

Risk management practices and financial performance: evidence from the Nigerian deposit money banks (DMBs)

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Abstract

This paper is aimed at examining risk management practices among deposit money banks in Nigeria with a view to relating these practices to their financial performance in the 2012 financial year. The study uses secondary data gathered through content analysis of the selected banks' annual reports and accounts. Thereafter, these cross sectional data is then analysed using descriptive statistics to depict pattern and robust standard errors OLS regression to estimate significant influence between banks' risk management practices (credit, liquidity, operating and capital risk practices) and their financial performance. The findings appear to be largely consistent with previous works as the explanatory variables significantly accounted for variations in the financial performance [ROA-92% (71.78); ROE-84% (46.55)] in both models.

Introduction

One major area in the aftermath of the global financial crisis is risk management among financial institutions. Risk Management is the identification, assessment and prioritization of risks followed by coordinated and economical application of resources to minimize, monitor, and control the probability and/or impact of unfortunate events (Njogo, 2012). It is neither a concept for complete risk avoidance nor its elimination. The essential functions of risk management are to identify, measure and more importantly monitor the profile of the bank. While for example, non-performing assets are the legacy of the past in the present, risk management system is the pro-active action in the present for the future. Managing risk is nothing but managing the change before the risk manages (Raghavan, 2003). While new avenues for Deposit Money Banks (otherwise called commercial banks) have opened up, especially in product development and market penetration strategy, they have brought with them new risks as well, which banks are expected to handle and overcome. Excessive and poorly managed risk can no doubt lead to losses and thus endanger the safety of a bank's depositors. Extant finance literature has concluded that risk is a significant and inevitable aspect of any business activity in

a market economy. Business grows mainly by taking risk. The greater the risk, the higher the potential return and so the business unit must strike a trade-off between the two.

There is a consensus on the delicate but predominant position occupied by financial institutions, especially banks, both in the developed and emerging economies, for example, the Nigerian banking sector account for over 40% of the total market capitalization of the Nigeria Stock Exchange (NSE). Commercial banking businesses are risky ventures, hence risk-taking is an inherent element of banking operations and indeed, profits are in part the reward for successful risk taking in business. The major functions provided by banks are responsible for this. Essentially, they perform three (3) main functions - financial intermediation, asset transformation, and money creation. These roles are fraught with obvious risks. Financial intermediation, the process in which money deposited in banks for safe keeping by individuals or organisations is loaned out to borrowers, may be affected by the risk that depositors demand their money at a rate faster and larger than the reserves the bank has kept from deposited funds; asset transformation, the process of creating new assets (loans) from liabilities (deposits) runs the risk that a change in market interest rates may dilute the profit a bank makes in its loans since a bank must charge interest on its loans that is higher than the interest it pays on its deposits; and money creation, the process in which additional money is generated in the financial system by the repeated lending of an initial deposit in a bank through the principle of the fractional reserve, can create inflationary or other macroeconomic risks as the amount of money created in a fractional reserve banking system depends on the level of reserves banks are required to maintain from deposits. Thus, risk taking is an integral part of and constitutes a major characteristic of banking business.

Risk has a very long history as it can be said to have been in existence like human existence. It has defied a universal definition as every author's attempt display a different orientation. Gallati (2003) defines risk as a condition in which there exists an exposure to adversity, or a condition in which there exists a possibility of deviation from a desired outcome that is expected or hoped for. It implies exposure to uncertainty or threat (Kannan and Thangavel, 2008). Therefore, risks can be described as the adverse impact on profitability of several distinct sources of uncertainty. While the types and degree of risks an organization may be exposed to depend upon a number of factors such as its size, complexity business activities and volume, it is believed that generally the banks face credit, market, liquidity, operational, compliance / legal / regulatory and reputation risks.

There have been several presentations in different fora, on risk management practices in banks, especially by practitioners. These are largely theoretical and not empirical. This paper, therefore, is aimed at filling these gaps by examining risk management practices among commercial banks in Nigeria with a view to relating these practices to their financial performance. In addition to contributing to the limited literature on risk management practices of banks in emerging economies, this paper is also peculiar as it makes an attempt on examining risk management practices in the year 2012, a year that banks in Nigeria initially adopt the IFRS reporting principles. The rest of this study is organized as follows: while the next section reviews related previous works carried out by researchers, the section that follows is on the methodology adopted. This is then followed by the analyses and the discussion of results while the last section is on conclusions and policy recommendations.

