



Impact of risk management on the performance of deposit money banks in Nigeria

B.E. Barde PhD^a, S.B.A. Tende PhD^{*}, J.E.I. Abbah^{**}

^a Department of Business Administration, Faculty of Administration, Nasarawa State University, Keffi, Nigeria

^{*} Entrepreneurship Development Centre, Nasarawa State University, Keffi, Nigeria

^{**} Department of Business Administration, Faculty of Administration, Nasarawa State University, Keffi, Nigeria

ABSTRACT

This study examines the relationship between risk management and the performance of deposit money banks from the year 1997 to 2011. The data for performance are aggregate operational risk, market risk and credit risk were collected from the Nigeria Deposit Insurance Corporation (NDIC). Data were analyzed using descriptive statistics and regression analysis. It was found that there exist a significant relationship between risk management and the performance of Deposit Money Banks. It was also found that fraud is in the increase in banks. Based on the finding of the study, it is recommended that Deposit Money Banks should engage more in an all-encompassing risk management practice, by so doing the operational risk, credit risk and market risk will all be given adequate attention. It is also recommended that the Central Bank and Deposit Money Banks should intensify the implementation of strong security and transaction monitoring systems to prevent successful attacks in the electronic payment platforms where frauds tend to be more prevalent.

Key words: Risk Management, Performance, Deposit Money Banks

1. Introduction

Deposit Money Banks are major players in the financial sector of the Nigerian economy. The banking sector is the most capitalized sector on the Nigerian stock exchange and a major source of short term loans to investors in the country. Businesses are generally affected by different type of risk. Risk management is the human activity which integrates recognition of risk, risk assessment, developing strategies to manage it, and mitigation of risk using managerial resources (Appa, 1996). By its nature, the banking business is a risky one with several risk factors which include credit, liquidity, operational and market risks. The management of these risk factors has been identified as critical to ensure that the banks'

position remain intact amid the intense competition in the banking industry. The survival and success of a financial organization depend critically on the efficiency of managing these risks (Khan & Ahmed, 2001). More importantly, good risk management is highly relevant in providing better returns to the shareholders. In addition, prudent risk management by financial institutions is the hallmark to avoid financial distress that could lead to a full blown financial crisis. In view of this, the issue of risk management in the financial institutions is a topic of interest not only to the industry players but also the policy makers.

The recent financial crisis and the crises experienced in the banking sector have led to the failure of forty seven (47) banks in Nigeria from the year 1998 to date (Aruwa & Abdullahi, 2014). Poor risk management practices in Deposit Money Banks (DMBs) in Nigeria have resulted in the accumulation of toxic assets in the bank's books which led to the establishment of Asset Management Corporation of Nigeria (AMCON) (Hassan & Abdullahi, 2013). Banks are constantly in cut throat competition and setting very high profit targets whereas, in the marketplace, sustainable sources of competitive advantage are hard to find. Consequently, effective risk management is being increasingly viewed as a key determinant of a bank's ability to compete successfully.

The financial performance of a business indicates its success within a given period of time. Several approaches are in place for the assessment of financial performance of a firm; while some are strictly concerned with the single firm performance, others are on comparative basis using the performance of other firms of comparable size or using the expectations of the stakeholders.

One major measure of a firm's performance is the Return on Asset (ROA). The ROA of one bank can be compared to the ROA of another or compared to the bank's shareholders' expected return. If a bank is not able to effectively manage the risks it is exposed to, there is the likelihood that this may impact negatively on its financial returns and by implication will it difficult for the firm to meet the shareholders expectations and may also face operational challenges. This study, therefore, examines the relationship between risk management and the performance of DMBs in Nigeria.

