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RISK MANAGEMENT AND FINANCIAL PERFORMANCE OF DEPOSIT MONEY BANKS IN NIGERIA

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ABSTRACT

The study explored the impact of risk management (credit and liquidity) on financial performance of money deposit banks in Nigeria. The study employed panel methodology and other econometric techniques such as hausman test, descriptive statistics. Results from the panel regression show a positive relationship between risk management and financial performance of money deposit banks. The study recommends that banks in Nigeria should augment their capacity in, liquidity risk analysis, and credit analysis and loan administration while the regulatory bodies should pay more attention to banks' compliance to regulations of the Bank and other Financial Institutions prudential guidelines.

Keywords: Liquidity Risk; Profitability; Credit Risk; Liquidity; Deposit Money Banks.

1.0 INTRODUCTION

The Nigerian Banking sector in recent years has undergone series of financial distress and operational failures. Banks previously performing well suddenly disclosed huge financial issues as a result of unfavourable credit exposures , interest rate position taken or derivate exposures that was supposed to reduce balance sheet risk. Cooker (1989), observes opines the main function of a bank is the collection of deposits from those with surplus cash resources and the lending of these cash resources to those with an immediate need for them. These features are required to provide guidance to member countries, including Nigeria, in having required accessibility to financial instruments to source for capital.

The Basel Committee paved way for the creation of the "New Capital Accord" which was implemented in 2007. The New Capital Accord required capital charges to be accrued for credit, market and operational risks. This is in line with the objective of protecting depositors, consumers, and the citizens against losses emerging from bank failures (Umoh, 2005). With reference since 1988, directors of the Nigerian Banking industry have displayed interest in refining the risk analysis, measurement and management capacity of firms in the banking sector. According to Soludo (2005), business operations in the financial sector was to make Nigeria money deposit banks compete positively in the global stock market and to spawn a large capital base that will make available resources for banks to settle compliance cost in the region of credit and market risk management

Risk management is at the core of lending in the banking industry. Many Nigerian banks had failed in the past due to inadequate risk management exposure. Banks are greatly opened to vast number of systematic and unsystematic risks during their business operations. Nwankwo (1990), observes that the subject of risks today occupies a central position in the business decisions of bank management and it is not surprising that every institution is assessed an approached by customers, investors and the general public to a large extent by the way or manner it presents itself with respect to volume and allocation of risks as well as decision against them. Other risks include insider abuse, poor corporate governance, liquidity risk, inadequate strategic direction, among others. These risks have greatly amplified, especially in recent decades as diversification of asset portfolios by banks have increased in recent emerging market. With respect to globalization of financial markets over the years, the operational activities of banks have increased swiftly as well as their exposure to risks.

Deposit money banks play a vital function in the economic resource distribution of countries. For survival and growth, deposit money banks need to be profitable. Beyond their middle man function, the profitability of banks has serious effects on economic growth. Good financial performance promotes high shareholders returns. As a result of this, there exists further investment thereby promoting economic growth. Also, poor financial performance of deposit money banks can lead to failure and financial crunch which have undesirable impacts on the economic growth, Ongore & Kusa (2013). Credit and liquidity problems may adversely affect the financial performance of a bank as well as its solvency if not properly managed. Credit risk management has been an essential part of the loan process in the banking sector. Deposit money banks continue to spend huge resources in credit risk management modeling with the objective of maximizing profits.

Unfortunately, existing research which investigated the effect of risk management on banks performance have produced mixed results. For example, scholars like Kithinji, (2010), Epure and Lafuente (2012) as well as others discovered that credit risk management negatively impact deposit money banks profitability. While Kuforiji (2008); Kolapo, Ayeni & Ojo (2012) holds that credit risk management has a positive relationship with banks performance. Also, several other studies have helped authenticate that credit risk management help banks improve on their profitability. Kargi, (2011), Felix and Claundine (2008), Al-Khouri (2011) amongst others found that credit risk, liquidity risk and capital risk are key variables that influence banks performance especially when profitability.

Conclusion from the review of extent literature clearly suggest that the actual relationship between risk management (credit and liquidity) and banks performance is yet to be settled and researchers do not necessarily split this risk factors into categories while embarking on finding a solution. It therefore creates a lacuna for a more recent empirical investigation to be tested in Nigeria, a country faced with so many recurring issues and recently faced recession which impacted virtually all the key sectors of the economy. This study seeks to establish the degree to which banks risk management (credit and liquidity risk) have impacted profitability of Nigerian deposit money banks.

