

## **Relationship between Credit Risk Management and the Performance of Money Deposit Banks in Nigeria**

**ADEBAYO, Aderemi Olalere, OLUWAREMI, Feyitimi (Ph.D.)**

*Lecturer, Department of Accounting, Banking & Finance, Osun State University, Osogbo, Osun State, Nigeria.*

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**Abstract:** *The overall objective of the study was to investigate the relationship between credit risk management and the performance of money deposit banks in Nigeria which necessitated a formulation of some hypotheses such as there is no significant relationship between Loan Loss Provision and Financial Performance of Money Deposit Banks in Nigeria among others. The population of the study is the entire twenty one (21) Money Deposit Banks in all the six geo-political zones in Nigeria out of which the following banks were selected using Simple Random Sampling technique to serve as target population for the study: First Bank Nigeria Plc, Eco Bank Plc, GTBank Plc, Access Bank Plc and United Bank for Africa (UBA) Plc. This study made use of secondary data by obtaining relevant information from the Annual Audited Reports and Prospectus of the selected banks for the years 2011-2015. Both the Descriptive and Inferential Analyses were carried out on the data with aid of Statistical Package for Social Sciences 22 and e-View. Among the findings of the Regression analysis is that there is a significant negative relationship between the Loan Loss Provision and the financial performance of Money Deposit Banks in Nigeria. Consequently, it is of crucial importance that banks practice prudent credit risk management and play within acceptable level of safety so as to ensure enhance profitability (ROE) and protect the investors' interest and depositors' funds. Better credit risk management results in better bank performance.*

**Keywords:** *Credit Risk Management, Financial Performance, Non-Performing Loans, Loan to Deposit Ratio*

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### **I. Introduction**

#### **1.1 Background**

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). The health of the commercial system has an important role in a country (Das and Ghosh, 2007), as its failure can disrupt the economic development of the country. A company's financial performance is the ability to generate new resource, from day to day operations over a given period of time. The bank performance measure can be divided into two and they are traditional measures and the market based measure (Aktan and Bulut, 2008). Credit risk management has been an integral part of the loan process in the banking system. The probability of incurring losses as a result of customers refusing to pay back their loans or other forms of credit by debtors known as credit risk are mostly encountered in the financial sector especially banks. The biggest credit risk facing banks and other financial bodies is the risk of customers or counter party default. In the 1990s, the number of players in the banking sector increased substantially and banks witnessed rising non-performing credit portfolio. This contributed immensely to financial distress in the banking sector. Also, there was the existence of predatory debtors in the banking system whose modus operandi is the abandonment of their debt in some banks only to contract new debts in other banks.

Creation of credit is the main income generating activities for banks and this involves huge risks to both the lender and the borrower. The risk of a trading partner not fulfilling his or her obligation as per the contract on the due date or any date thereafter can greatly affect the smooth running of the bank's business. On the other hand, a bank with high credit risk has high bankruptcy risk that puts the depositor in danger. In a bid to survive and maintain adequate profit level in this highly competitive environment, banks have tended to take excessive risks. But then, the increasing tendency for greater risk taking had resulted in insolvency and liquidation of a large number of banks (Sinkey, 2002).

However, despite the creation of Risk Management Department in all the banks, which is responsible for managing the banks risk including credit risk, available records shows that the spate of bad loans (non-performing loans) was as high as 35% in Nigeria deposit banks between 1999 and 2009, Sanusi (2010). The increasing level of non-performing loan rates in banks books, poor loan processing, undue interference in the loan granting process, inadequate or absence of loan collaterals among other things are linked with poor and ineffective credit risk management that negatively impact on banks performance. This is a very disturbing

phenomenon because the high level of non-performing assets in the bank's portfolio if not brought under control, might erode the capital base of the banks and reduce its profitability.

The Nigerian banking industry has been strained by the deteriorating quality of its credit assets as a result of the significant dip in equity market indices, global oil prices and sudden depreciation of the naira against global currencies (BGL Banking Report, 2010). The poor quality of the banks' loan assets hindered banks to extend more credit to the domestic economy, thereby adversely affecting economic performance. This prompted the Federal Government of Nigeria through the instrumentality of an Act of the National Assembly to establish the Asset Management Corporation of Nigeria (AMCON) in July, 2010 to provide a lasting solution to the recurring problems of non-performing loans that bedeviled Nigerian banks.