Risk Management Practices and Processes in the Banking Industry

The banking industry is no doubt a regulated sector as a result of the riskiness of its operation. Consequently, risk management in banks is fast becoming a discipline that every

participants and players in the industry need to align with. As earlier noted, it is a process which involves:

- (i) Risk identification: In order to properly manage risks, an institution must recognize and understand risks that may arise from both existing and new business initiatives; for example, risks inherent in lending activity include credit, liquidity, interest rate and operational risks. Risk identification should be a continuing process, and should be understood at both the transaction and portfolio levels.
- (ii) Risk Measurement: Once risks have been identified, they should be measured in order to determine their impact on the banking institution's profitability and capital. This can be done using various techniques ranging from simple to sophisticated models. Accurate and timely measurement of risk is essential to effective risk management systems. An institution that does not have a risk measurement system has limited ability to control or monitor risk levels. Banking institutions should periodically test their risk measurement tools to make sure they are accurate. Good risk measurement systems assess the risks of both individual transactions and portfolios.
- (iii) Risk Monitoring: Institutions should put in place an effective management information system (MIS) to monitor risk levels and facilitate timely review of risk positions and exceptions. Monitoring reports should be frequent, timely, accurate, and informative and should be distributed to appropriate individuals to ensure action, when needed.
- (iv) Risk Control: After measuring risk, an institution should establish and communicate risk limits through policies, standards, and procedures that define responsibility and authority. These limits should serve as a means to control exposure to various risks associated with the banking institution's activities. Institutions may also apply various mitigating tools in minimizing exposure to various risks. Institutions should have a process to authorize and document exceptions or changes to risk limits when warranted.

Types of Risks in Banking Operations

Basel II is the second of the Basel Accords, recommendations on banking laws and regulations issued by the Basel Committee on Banking Supervision. In accordance with Basel II, the following are types of risks (alongside their measurement and management techniques) usually found in the banking organization. They include:

- a) Credit risks: Also known as default risk, is one of the oldest. It is the most vital forms of risk faced by banks as financial intermediaries (Broll, et. al., 2002). It is the potential loss arising from the failure of a borrower to meet its obligations in accordance with agreed terms.
- b) Market risks: It is risk in volatility in the market that affects the bank's return. It is the risk of loss from adverse movement in financial market rates (interest and exchange rate) and bond, equity or commodity prices. A bank's market risk exposure is determined by both the volatility of underlying risk factors and the sensitivity of the bank's portfolio to movements in those risk factors (Hendricks and Hirtle, 1997 in Zahangiralam and Masukujjaman, 2011).
- c) Operational risk: Is the potential financial loss as a result of breakdown in day to day operational processes. It can arise from failure to comply with policies, laws and regulations, from fraud or forgery (Njogo, 2012). These include direct and indirect laws resulting from inadequate of fail internal processes, people and systems or from external event (note operational risk in relation to the control environment is accesses within the relevant control sections).

Other risks that is consequent upon the second pillar of the Basel II and which provides a framework for dealing with all the other risks. According to Njogo, 2012, these risks among others include liquidity risk (is the ability of a bank to fund increases in assets and meet obligation as they come due, without incurring unacceptable losses. The fundamental role of banks in the maturity transformation of short-term deposit into long-term loans makes banks inherently vulnerable to liquidity risk. Effective liquidity risk management helps ensure cash flow obligations, which are uncertain as they affected by external events and other agents behavior.), interest rate risk (risk borne by an interest -bearing asset, such as a loan or a bond, due to variability of interest rates), legal risk (arises from the potential that enforceable contact, lawsuits, or adverse judgments can disrupts or otherwise negatively affect the operations or condition of a banking organization), and reputational risk (any risk that is likely to destroy shareholder value and attracts negative publicity, examples are loss of revenue, litigation, loss of clients and partners, exit of key employees, share price decline, difficulty in recruiting talent).

Risk Management Practices- The Nigerian Banking Experience

Until recently when a remarkable improvement is noticed, the banking landscape in the past in Nigeria leaves more to be desired. This is despite the intervention of the Central Bank of Nigeria (CBN), the apex bank that regulates commercial banks, among other banks, by institutionalizing the corporate governance code (of which a section is dedicated to risk management), aversion of massive bank failures in 2009 and the implementation of various reforms in the industry. Yet, the Bank acknowledged the elementary stage of the country's risk management efforts among commercial banks, as it is bedeviled by a number of challenges. According to the Bank, these challenges among others include acute dearth of knowledgeable and skilled risk professionals, poor knowledge of risk management by members of the board of many banks. Consequently, senior management and directors are unable to match the nexus between their banks' business strategies and risk appetite and the implications for risk management within the organisation.