Risk management decision is done under certain environmental conditions. These are condition of certainty, condition of uncertainty and condition of risk. Condition of certainty occurs where the decision maker is fully knowledgeable of the ultimate outcome of decision in the future. Suleiman (2003) opined that this condition is very rare to be attained. The condition of uncertainty, never the less, prevails where the decision maker is completely ignorant about the ultimate outcome of his decision in the future or the probability of its occurrence is not clear. However, risk exists in between the conditions of certainty and uncertainty. Under the condition of risk the decision maker has the idea of knowledge about the ultimate outcome of his decision and its possible consequences in the future.

Therefore, risk is inevitable phenomenon that must be reckoned with in all human endeavors. Everything is risky; there is no activity or environment that is risk-free; some levels of risk are involved in one way or another. Risk can spring from political, market, economic, financial, project, technical, legal environments (Merna & Al-Thani, 2008 in Mahmoud, 2015).

According to Audit Office (2000) risk is defined as something happening that may have an impact on the achievement of objectives, and it includes risk as an opportunity as well as a threat. The nature of banking business contains an environment of high risk. So risky in the sense that it is the only business in where proportion of borrowed funds is far higher than the owners' equity (Owojori, Akintoye, Adidu, 2011).

A major objective of bank management is to increase shareholders' return epitomizing bank performance. The objective often comes at the cost of increasing risk. Bank faces various risks such as interest risk, market risk, credit risk, off balance risk, technology and operational risk, foreign exchange risk, country risk, liquidity risk, and insolvency risk (Tandelilin, Kaaro, & Mahadwartha, 2007). The bank's motivation for risk management comes from those risks which can lead to bank underperformance.

Issues of risk management in banking sector have greater impact not only on the bank but also on the economic growth (Tandelilin, Kaaro, & Mahadwartha, 2007). Tai (2004) concludes that some empirical evidence indicates that the past return shocks emanating from banking sector have significant impact not only on the volatilities of foreign exchange and aggregate stock markets, but also on their prices, suggesting that bank can be a major source of contagion during the crisis.

Banks which better implement the risk management may have some advantages: (i) It is in line with obedience function toward the rule; (ii) It increases their reputation and opportunity to attract more wide customers in building their portfolio of fund resources; (iii) It increases their efficiency and profitability. Cebenoyan and Strahan (2004) in Adeusi, Akeke, Adebisi and Oladunjoye (2014) finds evidence that banks which have advanced in risk management have greater credit availability, rather than reduced risk in the banking system. The greater credit availability leads to the opportunity to increase the productive assets and bank's profit.

Studies on the relationship between risk management and financial performance of banks mostly have been conceptual in nature, often drawing the theoretical link between good risk management practices and improved bank performance. Schroeck (2002); Nocco and Stulz (2006) stresses the importance of good risks management practices to maximize firms' value. In particular, Nocco and Stulz (2006) suggests 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. It is, therefore suggested that companies to manage risks strategically by viewing all the risks together within a coordinated manner. In relation to this, Stulz (1996) associates good risk management practices with the elimination of costly lower-tail outcomes by proposing "full-cover" risk management as compared to "selective" risk management. The study suggests that prudent risks management is important in reducing the bankruptcy costs.

Several other studies draw the link between good risk management practices with improved financial performances (Smith, 1995; Schroeck, 2002). Specifically, these studies propose that prudent risk management practices reduce the volatility in banks' financial performance, namely operating income, earnings, firm's market value, share return and return on equity. Schroeck (2002) proposes that ensuring best practices through prudent risk management result in increased earnings.

Despite the voluminous studies on the link between risk management practices and companies performance, studies providing empirical evidence on the link between risk management practices and bank financial performance, to our knowledge, has been somewhat limited. Among these studies, Drzik (2005) shows that bank investment in risk management during 1990s helped to reduce earnings and loss volatility during the 2001 recession. In the same vein, the study by Pagach and Warr (2007) examines factors that influence the firm level of ERM and found that the more leveraged the firms are, the more volatile are their earnings. Using the hazard model to examine factors that influence firms' adoptions of

the ERM, the study documents firms that are more levered, more volatile earnings, and poorer stock performances, are more likely to adopt ERM. In addition, greater CEO's option and increasing stock portfolio volatility also increase the likelihood for the adoption of ERM. The study suggests that the ERM is being adopted beyond the basic risk management purpose, with offsetting CEO risk taking incentives and seeking to improve operating performance as other main reasons to adopt ERM.