## **1.2 Statement of the Problem**

The recent global financial crisis was caused by some phenomenal factors. As home values declined, many borrowers stopped paying (defaulted) on their home loans (mortgages.) With prices of houses declining and increasing rates of default, banks suffered large losses. Some banks suffered larger losses than other banks because they made riskier mortgage loans or owned mortgages concentrated in areas of the countries with the largest housing price declines. Many banks with large losses were bought by other, stronger banks. The financial crisis accelerated an ongoing fundamental change in the banking industry as banks diversify their services to become more competitive.

The financial crisis has allowed stronger banks to buy other banks. The losses of these banks would have been minimized if their credit risks were better managed. As the global crisis deepened, Nigeria became affected, especially the financial sector. Banks in Nigeria were faced with a major crisis between 2008 and 2009. Besides the effect from the global financial crisis, this Nigerian bank crisis could also be traced to the high figures of non-performing loans in some of the banks as discovered by the Central Bank of Nigeria. This can also be traceable to a default in credit risk management. Hence, this study seeks to empirically assess the influence of credit risk management of money deposit banks in Nigeria, and to also assess whether proper management of credit risk would avert the incidence of bank crisis as experienced in earlier years.

## **1.3 Objectives of the study**

The general objective of this study is to investigate the relationship between credit risk management and the performance of money deposit banks in Nigeria. The specific objectives are:

- i. To determine the relationship between Loan Loss Provision and Financial Performance of Money Deposit Banks in Nigeria.
- ii. To examine the relationship that exists between Non-Performing loan and Financial Performance of Money Deposit Banks in Nigeria.
- iii. To assess the relationship that exists between Loan to Deposit Ratio and Financial Performance of Money Deposit Banks in Nigeria.

## **1.4 Research Hypothesis**

The following testable hypotheses are formulated and in line with research questions and are therefore subjected to empirical investigation. The hypotheses are stated as:

- H<sub>01</sub>: There is no significant relationship between Loan Loss Provision and Financial Performance of Money Deposit Banks in Nigeria.
- H<sub>02</sub>: There is no significant relationship between Non performing loan and Financial Performance of Money Deposit Banks in Nigeria.
- H<sub>03</sub>: There is no significant relationship between Loan to deposit ratio and Financial Performance of Money Deposit Banks in Nigeria.

## **II. Literature Review**

### **2.1 Theoretical Framework**

Bank Risk Management Theory which was developed by David H. Pyle University of California was used to study why risk management is needed, and outlines some of the theoretical underpinning of contemporary bank risk management, with an emphasis on market and credit risks. This theory indicates that credit and market risks have an effect directly or indirectly on the banks survival. As applied to this study, this theory holds that researcher would expect the independent variables credit risk indicators to influence or explain the dependent variable which are banks profitability because without effective and efficient credit risk management, banks profitability, liquidity, solvency are unthinkable (David, 1997).

In the same vein Theory of Multiple-Lending **proposes** that banks should be less inclined to share lending (loan syndication) in the presence of well-developed equity markets. Both outside equity and mergers and acquisitions increase banks lending capacities, thus reducing their need of greater diversification and

monitoring through share lending (Karceski, 2004;). This theory has a great implication for banks in Nigeria in the light of the recent 2005 consolidation exercise in the industry.

Furthermore, Loan Pricing Theory in the literature says that Banks cannot always set high interest rates. Banks should consider the problems of adverse selection and moral hazard since it is very difficult to forecast the borrower type at the start of the banking relationship (Drehman et al., 2008). If banks set interest rates too high, they may induce adverse selection problems because high-risk borrowers are willing to accept these high rates. Once these borrowers receive the loans, they may develop moral hazard behavior or so called borrower moral hazard since they are likely to take on highly risky projects or investments (Chodecai, 2004). From the reasoning of Stiglitz and Weiss, it is usual that in some cases we may not find that the interest rate set by banks is commensurate with the risk of the borrowers.