2.0 LITERATURE REVIEW

2.1 The Concept of Risk

Risk has diverse meanings; scholars have described risk in numerous ways. Hansel (1999), sees risk as likelihood of loss; odds of casualty. Mordi (1989) posits risk to be the chances of inaccuracy, odds of an event occurring or not. These descriptions point to a particular direction (loss or mishap). With respect to this research work, we express risk as the likelihood of financial loss.

2.1.2 Types of Risk in the Activities of Nigerian Deposit Money Banks.

Liquidity Risk

The probability of a bank lacking cash when needed to operational activities and settle the credit request of customers is seen as liquidity risk. Inability to have access to cash timely may lead to loss of customers and reduced earnings. If the cash crunch perseveres, the company may end in ultimate collapse.

Credit Risk

This occurs due to customers' failure to service bank borrowed fund as well as interest charged on the loan. When customers are unable to settle their debts, these defaults result in losses that can ultimately eat into the bank's capital. Whenever a bank provides credit facility it is susceptible to credit risk (Sanusi, 2010). Other types of risks include operating risk, interest rate risks, exchange rate risks, crime risk, etc.

2.2 Empirical Literature Review

Author	Objective	Methodology	Result
Mwangi (2013)	To estimate the impact liquidity risk management on profitability of Banks in Kenya.	descriptive methodology and making us of 43 listed Banks in Kenya for period of 2010-2013	Significant negative relationship between Liquidity risk management and financial performance.
Yadollahzadeh (2010)	To evaluate the relationship between liquidity risk and performance of banks	Pooled ordinary least square regression for 2003-2010 period	The findings reveal show that liquidity risk management will lead to a decrease in the financial performance of bank.
Getahun (2015)	To evaluate credit risk management and its impact on financial performance of banks	panel data regression model period: 2009-2014 in Ethiopia	findings reveal a strong correlation between credit risk management and bank financial performance
Davies et al (2015)	To determine the impact of liquidity risk determinants on financial performance of banks	applying multiple regression and correlation analysis to analyze data from selected listed companies at the Nairobi Securities Exchange during the period of 2011 to 2015	Liquidity risk management has a positive association with financial performance of banks and that firms with high level of liquid assets perform better financially.
David (2015)	The study aimed at	using Ordinary Least	The result showed

	evaluating the connection between liquidity management and returns of shareholders in quoted deposit money banks of Nigeria	Squares (OLS) for the period of 2000-2014	that there is no significant relationship between liquidity management and Nigerian quoted Banks performance as well as return of Shareholders
Ajibike & Aremu (2015)	To determine the effect of liquidity risk on financial performance of banks	Panel methodology	The research findings revealed that liquidity levels had a positive but not significant effect on profitability of banks
Alzorqan (2013)	Determine the effect of banks liquidity risk management on performance	Panel Regression analysis for the period of 2008-2012	It shows that liquidity risk is an important determinant of banks performance
Idowu & Olausi, (2012)	study the relationship between credit risk management and banks financial performance in Nigeria	Panel regression methodology using time frame of 2005-2011	The study discovered that credit management has a significant influence on profitability of deposit money banks in Nigeria
Agbada & Osuji (2012)	study the efficacy of liquidity risk management and financial performance of deposit money banks in Nigeria	Pearson's correlation coefficient method for the period of 2003-2011	there exists a strong positive relationship between liquidity risk management and financial performance
Bassey et al. (2011)	Examine the relationship between Liquidity Management and the financial performance of deposit money banks in Nigeria	Applying simple percentages and simple regression model for the period of 2000-2010	The result shows a positive and non-significant association between liquidity management and financial performance of deposit money banks

3.0 RESEARCH METHODOLOGY

To successfully analyze the association between risk management and financial performance of deposit money banks in Nigeria, panel data regression analysis was used. . The panel data methodology is based on combined time-series and cross-sectional data. Its usefulness is evident in investigating the predictable power of the independent variables on the dependent variable.

