L. (2000): “Ownership, Managerial Control and Governance of Companies Listed on the Brussels Stock Exchange”,*Journal of Banking and Finance*, 24(12): 1959-1995.

Sanda, A.U., Mikailu, A.S., &Garba, T. (2010):“Corporate governance mechanisms and firms’ financial performance in Nigeria”, *Afro-Asian Journal of. Finance and Accounting*, 2(1):22–39.

Sanda, A.U., Garba, T., &Mikailu, A.S. (2008):“Board independence and firm financial performance: Evidence from Nigeria”,Paper Presented at the Economic Development in Africa Conference,

organised by the Centre for the Study of African Economies, Department of Economics, University of Oxford, England, 16–18 March.

The Sarbanes Oxley act, Retrieved from http://www.findlaw.com.

Stulz, R.M. (2014):"Governance, Risk Management and Risk-taking in Banks",The Wharton School. Retrieved from http://www.ssrn.com.

Sunusi, L. S. (2012):"Banking Reform and its Impact on Nigerian Economy",Being a Lecture Delivered at the University of Warwick's Economic Summit UK, February 17, 2012.

Scholtens, B. &Wensveen, D. V. (2003):"The Theory of Financial Intermediation: An Essay on What it Does (Not) Explain", SUERF-The European Money and Finance Forum, 2003/1.

Thomson Reuters (2012): "Rebuilding Bank Governance After the Financial Crisis: Best Practices", Retrieved from http://www.accelus.thomsonreuters.com

Udo, A. (2012):"Extremely Weak Corporate Governance, Weak Credit Administration Characterize Nigerian Banks",NDIC.

Vassileios, K. (2011):"The Relationship between Corporate Governance and Risk Management during the Credit Crisis: The case of Financial Institutions".

Van Damme, E. (1994):"Banking, a Survey of Recent Micro Economic Theory",*Oxford Review of Economic Policy*10 (4): 14-33.

Yermack, D.L. (1996):"Higher Market Valuation of Companies with a Small Board of Directors",*Journal of Financial Economics*, 40(2), 185–211.

Yun H., (2009):"The Choice of Corporate Liquidity and Corporate Governance",*Review of Financial Studies* 22, 1447-1475.

APPENDIX A

```
. xtset id year, yearly
       panel variable:  id (strongly balanced)
        time variable:  year, 2005 to 2012
                delta:  1 year
```

1. DESCRIPTIVE STATISTICS

```
. su var nplr bsiz bind brsg bfex, detail

                            var
-------------------------------------------------------------
      Percentiles      Smallest
 1%        .0033          .0033
 5%        .0167          .0104
10%        .0898          .0161       Obs                  64
25%        .2962          .0167       Sum of Wgt.          64

50%         .611                       Mean           1.000005
                        Largest       Std. Dev.      1.093969
75%       1.3634          2.4984
90%       2.1446           4.502      Variance       1.196768
95%       2.4984          4.9895      Skewness       2.145751
99%        5.129           5.129      Kurtosis       8.127812

                            nplr
-------------------------------------------------------------
      Percentiles      Smallest
 1%     .0478943       .0478943
 5%     1.014582        .048781
10%     1.702056       .9756528       Obs                  64
25%       3.1419       1.014582       Sum of Wgt.          64

50%     5.419089                       Mean           7.218352
                        Largest       Std. Dev.       5.80626
75%     9.559275       17.67904
90%     15.80271       20.94207       Variance       33.71265
95%     17.67904        21.7457       Skewness       1.316364
99%     27.53171       27.53171       Kurtosis       4.475219

                            bsiz
-------------------------------------------------------------
      Percentiles      Smallest
 1%            6              6
 5%           11              7
10%           12             11       Obs                  64
25%           13             11       Sum of Wgt.          64

50%           14                      Mean           14.42188
                        Largest       Std. Dev.      2.568458
75%           16             19
90%           17             20       Variance       6.596974
95%           19             20       Skewness       -.373723
99%           20             20       Kurtosis       4.793423

                            bind
-------------------------------------------------------------
      Percentiles      Smallest
 1%     .4285714       .4285714
 5%           .5       .4666667
10%     .5294118             .5       Obs                  64
25%     .5454546             .5       Sum of Wgt.          64

50%     .5714286                      Mean           .5879165
                        Largest       Std. Dev.      .0708469
75%           .6             .75
90%        .6875             .75       Variance       .0050193
95%          .75             .75       Skewness        1.12454
99%     .8333333       .8333333       Kurtosis       4.805607
```

brsg

Percentiles		Smallest		
1%	2	2		
5%	3	3		
10%	3	3	Obs	64
25%	3	3	Sum of Wgt.	64
50%	4		Mean	3.671875
		Largest	Std. Dev.	.5056722
75%	4	4		
90%	4	4	Variance	.2557044
95%	4	4	Skewness	-1.098881
99%	4	4	Kurtosis	3.00743

bfex

Percentiles		Smallest		
1%	0	0		
5%	0	0		
10%	0	0	Obs	64
25%	1	0	Sum of Wgt.	64
50%	1		Mean	.78125
		Largest	Std. Dev.	.4166667
75%	1	1		
90%	1	1	Variance	.1736111
95%	1	1	Skewness	-1.360672
99%	1	1	Kurtosis	2.851429

.