Another relevant theory for this study is Agency Theory. This theory tries to resolve the problem that arises when the desires and goals of the principal and agent are in conflict, and when it is difficult or expensive for the principal to verify the agent's performance. Such difficulties arise due to incomplete information, incompleteness of the contracts, and the problem of monitoring behavior (Jensen & Meckling, 1976). The theory assumes that the principal and agent are engaged in cooperative behavior, but have differing attitudes toward risk (Eisenhardt, 1989) and provides a guide on how both parties can best structure a relationship to maximize the chances that the goals of the principal are achieved. Central to this assumption is a belief that the agent does not share the principal's goals and thus will not accomplish them adequately if left to its own devices, a behavior referred to as "shirking". This theory will assist to explaining the information asymmetry that exists between the shareholders (owners) of Banks and their managers which usually result to moral hazard and adverse selection on the part of the business managers (agents). Credit Risk Management is one of the areas where the moral hazard and adverse selection of the banks' debtors could be perpetrated.

## **2.2 Conceptual Framework**

According to Raghavan (2005) Credit risk consists of primarily two components, viz. Quantity of risk, which is nothing but the outstanding loan balance as on the date of default and the Quality of risk, which is the severity of loss defined by Probability of Default as reduced by the recoveries that could be made in the event of default. Thus credit risk is a combined outcome of Default Risk and Exposure Risk. The elements of Credit Risk are Portfolio risk comprising Concentration Risk as well as Intrinsic Risk and Transaction Risk comprising migration/down gradation risk as well as Default Risk. Al-Khoury, R. (2011) defines credit risk as the chance that a debtor or issuer of a financial instrument whether an individual, a corporation, or a nation will not refund principal and other investment related cash flows according to the terms specified in a credit contract or agreement, credit risk means that payment may be delayed or destroyed, which can result to cash flow difficulties and influence a bank's liquidity.

Demirguc-Kunt and Huzinga (1999) opined that credit risk management is in two-fold which includes, the realization that after losses have occurred, the losses becomes unbearable and the developments in the field of financing commercial paper, securitization, and other non-bank competition which pushed banks to find viable loan borrowers. Credit risk according to Basel Committee of Banking Supervision Basel Committee on Banking Supervision (2001) and Gostineau (1992) is the possibility of losing the outstanding loan partially or totally, due to credit events, failure to pay a due obligation, repudiation/moratorium or credit rating change and restructure.

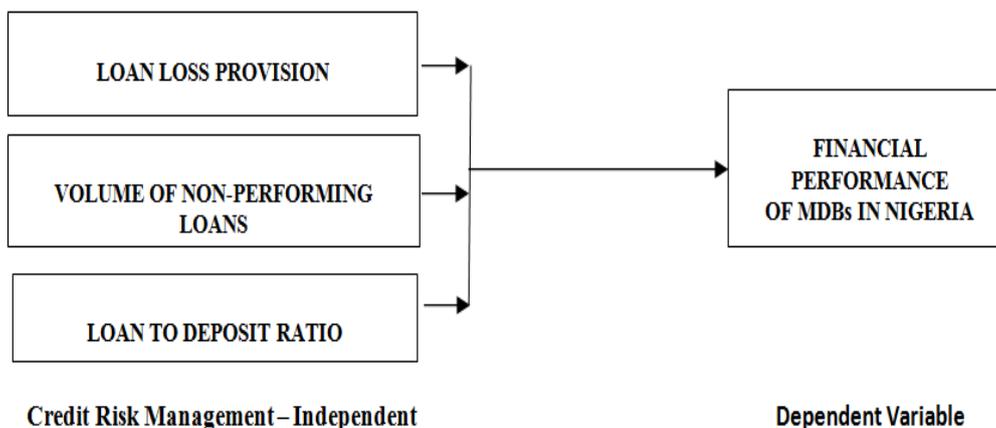
Heffernan (1996), observed that credit risk as the risk that an asset or a loan becomes irrecoverable in the case of outright default, or the risk of delay in the servicing of the loan. Thus, when this occurs or becomes persistent, the performance, profitability, or net interest income of banks is affected. An increase in bank credit risk gradually leads to liquidity and solvency problems. Credit risk may increase if the bank lends to borrowers it does not have adequate knowledge about.

Koehn and Santomero (1980), Kim and Santomero (1988) and Athanasoglou, Brissmimis & Delis (2005), suggested that bank risk taking has pervasive effects on bank profits and safety. Credit risk management maximizes bank's risk rate of return by maintaining credit risk exposure within acceptable limit in order to provide framework for understanding the impact of credit risk management on banks' profitability. Bobakovia (2003) asserts that the profitability of a bank depends on its ability to foresee, avoid and monitor risk, possible to cover losses brought about by risk arisen and it also has the net effect of increasing the ratio of substandard credits in the bank's credit portfolio and decreasing the bank's profitability. The banks supervisors are well aware of this problem, it is however very difficult to persuade bank managers to follow more prudent credit policies during an economic upturn, especially in a highly competitive environment. The conservative managers might find market pressure for higher profits very difficult to overcome.