A different dimension of analysing the relationship between risk management and financial performance is offered by Angbazo (1997). By testing the influence of risk factors in determining banks' profitability, the study found that default risk is a determinant of banks' net interest margin (NIM) and the NIM of super-regional banks and regional banks are sensitive to interest rate risk as well as default risk. The study by Saunders and Schumacher (2000) provides further support to the importance of controlling risks to financial performance. By investigating the determinants of NIM for 614 banks of 6 European countries and US from 1988 to 1995, the study found that interest rate volatility has a positive significant impact on the banks profitability.

Hakim and Neamie (2001) examines the relationship between credit risk and bank's performance of Egypt and Lebanon bank in 1990s. 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. As a policy implication, the study provides important input for the policymakers in the MENA region to set better performance targets, and enable bank managers to allocate capital more efficiently across their business units. The study also contributes in terms of how commercial banks can better employ their current capital and evaluate their future performance.

Aruwa and Abdullahi (2014) examines the effects of the various risk components like credit risk, interest rate risk and operational risk on the financial performance of Deposit Money Banks in Nigeria. Their analysis was done using ordinary least square regression. It was established that a strong relationship exist between risk components and the financial performance of the banks in Nigeria as indicates by the r-squared value of 91%. However, variables that represent credit risk and the rate of capital to total weighted risk asset have positive relationship while operational and interest rate risk affects the profitability of the banks negatively.

2. Methodology

The research design used for this study is the descriptive and ex-post facto design. By descriptive it is concerned with the collection and analysis of data for the purpose of describing, evaluating or comparing current or prevailing practices, events of occurrences in DMBs in Nigeria and ex-post because the event of study has already taken place.

The population of this study consists of Deposit Money Banks listed insured by the NDIC. The table below shows the number of banks that met the capital base requirements by the CBN and were operating within the respective years.

Table 1: Population and sample size of insured DMBs in Nigeria

Years	Number of Insured and Listed Deposit Money Banks
1998	51
1999	57
2000	66
2001	90
2002	90
2003	89
2004	89
2005	25
2006	25
2007	24
2008	24
2009	24
2010	24
2011	20

Source: NDIC Annual Reports and Statement of Accounts (various issues)

The whole population above constitutes the sample of the study. For each of the various years, a pool of value was aggregated from each firm thus capturing each bank in the population. This is contained in the annual report of the Nigeria Deposit Insurance Corporation.

The techniques of data analysis used for this study is the descriptive statistic which comprised of the Mean, Maximum/Minimal for descriptive statistic, Ordinary Least Square (OLS) multiple regression model for test of relationship between risk management and financial performance.

The financial performance of the banks is measured by Return on Asset (ROA) which is the dependent variable. The independent variable which is risk management is proxy by credit risk which is the ratio of non-performing Loan to Loan and Advances and ratio of loan and advances to total deposit as used by Hamisu (2012) and Kolapo, Ayeni and Oke (2012). Another risk factor included in this study to capture operational risk is the number of frauds committed in a year. Banks are exposed to different kinds of fraud which could be internal, as in the case of frauds committed by bank staff, or external. These frauds have the effects of impacting negatively on the performance of banks and thus are also included.

The study also captures the effect of interest rate as a measure of market risk since a change in interest rate could lead to a mismatch between interest paid on deposit and the interest received on loans (Faure, 2005).