2. TEST FOR NORMAL DATA

```
. swilk var nplr bsiz bind brsg bfex
```

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
var	64	0.76123	13.670	5.658	0.00000
nplr	64	0.87868	6.946	4.193	0.00001
bsiz	64	0.94645	3.066	2.424	0.00768
bind	64	0.90083	5.678	3.757	0.00009
brsg	64	0.88424	6.627	4.092	0.00002
bfex	64	0.93708	3.602	2.773	0.00278

3. PEARSON CORRELATION RESULTS

```
. pwcorr var nplr bsiz bind brsg bfex, star (0.05) sig
```

	var	nplr	bsiz	bind	brsg	bfex
var	1.0000					
nplr	-0.1901 0.1324	1.0000				
bsiz	-0.2229 0.0766	0.0253 0.8427	1.0000			
bind	-0.1133 0.3727	0.2684* 0.0320	-0.2309 0.0664	1.0000		
brsg	0.2197 0.0811	-0.1482 0.2426	0.3038* 0.0147	-0.2392 0.0569	1.0000	
bfex	0.0972 0.4450	-0.2780* 0.0262	0.2359 0.0606	-0.0731 0.5660	0.6333* 0.0000	1.0000

.

4. OLS REGRESSION RESULTS OF MODEL ONE

```
. reg var bsiz bind brsg bfex
```

Source	SS	df	MS	Number of obs =	64
				F(4, 59) =	2.70
Model	11.667273	4	2.91681824	Prob > F =	0.0390
Residual	63.7290956	59	1.08015416	R-squared =	0.1547
				Adj R-squared =	0.0974
Total	75.3963686	63	1.19676776	Root MSE =	1.0393

var	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
bsiz	-.1441229	.0544774	-2.65	0.010	-.2531319	-.0351139
bind	-1.833158	1.945154	-0.94	0.350	-5.725402	2.059086
brsg	.6772531	.3500137	1.93	0.058	-.0231228	1.377629
bfex	-.0785946	.4095518	-0.19	0.848	-.8981059	.7409167
_cons	1.730884	1.922715	0.90	0.372	-2.11646	5.578229

5. HETEROSKEDASTICITY TEST FOR MODEL ONE

```
. hettest

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

         chi2(1)      =    18.50
         Prob > chi2  =   0.0000
```

6. COLLINERITY TEST FOR MODEL ONE

```
. vif
```

Variable	VIF	1/VIF
brsg	1.83	0.547314
bfex	1.70	0.588776
bsiz	1.14	0.875726
bind	1.11	0.902809
Mean VIF	1.44	

7. FIXED EFFECT REGRESSION RESULT: MODEL ONE

```
. xtreg var bsiz bind brsg bfex, fe

Fixed-effects (within) regression               Number of obs      =        64
Group variable: id                              Number of groups   =         8

R-sq:  within  = 0.1140                         Obs per group: min =         8
       between = 0.1342                                        avg =       8.0
       overall = 0.1081                                        max =         8

                                                F(4,52)            =      1.67
corr(u_i, Xb)  = -0.2439                        Prob > F           =    0.1704
```

var	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
bsiz	-.1767015	.0844178	-2.09	0.041	-.3460981	-.0073049
bind	1.448802	2.695994	0.54	0.593	-3.961106	6.858711
brsg	.6305228	.3844485	1.64	0.107	-.1409295	1.401975
bfex	.0101601	.416882	0.02	0.981	-.8263748	.8466951
_cons	.3734584	2.432655	0.15	0.879	-4.508021	5.254938
sigma_u	.55247098					
sigma_e	.99200106					
rho	.23673814	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(7, 52) =     1.82                 Prob > F = 0.1024

. est store fixed
```

8. RANDOM EFFECT RESULT: MODEL ONE

```
. xtreg var bsiz bind brsg bfex, re

Random-effects GLS regression                   Number of obs      =        64
Group variable: id                              Number of groups   =         8

R-sq:  within  = 0.0957                         Obs per group: min =         8
       between = 0.3238                                        avg =       8.0
       overall = 0.1487                                        max =         8