For hypothesis (1 and 2), E-views software was employed for computation of Panel Data estimation. For the above hypotheses, the full data will be pooled applying Ordinary Least Square (OLS) regression. The panel OLS methodology was appropriate for hypothesis (1) and (2) because it was applied to estimate the association between a dependent variable and several independent variables. Panel methodology give less co-linearity among the variables, more degree of freedom and more efficiency (Gujarati & Sangeetha, 2007).
To determine what model to apply for the regression, The Hausman test was carried out to specify appropriate model to be applied in the panel regression. The Hausman test rule is as follows:
If the P-value is statistically significant, accept the alternative hypothesis (Fixed Effect Model)
If the P-value isn't statistically significant, accept the null hypothesis (Fixed/Random Effect Model). A correlation analysis was carried out to see the relationship level between the independent and dependent variable on E-views and also to test for multicollinearity.

The population of the study is the 15 deposit money banks listed on the Nigerian stock exchange and sample of the study includes the study of 10 deposit money banks out of the 15 in Nigeria including Guarantee Trust Bank, First Bank Of Nigeria, UBA Bank, Eco Bank, Fidelity Bank, Wema Bank, Sterling Bank, Zenith Bank, Diamond Bank and Access Bank of which are part of the 15 listed deposit money banks in Nigeria (CBN, 2017). Consequently, with respect to Uwuigbe (2011), a minimum of 5% of a defined population is considered an appropriate sample size. Balsely and Clover (1988) posits that it is common to use 10% of the population as sample size in research studies. The sample size of 10 is considered a proper representation of the whole population of 15 because it is larger than 10% of the population size. Data was obtained from secondary means.

3.1 Variables and Research Model

To check the relevance of the hypotheses, the research engaged a modified version of the model of Kargi (2011). The study engaged the combination of liquidity and credit risk management ensuring that Kargi's (2011) model is therefore modified to determine the association between the dependent variable (financial performance) and multiple regressors (liquidity and credit risk management). The study, therefore, established a simple model to direct our analysis. This model is as follows

Perf= f (Credit Risk Management and Liquidity Risk Management)…….eq (1)

$ROA = \beta_0 + \beta_1 NPL + \beta_2 CAR + \beta_3 LEV + \beta_4 LDR + \mu t$…………eq (2)

Where ROA= Returns on assets

NPL= Non-Performing Loans Ratio

CAR= Capital Adequacy Ratio

LEV= Leverage Ratio

LDR= Loan Deposit Ratio

μt is the error term.

β_0 is the intercept of the regression.

β_1, β_2, β_3 and β_4 are the coefficients of the regression
t = Number of period.

3.2 Measurement of Variable
Dependent Variable: performance
Performance will be measured by ROA (Return on Asset):
ROA x 100%
Independent Variables
Non-Performing Loans Ratio (NPL) = Non-Performing Loans/Total Loans
Capital Adequacy Ratio = Total Capital to Risk Weighted Assets
Leverage Ratio= Total shareholders fund divided total assets
Loan Deposit Ratio (LDR) = Total loans and advances divided by total customer's deposit

3.3 Apriori Expectation
The a priori is such that: β_1, β_2, β_3, β_4 >0. The inference here is that a positive association is anticipated between explanatory variables (β_1NPL, β_2CAR, β_3LEV and β_4LDR) and the dependent variable.

3.4 Hypotheses
For the purpose of this study, two (2) Hypotheses were generated from the review of relevant literature. They are:
Hypothesis one
H_0: there is no relationship between credit risk management and firm's financial performance.
Hypothesis two
H_0: there is no relationship between liquidity risk management and firm's financial performance

4.0 RESULTS AND DISCUSSION
This chapter presents the estimated findings of the cross sectional observation involving multiple regression estimates. All tests were carried out on econometric views (E-views) and the findings presented accordingly in the preceding section below. The study utilized a sample of hundred (100) observations covering the time span of 2006-2015 using ten money deposit banks in Nigeria. The variables of considered for the study were return on assets proxy for bank performance, banks Non-Performing Loan Ratio (NPL), Capital Adequacy Ratio (CAR), loan to deposit ratio (LDR) and leverage ratio (LEV).