The Interest Rate "Gap" (IRG) according to Faure (2005) is calculated as follows:

$$IRG = FRL - FRA$$

where FRL is the Fixed Rate Liability and FRA being Fixed Rate Asset

$$ROA = \alpha + \beta_1 \lg \frac{NPL}{LA} + \lg \frac{LA}{TD} \beta_2 + \beta_3 \lg NFr + \beta_4 \lg IRG + \varepsilon$$

where:

ROA is the Return On Asset

$\frac{NPL}{LA}$ *is the ratio of Non Performing Laon to Loan and Advances*

$\frac{LA}{TD}$ *is the ratio of Loan and Advances to Total Deposit*

NFr is the Number of Frauds committed in the banks

IRG is the Interest Rate Gap; and

ε *is the error of estimate*

3. Results and Discussion

The variables used in this study are Return on Asset (ROA) which is the dependent variable in the test of the relationship between risk management and the performance of the banks. The independent variables in this study are: Loan and Advances to Deposit (LADP), Non-Performing Loan to Total Loan and Advances (NPL/TL), Net Interest Margin (NIM), Number of Frauds (NOFR), Total Capital to Weighted Risk Assets (TRWAA) and Value of Fraud (VFR).

Table 2 shows the results of the variables used in the study. For the period of study, the minimum financial performance is shown by the negative value of 64.72 which occurred in the year 2009. This was the year that precedes the period of the global financial crisis; banks in Nigeria were severely affected as their share values collapsed on the Nigerian Stock Exchange. The highest return of 4.82 by the deposit money banks was recorded in the year 2001. The standard deviation of 17.53 means a considerable disparity in the level of return since the average return is a loss of 1.52. As shown by the Skewness and Kurtosis value of -3 and 12 respectively, return on asset is not linear; this has been observed by Samuel, Julius and Samuel (2012) and Hamisu (2011).

Table 2: Descriptive statistics

Variables	ROA	NPL/TL	NOFR	LA/DP	IRG
Mean	-1.524667	18.20067	1131.267	66.31800	1189.311
Median	3.160000	20.13000	1133.000	64.84000	1250.251
Maximum	4.820000	32.80000	2352.000	85.20000	2774.880
Minimum	-64.72000	5.820000	182.0000	52.45000	325.6290
Std. Dev.	17.53366	8.093523	622.7716	10.65319	587.8788
Skewness	-3.439810	-0.184306	0.337064	0.613067	1.034674
Kurtosis	12.92157	2.126927	2.258081	2.231740	4.695989
Jarque-Bera	91.10418	0.561332	0.628057	1.308516	4.474111
Probability	0.000000	0.755281	0.730498	0.519828	0.106772
Sum	-22.87000	273.0100	16969.00	994.7700	17839.67
Sum Sq. Dev.	4304.009	917.0715	5429823.	1588.868	4838420.
Observations	15	15	15	15	15

Source: Computed using Eviews Version 7

The average rate of Non-performing loans and advances to total loan and advance is 18.20 and a maximum value of 32.8 in 2009. This rate is high; however, compared to a similar rate of 78.65 in Ghana Nigerian banks are still better off (Samuel, Julius & Samuel, 2012). The number of frauds committed in Nigerian banks is also a cause for concern; it has risen mostly within the year under study. The average fraud committed in a year is 1131.27 while the highest number of fraud is 2352 which was recorded in the year 2011. A high level of fraud as indicated above is capable of scaring away foreign and local investors in the sector. The ratio of loan and advances to total deposit, on the average was 66.31 and at its peak 85.20. This ratio is also very high and is an indication that in the event of default the banks face a very narrow margin to meet customers' demand and consequently, saddled with very high risk. The interest rate risk measures the effect of changes in interest rate on the gap between interest rate based incomes and interest based expenses. The average rate is 1189.311 and the maximum value of the rate is 2774.88, also the gap as shown is generally large for Nigerian banks.