Random effects u_i ~ Gaussian                   Wald chi2(4)       =      8.57
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0729
```

var	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
bsiz	-.1545452	.0621515	-2.49	0.013	-.2763599	-.0327304
bind	-.8301494	2.147413	-0.39	0.699	-5.039001	3.378702
brsg	.6497791	.3549763	1.83	0.067	-.0459616	1.34552
bfex	-.0543826	.4033872	-0.13	0.893	-.845007	.7362418
_cons	1.373473	2.043558	0.67	0.502	-2.631827	5.378773
sigma_u	.33572547					
sigma_e	.99200106					
rho	.10276612	(fraction of variance due to u_i)				

```
. est store random
```

9. HAUSMAN SPECIFICATION TEST: MODEL ONE

```
. hausman fixed random
```

	Coefficients (b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
bsiz	-.1767015	-.1545452	-.0221563	.0571275
bind	1.448802	-.8301494	2.278952	1.630032
brsg	.6305228	.6497791	-.0192563	.1476227
bfex	.0101601	-.0543826	.0645427	.1052111

```
                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)
                  =        5.18
        Prob>chi2 =      0.2691
```

10. RANDOM EFFECT TEST: MODEL ONE

```
. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

        var[id,t] = Xb + u[id] + e[id,t]

        Estimated results:
                         |       Var     sd = sqrt(Var)
                 --------+------------------------------
                     var |   1.196768       1.093969
                       e |   .9840661       .9920011
                       u |   .1127116       .3357255

        Test:   Var(u) = 0
                                 chi2(1) =     0.38
                              Prob > chi2 =     0.5381
```

11. GLS ESTIMATORS: MODEL ONE

```
. xtgls var bsiz bind brsg bfex, p(c)

Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic with cross-sectional correlation
Correlation:   no autocorrelation

Estimated covariances      =        36          Number of obs      =        64
Estimated autocorrelations =         0          Number of groups   =         8
Estimated coefficients     =         5          Time periods       =         8
                                                 Wald chi2(4)       =     43.73
                                                 Prob > chi2        =    0.0000
```

var	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
bsiz	-.0989703	.0163455	-6.05	0.000	-.1310069	-.0669337
bind	-1.098009	.4540288	-2.42	0.016	-1.987889	-.2081285
brsg	.5379897	.0902444	5.96	0.000	.3611138	.7148655
bfex	-.1176121	.1151125	-1.02	0.307	-.3432283	.1080042
_cons	1.033256	.4194119	2.46	0.014	.2112241	1.855289

.

12. OLS REGRESSION RESULTS: MODEL TWO

```
. reg nplr bsiz bind brsg bfex
```

Source	SS	df	MS
Model	357.633639	4	89.4084097
Residual	1766.26358	59	29.9366708
Total	2123.89722	63	33.7126543

```
Number of obs =      64
F(  4,    59) =    2.99
Prob > F      =  0.0259
R-squared     =  0.1684
Adj R-squared =  0.1120
Root MSE      =  5.4714
```

nplr	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
bsiz	.3326849	.2867973	1.16	0.251	-.2411952	.906565
bind	24.71286	10.2403	2.41	0.019	4.222056	45.20366
brsg	1.213529	1.842655	0.66	0.513	-2.473614	4.900673
bfex	-4.982626	2.156094	-2.31	0.024	-9.29696	-.6682912
_cons	-12.67194	10.12218	-1.25	0.216	-32.92636	7.582492

13. HETEROSKEDASTICITY TEST FOR MODEL TWO

```
. hettest

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

         chi2(1)      =     3.03
         Prob > chi2  =   0.0817
```

14. COLLINEARITY TEST FOR MODEL TWO

```
. vif
```

Variable	VIF	1/VIF
brsg	1.83	0.547314
bfex	1.70	0.588776
bsiz	1.14	0.875726
bind	1.11	0.902809
Mean VIF	1.44	

15. FIXED EFFECT RESULTS: MODEL TWO

```
. xtreg nplr bsiz bind brsg bfex, fe

Fixed-effects (within) regression               Number of obs      =        64
Group variable: id                              Number of groups   =         8

R-sq:  within  = 0.1075                         Obs per group: min =         8
       between = 0.3171                                        avg =       8.0
       overall = 0.1421                                        max =         8

                                                F(4,52)            =      1.57
corr(u_i, Xb)  = 0.1309                         Prob > F           =    0.1974
```

nplr	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
bsiz	-.0069235	.4542048	-0.02	0.988	-.9183522	.9045052
bind	17.91896	14.50564	1.24	0.222	-11.18873	47.02666
brsg	2.241797	2.068503	1.08	0.283	-1.908958	6.392551
bfex	-4.638362	2.243009	-2.07	0.044	-9.13929	-.1374346
_cons	-7.824528	13.08876	-0.60	0.553	-34.08904	18.43999
sigma_u	2.4877843					
sigma_e	5.3374038					
rho	.17847795	(fraction of variance due to u_i)				