4.1Data Analysis- (Inferential Analyses)
Correlation analysis was first applied to estimate the amount of relationship between the different variables under discussion. While the regression analysis was used to estimate the relationship between risk management (NPL, CAR, LDR, LEV) and firm's performance (ROA).
Table 1: Correlation Coefficients Matrix from E-views

	ROA	NPL	CAR	LEV	LDR
ROA	1.000000	0.067600	0.455546	-0.048774	0.190334
NPL	0.067600	1.000000	-0.210893	0.092946	-0.103849
CAR	0.455546	-0.210893	1.000000	0.137360	0.111778
LEV	-0.048774	0.092946	0.137360	1.000000	0.046534
LDR	0.190334	-0.103849	0.111778	0.046534	1.000000

Source: Author's computation (2017)

Table 1 present the correlation matrix of the independent and dependent variables used in this study. It basically reflects the relative strength of the relationship between the explanatory variables. According to Gujarati (2004); Okere (2017), multicollinearity could only be a problem if correlation coefficient between regressors is above 0.80. According to the analysis above, it can be seen that there is absence of multicollinearity because all variables aren't highly correlated.

4.2 Regression Analysis

The study employed panel data regression analysis to explore the association between risk management (credit risk and liquidity risk) and firm's financial performance proxied by return on asset.

Table 2: Hausman test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	4.369749	4	0.3583

Source: Author's computation (2017)

Interpretation

The Hausman test was carried out to estimate which model is appropriate for the panel regression. The Hausman test rule is as follows:
If the P-value is statistically significant, accept the alternative hypothesis (**Fixed Effect Model**)
If the p-value isn't statistically significant, accept the null hypothesis (**Fixed/Random Effect Model**)
From the analysis, it is seen that the P-value (0.3583) > 5% significance level, so the null hypothesis is accepted and the alternative accepted which interprets that a fixed/random effect model should be used for the regression analysis. The study applied a fixed effect model.

Table 3: Regression Result for Panel Data

Dependent Variable: ROA
Method: Panel Least Squares
Sample: 2006 2015
Periods included: 10
Cross-sections included: 10
Total panel (balanced) observations: 100

Variable	Coefficient	Std. Error	t-Statistic	Prob.
NPL	2.851973	0.759520	3.754965	0.0003
CAR	6.371115	1.738714	3.664269	0.0005
LEV	-1.194213	0.604882	-1.974291	0.0519
LDR	0.236733	1.152440	0.205419	0.8378
C	0.034853	0.743059	0.046904	0.9627

Effects Specification

R-squared	0.561063	Mean dependent var	1.580463
Adjusted R-squared	0.435652	S.D. dependent var	1.875202
S.E. of regression	1.408710	Akaike info criterion	3.721861
Sum squared resid	152.8037	Schwarz criterion	4.321050
Log likelihood	-163.0930	Hannan-Quinn criter.	3.964363
F-statistic	4.473804	Durbin-Watson stat	1.787967
Prob(F-statistic)	0.000000		

4.3 Discussion of Panel Regression Result

This study looks at the relationship between risk management and financial performance of Nigerian deposit money banks measured by credit risk management (CAR and NPL ratio); liquidity risk management (LDR and LEV ratio) and firm's financial performance (ROA). The result for the goodness of fit test as presented in table shows a coefficient of determination of R^2 = 0.56 (56%) and adjusted R^2 is 0.43 (43%); this shows that 56% variation in the dependent variable (ROA) is explained by the independent variables (NPL, CAR, LDR, LEV).

The p-value of the F statistics is 0.000000 which is significant at 5% explaining that the null hypothesis should be rejected.Consequently, the F-test as represented in table shows clearly the fairness and non-biasness of the model. It also explains that the independent variables are significantly linked with the dependent variable. The high and statistically significant value of the F-statistic affirms the significance of the model and the predictive ability of the independent variables. The Durbin Watson is 1.787967 which falls within the acceptable region and shows the presence of low auto-serial correlation which is common in time series data.This confirms the statistical reliability of the model. Therefore, the model shows that there is a significant relationship between risk management and financial performance of Nigerian deposit money banks. The finding resonates with the work of Kargi, (2011)

4.4 Hypotheses Testing

H_{01} there is no relationship between credit risk management and firm's financial performance.

From, the regression analysis, credit risk management was captured using non-performing loan and capital adequacy ratio, while firm's financial performance was proxied with returns on asset. From the result, the relationship between NPL and ROA has a coefficient (r) of 2.851973, signifying a positive link between the two variables with a p- value of 0.0003 significant at 5%. This shows a positive effect of non-performing loans ratio on the financial performance of the listed deposit money banks. On the premise of these results, due to its significance, we, therefore, reject the null hypothesis and accept the alternate hypothesis which states that there is a significant relationship between credit risk management and firm's financial performance.