The Bank detailed several factors that are responsible for this state of affairs. They are absence of formal training institutions offering risk management curricula, absence of an industry-recognised risk management qualification and certification programme or system to foster the development of professional talent in the different areas of risk management such as credit, operational, liquidity and market risks, absence of a holistic, well-structured and well-coordinated approach to talent development tailored to meet the contemporary challenges in the industry, including in the area of risk management and corporate governance. Others are lack of strategic partnerships and alliances with tertiary institutions, local and global associations of risk professionals on risk management training and education, absence of a competency framework that supports the development of skilled and capable workers in the industry including in the area of risk management and low priority accorded to the development of capacity by some banks particularly in the area of risk management and corporate governance for members of the board and management.

However, with the implementation of the Basel II/III capital accords, risk-based supervision (as against compliance-based supervision) of banks, the professionalism approach to risk management education through the development of qualification and certification programs by registered professional bodies and training providers such as the Credit Risk Management Association of Nigeria (CRIMAN) and the adoption of the IFRS effective from the year 2012, among other regulatory initiatives, it is hope that risk management has improved a great deal.

Literature Review on Risk Management Practices and Financial Performance

Studies on the influence of risk management practices on financial performance have been largely conceptual drawing on the theoretical frameworks provided by institutional regulators; the study by Njogo, 2012 is an example. Tandelilin, Kaaro, Mahadwartha and Supriyatna (2007) opine that a major objective of bank management is to increase shareholders' return indicating bank performance. They maintained that this objective often comes at the cost of increasing risk. They detailed bank risks to include interest risk, market risk, credit risk, off-balance risk, technology and operational risk, foreign exchange risk, country risk, liquidity risk, and insolvency risk. The bank's motivation for risk management comes from those risks which can lead to bank underperformance.

Schroeck (2002) and Nocco and Stulz (2006) in Ariffin and Kassim (2009) stress the importance of good risks management practices to maximize firms' value. While the former proposes that ensuring best practices by instituting effective and prudent risk management practices in other to increase earnings, the latter specifically posits that effective enterprise risk management (ERM) have a long-run competitive advantage to the firm (or banks) compared to those that manage and monitor risks individually. In the light of this and as a follow-up, a holistic approach is suggested in managing risk.

Furthermore, Hakim and Neamie (2001) also as documented in Ariffin and Kassim (2009) examine credit risk and bank's performance in Egypt and Lebanon banks in the 1990s by using data for banks from the two countries over the period 1993-1999, the study estimates a fixed effects model of bank return with varying intercepts and coefficients. The findings show that credit variable is positively related to profitability, while liquidity variable is insignificant across all banks and have no impact on profitability. The study also finds a strong link between capital adequacy and commercial bank return, with high capitalization being the hindrance to return. The study concludes that the capital is a sunk cost with large banks realizing high profits in absolute but not in percentage terms.

Another dimension is offered by Bruner (2010) on taking excessive risk to boost performance. Burner (2010) observed that a reduction in real risk-free rates of interest to historically low levels led to credit expansion in a ferocious search for yield among investors. Hence, major financial crisis around the world can also be attributed to inordinate ambition (to return excellent return to their owners) by decision makers and the board thereby taking excess risk to boost stock prices. The 2007 economic crisis emerging in 2007 and the 2009 financial crisis in the Nigerian banking industry are examples.

Adeusi, Akeke, Adebisi and Oladunjoye (2013) in their study which focuses on the association of risk management practices and bank financial performance in Nigeria. Using a panel of secondary data for 10 banks and for four years reported an inverse relationship between financial performance of banks and doubt loans, capital asset ratio was found to be positive and significant. Similarly it suggests that the higher the managed funds by banks, the higher the performance. The study concludes a significant relationship between banks performance and risk management. Hence, the need for banks to practice prudent risks management in order to protect the interests of investors.

Methodology

Data for this study was secondary in nature and was gathered mainly from the annual reports and accounts of the selected eight (8) quoted commercial banks (see appendix I). Each of the risk management areas (credit risk, liquidity risk, operational risk and capital risk) as practiced by the selected banks are gotten through appropriate ratio computation using figures

as contained in the financial statements. Each category of the risk management practices represent areas as suggested in Basel II. This serves as the guide of conducting the content analysis. This is contrary to studies that uses questionnaire which is distributed to target respondents as the means of gathering practices of risk management (Ariffin and Kassim, 2009). The researcher considers this method as adequate and appropriate, especially, in the light of the chosen year- 2012, the year that is set as the initial adoption of IFRS for the significant public entities (including banks) in Nigeria. Moreover, annual reports and accounts of banks in Nigeria now disclose more information, inclusive of risk management practices. In addition, the financial performances (ROA and ROE) are also computed alongside.