```
F test that all u_i=0:     F(7, 52) =     1.43                 Prob > F = 0.2140

. est store fixed
```

16. RANDOM EFFECT RESULTS: MODEL TWO

```
. xtreg nplr bsiz bind brsg bfex, re

Random-effects GLS regression                   Number of obs      =        64
Group variable: id                              Number of groups   =         8

R-sq:  within  = 0.0997                         Obs per group: min =         8
       between = 0.4855                                        avg =       8.0
       overall = 0.1680                                        max =         8

Random effects u_i ~ Gaussian                   Wald chi2(4)       =     10.48
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0331

------------------------------------------------------------------------------
        nplr |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        bsiz |    .2918375   .3089546     0.94   0.345    -.3137023    .8973773
        bind |    23.84111   10.84438     2.20   0.028     2.586511    45.09571
        brsg |    1.398964    1.86308     0.75   0.453    -2.252607    5.050534
        bfex |   -4.890374   2.144326    -2.28   0.023    -9.093176   -.6875728
       _cons |   -12.32329   10.48981    -1.17   0.240    -32.88293    8.236359
-------------+----------------------------------------------------------------
     sigma_u |   1.1865789
     sigma_e |   5.3374038
         rho |   .04709582   (fraction of variance due to u_i)
------------------------------------------------------------------------------

. est store random
```

17. HAUSMAN SPECIFICATION TEST: MODEL TWO

```
. hausman fixed random

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |    fixed        random       Difference          S.E.
-------------+------------------------------------------------------------
        bsiz |   -.0069235     .2918375       -.298761        .3329401
        bind |    17.91896     23.84111      -5.922146        9.633949
        brsg |    2.241797     1.398964       .8428331        .8986847
        bfex |   -4.638362    -4.890374       .2520123        .6579948
------------------------------------------------------------------------------
                           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)
                          =        5.45
                Prob>chi2 =      0.2439
```

18. RANDOM EFFECT TEST: MODEL TWO

```
. xttest0

Breusch and Pagan Lagrangian multiplier test for random effects

        nplr[id,t] = Xb + u[id] + e[id,t]

        Estimated results:
                 |       Var     sd = sqrt(Var)
        ---------+------------------------------
            nplr |   33.71265        5.80626
               e |   28.48788       5.337404
               u |   1.407969       1.186579

        Test:   Var(u) = 0
                           chi2(1) =     0.13
                        Prob > chi2 =     0.7164
```

19. GLS RESULTS: MODEL TWO

```
. xtgls nplr bsiz bind brsg bfex, p(c)

Cross-sectional time-series FGLS regression

Coefficients:  generalized least squares
Panels:        heteroskedastic with cross-sectional correlation
Correlation:   no autocorrelation

Estimated covariances      =        36          Number of obs      =        64
Estimated autocorrelations =         0          Number of groups   =         8
Estimated coefficients     =         5          Time periods       =         8
                                                Wald chi2(4)       =     71.20
                                                Prob > chi2        =    0.0000
```

nplr	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
bsiz	.3124318	.0861064	3.63	0.000	.1436663	.4811974
bind	20.6559	4.132252	5.00	0.000	12.55683	28.75496
brsg	.8552585	.529793	1.61	0.106	-.1831168	1.893634
bfex	-5.673657	.7385761	-7.68	0.000	-7.121239	-4.226074
_cons	-9.037583	3.512979	-2.57	0.010	-15.92289	-2.152271

```
.
```

APPENDIX B

POPULATION AND SAMPLE OF THE STUDY

S/N	POPULATION	SAMPLE OF THE STUDY
1	Access Bank Plc	Access Bank plc
2	Diamond Bank Plc	Guaranty Trust Bank plc
3	First Bank of Nigeria Plc	First Bank Nigeria Plc
4	First City Monument Bank Plc	Diamond Bank plc
5	Guaranty Trust Bank Plc	Sky Bank plc
6	Stanbic IBTC Bank Plc	United Bank for Africa plc
7	Sterling Bank Plc	Ecobank Nigeria plc
8	Sky Bank Plc	Zenith Bank plc
9	Unity Bank Plc	
10	United Bank for Africa Plc	
11	Union Bank of Nigeria Plc	
12	Ecobank Nigeria Plc	
13	EcoBank Trans. Incorp	
14	NPF Micro Finance Bank Plc	
15	Fidelity Bank Plc	
16	Wema Bank Nigeria Plc	
17	Zenith Nigeria Plc	

Source: NSE FactBook 2011/2012