Consequently, from the analysis, the correlation between CAR and ROA has a coefficient (r) of 6.371115, indicating a positive correlation between the two variables with a p- value of 0.0005 significant at 5%. This indicates a positive effect of credit risk management on the financial performance of the deposit money banks. This shows convincing proof about the significance of the relationship between the variables, we therefore reject the null hypothesis and accept the alternate hypothesis which states that there is a significant relationship between credit risk management and firm's financial performance. From the variables capturing credit risk management, it can be seen that there is a positive and significant relationship between credit risk management and firm's performance. This result is in line with the works of Kolapo, Ayeni and Ojo (2012).

Hypothesis Two

H_{02} there is no relationship between liquidity risk management and firm's performance

From, the regression analysis, liquidity risk management was captured using leverage and loan deposit ratio, while firm's financial performance was proxied with returns on asset. The link of LEV and ROA has a coefficient (r) of -1.194213, signifying a negative correlation between the two variables with a p- value of 0.0519 significant at 5%. This shows a negative but significant influence of leverage on the financial performance of deposit money banks. On the foundation of these results, due to its significance, we, therefore, reject the null hypothesis and accept the alternate hypothesis which states that there is a significant relationship between credit risk management and firm's financial performance.

Consequently, the correlation between LDR and ROA has a coefficient (r) of 0.236733, signifying a positive correlation between the two variables with a p- value of 0.8378 not significant at 5%. This shows a positive but non-significant effect of LDR on the financial performance of deposit money banks. This shows that there is not a definite proof about the significance of the relationship between the variables, we therefore reject the alternative hypothesis and accept the null hypothesis which states that there is no significant relationship between liquidity risk management and firm's financial performance. From the variables capturing liquidity risk management, it can be seen that there is a positive relationship between liquidity risk management and firm's performance. This result is in line with the works of Olagunju et al, (2011); Ogilo and Mugenya (2015).

5.0 SUMMARY, CONCLUSION AND RECOMMENDATIONS

The study was undertaken to study the relationship between risk management and financial performance of deposit money banks in Nigeria. This study used secondary data in examining the association between risk management variables and financial performance of 10 deposit money banks quoted on the Nigerian Stock market. The result of the estimated coefficient of the variables non-performing loans, capital adequacy ratio, leverage ratio shows significant relationship with performance of deposit money banks but loan deposit ratio has no significant effect on firm's financial performance in Nigeria. The result of this study indicates a significant direct relationship between risk management and financial performance of deposit money banks in Nigeria. Except for leverage (LEV) all other variables suggests a positive relation with the performance of the banks.

There is a significant and positive relationship between risk management and banks return on assets. This suggests that effective and efficient risk management strategy plays a determinant role in deposit money banks financial performance in Nigeria. Hence, improvement in risk management practice will yield increase returns for the banks thereby increasing deposit money banks performance. These risk factors are vital in estimating the performance of deposit money banks in Nigeria. Where a bank does not successfully control its risks, its performance will be unsteady. This depicts that credit risk and liquidity risk of banks has been responsive to policies channeled to Nigerian banks. Banks become more alarmed because loans are usually among the most unsafe of all assets and may threaten their liquidity level and lead to financial distress.

Better credit risk management and liquidity risk management results in better bank performance. Thus, it is of vital significance for banks to exercise prudent lending risk management to protect their assets and safeguard the investors' wellbeing. The recommendations are as follows;

i) Management need to be alert in setting up a credit strategy that will not negatively affects lending risk management of the banks.

ii) The bank management needs to know how credit and liquid policy affects the operation of their banks to ensure judicious utilization of deposits and maximization of profit.

iii) The central bank of Nigeria for policy purposes should frequently evaluate the lending behaviour of financial institutions.

iv) Based on the research discoveries, it is suggested that banks in Nigeria should augment their capacity in, liquidity risk analysis, and credit analysis and loan administration while the regulatory bodies should pay more attention to banks' compliance to regulations of the Bank and other Financial Institutions prudential guidelines.

v) Strengthening the securities market will have a positive impact on the overall development of the banking sector by increasing competitiveness in the financial sector. As a result banks remain under some pressure to improve their financial soundness

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