Beside the use of descriptive statistics, to among others include simple average, median and standard deviation, to describe the variables, correlation is also adopted to test for multi-collinearity especially among the independent variables of risk management practices. Lastly, these cross-sectional data is then subjected to the cross-sectional OLS regression analysis for estimating the coefficients of the independent variables.

To this end, the linear cross sectional model, in a functional form, is stated as follows:

$$ROA = f(NPLR, LIQR, CIR, CAR) \dots\dots\dots (1a)$$

$$ROE = f(NPLR, LIQR, CIR, CAR) \dots\dots\dots (1b)$$

Where:

ROA = Return on Assets

ROE = Return on Equity

NPLR= Non-Performing Loan Ratio (computed as NPL/TLA)

LIQR = Liquidity Ratio (Liquefiable Assets / Qualifying Liabilities)

CIR = Cost to Income Ratio (Operating Expenses / Gross Earnings)

CAR = Capital Adequacy Ratio [Capital Base (Tier I + Tier II) / Risk-weighted Assets]

The econometric form for the model is specified as:

$$ROA_i = \beta_0 + \beta_1 NPLR_i + \beta_2 LIQR_i + \beta_3 CIR_i + \beta_4 CAR_i + \mu \dots\dots\dots (2a)$$

$$ROE_i = \beta_0 + \beta_0 + \beta_1 NPLR_i + \beta_2 LIQR_i + \beta_3 CIR_i + \beta_4 CAR_i + \mu \dots\dots\dots (2b)$$

Results and Discussions of Findings

Table 1 show the descriptive statistics for the variables in this study. All the eleven banks are profitable. The average ROA for the selected banks is 2% (with a standard deviation of 1.269), it ranges between 0.89% and 5.33% while for ROE, the mean value is 17% (with a standard deviation of 8.352), the minimum being 4.6% and the maximum is 31.9%. Furthermore, risk management practices as also shown for all the banks in table 1 also indicate a rather impressive performance. The non- performing loan ratio, a measure to capture banks' credit risk shows a mean value of 6% (standard deviation of 8.844) implying that for every loan given out, only 6% is non- performing. The liquidity risks, proxied through banks' liquidity ratio show a mean value of 65%, far above the CBN threshold of 30%, implying that all the selected banks are sufficiently liquid. Similarly, the efficiency ratio used to capture operational risk is also impressive; having reported an average value of 50%, implying that half of the banks' gross earnings is left to cover other non-operational expenses. In addition, all the banks used in this study are adequately capitalized, having shown a mean value of 22%, which is far above the minimum benchmark (10% and 15% for national and international banks respectively) set by the CBN.

There is no multi-collinearity problem among the studied variables as shown in tables 2a and 2b, since none of the coefficient is greater than 0.80. This is further validated as depicted with the VIF in table 3.

Tables 4a and 4b show the estimates for the cross-sectional OLS regression for each of the financial performance indicators. The robust standard errors that are heteroscedasticity-consistent have been adopted. The models indicate a relatively high R^2 [ROA=92% (71.78); ROE=84% (46.55)] implying a significant influence of bank's risk management practices on performance. The F-statistics as indicated further reinstated this assertion. However, while the credit and capital risk display significant positive influence by accounting for 10% (8.31) and 20% (4.14) in ROA, only the credit risk is positively significant having accounted for 45% (5.51) variations in ROE. Lastly, the result of the Breusch-Pagan/ Cook-Weisberg test shown in tables 5a and 5b for ROA and ROE respectively show the absence of heteroskedasticity for both models. This is not surprising as the Robust Standard Errors mode is adopted in the running of the OLS regression results.

The findings from this study support the claim by other studies that risk management practices in the banking sector have significant impact on their financial performance (Schroek, 2002; Nocco and Stulz, 2006; Noraini and Salina, 2010; Adeusi, et. al., 2013). According to Tandelilin, et. al., (2007) it not only affect their performance, but overall economic growth. It is also consistent with the fundamental risk return theory.