The result of the regression is presented in the table above. The results in the table above show that there is a strong relationship between the variables and the performance of Nigerian Deposit Money Bank. This is indicated by the R-squared value of 91%, the remaining value of 9% is due to other variables that were not included in the model. The result, contrary to expectation, indicates that in the absence of the variables, return of the banks is reduced by 30.19% as indicated by the value of the coefficient. Also, the result shows that the ratio of total capital to risk weighted asset, non-performing loan to total loan and loan and advances to Deposit have positive relationships with return on assets of the banks, though without statistical significance as shown by their respective probability values.

Table 3: Regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-30.19944	46.65685	-0.647267	0.5336
TCWRA	0.198329	0.159626	1.242460	0.2455
NPLTL	4.825599	2.500191	1.930092	0.0857
NOFR	-0.002093	0.007764	-0.269518	0.7936
LADP	0.641348	0.462865	1.385606	0.1992
IRG	-0.087200	0.031376	-2.779190	0.0214
R-squared	0.912084	Mean dependent var		-1.524667
Adjusted R-squared	0.863242	S.D. dependent var		17.53366
S.E. of regression	6.484086	Akaike info criterion		6.865753
Sum squared resid	378.3904	Schwarz criterion		7.148973
Log likelihood	-45.49315	Hannan-Quinn criter.		6.862736
F-statistic	18.67414	Durbin-Watson stat		1.575934
Prob(F-statistic)	0.000164			

The overall model is fit as indicated by F statistic of 18.67 and the corresponding probability value of 0.000 which is less than the 5% test criteria used in the study. This implies that risk has significant effects on the return on assets of Deposit Money Banks in Nigeria.

This study found that there is a strong relationship between risk management and the performance of deposit money banks in Nigeria. However, frauds and Net Interest Margin have a negative relationship with profitability this is expected to be so, again the variables that affect the profitability of the banks negatively are those that are outside her control. This implies that as the risk of customer credit default increases the profitability of the banks also increases. This is possible if the banks included in their lending rate the proportion of credit default, thus transferring the burden back to the customers. The study also found that the level of risks in the banks measured the total weighted average risk to capital and non-performing loans to total loan and advances reduces significantly after the consolidation, meaning that risk were better managed in the post consolidation era. The study also found that the number of fraud in the banking industry increased significantly in the post consolidation era, this is attributable to increase in the number of electronic crimes in the banking sector and the fact that the banks have become larger due to recapitalization with more number of branches thus leading to higher levels of fraud. Similar result is also found in Aruwa and Abdullahi (2014), Samuel, Julius and Samuel, (2012) in Ghana and contrary to Hamisu (2011); Felix and Claudine (2008) and Altunbas (2005).

4. Concluding Remarks

Risk is a major factor that determines the success and failure of banks. The risk faced by banks range from those it has control over like credit risk and operational risk while those it has no control over are market risk and interest rate risk. This study has examined the risk management and their effects on the financial performance of deposit money banks in Nigeria. The result indicates that a positive relationship exists between non-performing loan to total asset, loan and advances to total deposit and total capital to weighted risk assets. On the other hand, there exists a significant negative relationship between interest rate risk and return on asset, also a negative relationship between frauds in Nigerian banks and performance. It is concluded that risk within the control of the banks do not distort her performance, however, those outside her control have negative effects on the financial performance of the banks.

Based on the findings and the conclusion reached in this study, the following recommendations are reached:

1. While the current risk management practices by the banks have been successful in reducing the level of risk and consequently impacted on the banks' financial performance, banks should not relent and feel safe in the hand of current risk management structures. Banks should adopt the Basel II accord into to their risk management because it has been found very useful and it is adopted globally.
2. Deposit Money Banks should engage in an encompassing risk management practice, by so doing the operational risk, credit risk and management risk will all be given attention. Because, as it stand, the risk of fraud is on the rise and this could scare away both local and foreign investors. This can be achieved when the Central Bank and the Deposit Money Banks intensify the implementation of strong security and transaction monitoring systems to prevent successful attacks in the electronic payment platforms where the frauds tend to me more prevalent.

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