Owojori, Akintoye & Adidu (2011) highlighted that available statistics from the liquidated banks clearly showed that inability to collect loans and advances extended to customers and directors or companies related to directors/managers was a major contributor to the distress of the liquidated banks. 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 (as per entity's risk appetite) which is a critical component of a comprehensive approach to risk management and essential to the long-term success of any banking organization. Due to the increasing spate of non-performing loans (Oke, Ayeni & kolapo (2012); the Basel II Accord emphasized on credit risk management practices; compliance with which ensures sound approach to mitigating credit risk consequently achieving improved commercial banks profitability.

Although, some considerable amount of literature exists on the interaction between credit management and banks' financial performance, This study however looked at this interaction from the point of Loan Loss provision, Non-performing loans and the Loan/Deposit Ratio as the proxy for the Credit Risk Management and Performance of Money Deposit banks from the Return on Equity (ROCE) Hence, the study variables are conceptualized into a framework as illustrated by the diagram below:



**Figure 1:** Conceptual Framework

The framework illustrates the hypothesized relationship between the independent variable (credit risk management) and the dependent variable (performance of money deposit bank).

### 2.2.1 Loan Loss Provision and Financial Performance of Money Deposit Banks

One of the principal duties of financial institutions is to provide loans, this is typically the source of income to banks, bank loans and credit also constitute one of the ways of increasing money supply in the economy. As banks give loans, they need to make provisions for loan losses in their books. The higher this provision becomes, relative to the size of total loans, the riskier a bank's loan asset becomes. An increase in the value of the provision for loan losses relative to total loans is an indication that the bank's assets are becoming more difficult to collect. Credit risk, defined as the ratio of loan loss provision to total loans. This ratio is commonly used in the literature. A high ratio is considered an indicator of poor credit risk management (Hull & John 2012).

### 2.2.2 Non-Performing Loan and Financial Performance of Money Deposit Banks

This refers to loans that are in default or close to being in default. Many loans become non-performing after being in default for three months, but this can depend on the contract terms. A loan is nonperforming when payments of interest and principal are past due by 90 days or more, or at least 90 days of interest payments have been capitalized, refinanced or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons to doubt that payments will be made in full. Non-performing loans are loans that give no return to the bank but also attract additional cost of recovery, apart from the provision requirement which tends to affect the bank liquidity adversely. Non-performing loan is an indicator of bank poor performance, an asset become Non-performing when the customer cannot meet the repayment agreement as at when due.

Non-performing loan can be attributed to both controllable and non-controllable factors. Financial institutions are expected to take pre-caution both before and after granting a credit facility, the higher the level of non-performing loan cases of a bank, the lower the capital adequacy and liquidity of the bank. One of the major risks that faces banks is the risk of uncertainty about the full repayment of a loan as at when due, non-performing loan is an inevitable risk to money deposit banks. Poor credit management will not only lead to loss of profit for a bank but also affect the operation of a bank, in terms of customer loyalty, goodwill, service delivery, efficiency and low return on shareholders fund. Non-performing loan should be tackled by a financial institution with the highest level of seriousness in other to ensure the smooth running of bank year in year out; Non-performing loans contribute in no good way to both the profitability and performance of a bank.

### **2.2.3 Loan to Deposit Ratio and Financial Performance of Money Deposit Banks**

The loan to deposit ratio is used to calculate a bank's ability to cover withdrawals made by its customers. A bank that accepts deposits must have a certain measure of liquidity to maintain its normal daily operations. Loans given to its customers are mostly not considered liquid meaning that they are investments over a longer period of time. Although a bank will keep a certain level of mandatory reserves, they may also choose to keep a percentage of their non-lending investing in short term securities to ensure that any monies needed can be accessed in the short term. Loan to deposit ratio is a commonly used statistics for assessing a bank's liquidity by dividing the banks total loans by its total deposits. This number is expressed as a percentage. If the ratio is too high, it means that banks might not have enough liquidity to cover any unforeseen fund requirements; if the ratio is too low, banks may not be earning as much as they could be. Banks fund their lending either via deposits or borrowing. Deposits are considered to be a more stable form of funding (unless there are doubts about the solvency of the bank) and in the current environment the loan to deposit ratio is one of the key risk metrics to consider when looking at a bank (Boy, 2008).