Conclusions and Policy Recommendations

This paper examines risk management practices among deposit money banks in Nigeria with a view to relating these practices to their financial performance in the 2012 financial year. The year 2012 is peculiar to banks in Nigeria, as it is the year that signifies the beginning of the adoption and implementation of IFRS in their annual report and financial reporting, alongside with other significant public entities. This trend has predominately improves on the content of such reports. The annual accounts are now bulky containing relevant and timely information including management discussions on usage of estimates and risk management profiles. This practice is in compliance with the second pillar of the Basel II, which empowers banks to review, monitor, manage and report their risk management system (including risk appetites and strategy) in other to achieve the desired objectives.

Risk management in banking designates the entire set of risk management processes and models allowing banks to implement risk-based policies and practices. They cover all techniques and management tools required for measuring, monitoring and controlling risks. As indicated from our findings, financial performance is heavily determined by risk management practices of Nigerian banks, therefore, it our suggestion that the CBN and other regulators should endeavour to enforce risk identification, assessment, measurement and control mechanism, in line with best global practices in other to avoid financial crisis and also improve on commercial banks' performances.

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Appendices

Appendix I: List of Selected Deposit Money Banks (DMBs) used in this Study

1. Access Bank
2. Zenith Bank
3. United Bank for Africa
4. Guaranty Trust Bank
5. First Bank of Nigeria
6. Skye Bank
7. Diamond Bank
8. Fidelity Bank
9. FCMB

10. Union Bank
11. Stanbic IBTC

Appendix II: Schedules of Tables referred to in the Study

Table 1: Summary of Descriptive Statistics for the variables

Variables	Mean	Std. Dev.	Min.	Max
ROA	2.398	1.269	0.89	5.33
ROE	17.394	8.352	4.6	31.9
NPLR	6.306	8.844	1.9	32.63
LIQR	64.913	21.304	45.5	97.4
CIR	50.355	18.123	14.49	72.4
CAR	22.809	4.308	16.6	31

Source: Stata output of data inputed by the authors

Table 2a: Pearson Correlation Matrix (ROA)

	ROA	NPLR	LIQR	CIR	CAR
ROA	1.000				
NPLR	0.739	1.000			
LIQR	-0.041	-0.197	1.000		
CIR	-0.312	-0.212	-0.133	1.000	
CAR	0.578	0.019	0.033	0.244	1.000

Source: Stata output of data inputed by the authors

Table 2b: Pearson Correlation Matrix (ROE)

	ROE	NPLR	LIQR	CIR	CAR
ROE	1.000				
NPLR	0.717	1.000			
LIQR	-0.108	-0.197	1.000		
CIR	-0.468	-0.212	-0.133	1.000	
CAR	0.379	0.019	0.033	0.244	1.000

Source: Stata output of data inputed by the authors

Table 3: VIF for the Independent Variables

Variable	VIF	1/VIF
CIR	1.16	0.858
NPLR	1.12	0.896
LIQR	1.08	0.922
CAR	1.08	0.928
Mean VIF	1.11	

Source: Stata output of data inputed by the authors

Table 4a: Multivariate (OLS) Regression Estimates- Robust

ROA	Coef.	Robust Std. Errors	t-statistics
NPLR	0.098	0.012	8.31*
LIQR	0.002	0.011	0.18
CIR	-0.024	0.012	-1.99
CAR	0.199	0.048	4.14*
Const.	-2.007	1.154	-1.74

Source: Stata output of data inputed by the authors

*@5% significance level

F (4, 3) = 71.78 R-Sqd. = 0.924

Prob> F = 0.0026

Root MSE = 0.634

Table 4b: Multivariate (OLS) Regression Estimates- Robust

ROE	Coef.	Robust Std. Errors	t-statistics
NPLR	0.454	0.082	5.51*
LIQR	-0.025	0.091	-0.28
CIR	-0.184	0.101	-1.83
CAR	0.816	0.379	2.15
Const.	2.793	8.314	0.34

Source: Stata output of data inputed by the authors

*@5% significance level

F (4, 3) = 46.55 R-Sqd. = 0.837

Prob> F = 0.0049

Root MSE = 4.818

Table 5a: Breusch-Pagan/ Cook-Weisberg test for heteroskedasticity (ROA)

H ₀ : Constant Variance	
Variables: fitted values of ROA	
Chi ² (1)	1.03
Prob > chi ²	0.3112

Source: Stata output of data inputed by the authors

Table 5b: Breusch-Pagan/ Cook-Weisberg test for heteroskedasticity (ROE)

H ₀ : Constant Variance	
Variables: fitted values of ROA	
Chi ² (1)	0.45
Prob > chi ²	0.5045

Source: Stata output of data inputed by the authors