### **2.2.4 Financial Performance of Money Deposit Banks**

Performance is said to be the yardstick for evaluating what task has been done and to what extent. Bank performance can be defined as the level to which the operations and activities carried out by banks can be assessed. Carletti (2006) explained Return on Equity (ROE) as an Indicator of profitability determined by dividing net income for the past 12 months by common stockholder equity (adjusted for stock splits). Result is shown as a percentage. Investors use ROE as a measure of how a company is using its money. ROE encompasses the three pillars of corporate management: profitability, asset management, and financial leverage.

By seeing how well the executive team balances these components, investors can not only get an excellent sense of whether they will receive a decent return on equity but can also assess management's ability to get the job done. Return on equity is calculated by taking a year's worth of earnings and dividing them by the average shareholder equity for that year. The earnings number can come directly from the Consolidated Statement of Earnings in the company's most recent annual filing with the Securities and Exchange Commission (SEC).

### **2.3. Empirical Studies**

Takang and Ntui (2008) examined the relationship between banks' profitability (ROE, ROA) and loan losses (Non-Performing Loans/ Total Loans). Their results showed that non-performing loan of the financial institutions is significantly negatively related to (ROE) by 1,506 percent. They also found out that the banks with higher interest income (net interest/Average total assets, interest net /total income) also have lower bad loans (NPL); how that non-performing loan of the financial institutions is significantly negatively related to profitability. The parameter value shows that 1 percent increase in non-performing loans decreases profitability (ROA) by 0. 4168 percent.

Iwedi and Onuegbu (2014), carried out an empirical investigation into the influence of credit risk and performance of banks in Nigeria over the period of 15 years (1997-2011). Five banking firms were selected from the twenty existing money deposit banks in Nigeria using judgmental sampling techniques. Data were sourced from the annual reports and accounts statement/sheets of the banks in the sample. The data comprises of time-series and cross sectional data which were pooled into panel data set and estimated using panel data regression techniques. The result shows that there is a positive relationship between Ratio of non-performing loan to loan to deposit ratio (LogNPL) and banks performance (LogROA). This indicates that banks in the study carry a very minimal level of non-performing loans in their loan portfolio and as such this does not conform to our appropriate expectations.

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

Eduardus, Hermeindito, Putu & Supriyanta (2007) studied the inter-relationship between risk management and bank performance after relating both to corporate governance using triangle gap model. They had non-performing loans and business risk as proxy variables for risk management, to which it was explained that non-performing loans specifically relates to credit risk. The proxy for bank performance was return on equity and value at risk. VAR describes the quintile of the projected distribution of gains and losses over the target horizon. Their result showed that nonperforming loan (NPL) and business risk (BR) have significant effect on Value at Risk (VAR) at 1% level of alpha. Both NPL and BR have positive effect on VAR. Furthermore, ROE has significant effect on VAR at 1% level of alpha. ROE has negative effect on VAR. This result confirms risk management has significant effect on bank performance. He further listed some advantages

that are available to banks which better implement the risk management and includes: increase in bank reputation and opportunity to attract more wide customers in building their portfolio of fund resources; increases in bank efficiency and profitability

Ahmed, Takeda and Shawn (1998) in their study found that loan loss provision has a significant positive influence on non-performing loans. Therefore, an increase in loan loss provision indicates an increase in credit risk and deterioration in the quality of loans consequently affecting bank performance adversely. Felix and Claudine (2008) investigated the relationship between bank performance and credit risk management. It could be inferred from their findings that return on equity (ROE) and return on assets (ROA) both measuring profitability were inversely related to the ratio of non-performing loan to total loan of financial institutions thereby leading to a decline in profitability.

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

### **III. Materials and Research Methodology**

The population of the study consists of the whole elements which are being studied and on which conclusions of the research work would be based. The population of this research work covers all the twenty one (21) Money Deposit Banks in all the six geo-political zones in Nigeria. These Banks met the capitalization requirements as specified by the Central Bank of Nigeria (CBN). Simple random sampling was adopted to give equal chance to each of the twenty one (21) banks from being selected. At the end of this exercise five (5) money deposit banks selected include: First Bank Nigeria Plc, Eco Bank Plc, GTBank Plc, Access Bank Plc and United Bank for Africa (UBA) Plc. This study made use of secondary data by obtaining relevant information from the Annual Audited Reports and Prospectus of the selected banks for the years 2011-2015. The regression model for this study is:

$$P(\text{ROE})_{it} = \alpha + \beta \text{LLP}_{it} + \beta \text{NPL}_{it} + \beta \text{LDR}_{it} + \mu_{it}$$

Where:

P: Performance, with 1 proxied by ROE: Return on equity as a proxy for performance

LLP : denotes loan loss provision ratio to Total Loans (LLP/TL)

NPL : denotes non-performing loans ratio to Total loans (NPL/TL)

LDR : denotes Total loan to Total deposit ratio (TL/TD)

$\alpha$  is the intercept and  $\beta$  is the parameter of explanatory variable

$\mu$  represents the disturbance terms.

i represent all the 5 banks in the sample

t the 5 time period

### **IV. Result and Discussion**

This section of the research work deals with the analysis of data collected for the study and interpretation of the analysed results. The researchers conducted a regression analysis of the variables in consideration and a test of the hypothesis formulated earlier in the study. All data used were collected from the Annual reports and financial statement of the selected money deposit banks in Nigeria used by the researcher for the purpose of this research work which are Access Bank Plc, First Bank Plc, United Bank for Africa Plc (UBA), Eco Bank Plc, GTBank Plc, for various years. The data set covers the period between 2011- 2015, and is presented in a tabular format below of this research report. The tables below have the following keys to the variables: Total Loan- TL, LLP- Loan Loss Provision, Total Deposit- TD, Non-Performing Loans-NPL , Return on Equity-ROE, Non-performing Loan Ratio-NPLR, Loan Loss Provision Ratio-LLPR, Loan to Deposit Ratio.-LDR.

The descriptive table 4.1 shows the statistical analysis of each of the dependent variable (ROE) and independent variables (LLP, NPL and LD) employed in the study. The statistics are in term of mean and standard deviation. The average return on equity (ROE during the year under review is 7.981200 while the standard deviation is 82.24680). The average non-performing loan (NPL) during the years under review is 5.64 while the standard deviation is 1.15. The average loan loss provision during the years under review is 33118210 while the standard deviation is 85400423. The average loan loss provision (LLP ratio) during the years under review is 3.243200 while the standard deviation is 3.957784.

The average loan to deposit ratio (LD ratio) during the year under review is 58.18440 while the standard deviation is 13.49416. The average non-performing loan ratio (NPL ratio) during the year under review is 529.4328 while the standard deviation is 1159.393. The average total deposit (TD) during the year under

review is 1.88 while the standard deviation is 3.12. The average Total loan loss (TL) during the year under review is 1.16 while the standard deviation is 2.14. Based on the descriptive analysis above it can be concluded that non-performing loan (NPL) has the highest mean value of 539817.450 this implies that the two selected bank have a huge amount in non-performing loan this can be as a result of ineffective credit management in place while return on equity (ROE) has the lowest mean value of 0.0179.

The mean of LLP and ROE appear as negative values due to the negative values of ratios from some banks. The minimum values for LLP, LLPR and ROE also negative due to negative values representing losses in the data. The skewness for all the variables is less than 10 and also fulfils the requirement for normality test by quantifying the shape of the distribution, given the expected values with a Gaussian distribution.

**Table 4.1** Descriptive table

	LD_RATIO	LLP	LLP_RATIO	NPL	NPL_RATIO	ROE	TD	TL
Mean	58.18440	33118210	3.243200	5.64E+08	529.4328	-7.981200	1.88E+09	1.16E+09
Median	57.33000	10711114	2.010000	26283680	2.810000	10.69000	1.25E+09	7.35E+08
Maximum	93.87000	4.27E+08	15.93000	4.08E+09	4133.500	25.67000	1.64E+10	1.12E+10
Minimum	39.06000	-264000.0	-0.030000	8317000.	0.230000	-394.0000	1.47E+08	67236605
Std. Dev.	13.49416	85400423	3.957784	1.15E+09	1159.393	82.24680	3.12E+09	2.14E+09
Skewness	0.807652	4.197130	2.110367	1.884431	1.999960	-4.394866	4.280171	4.333798
Kurtosis	3.207460	19.71025	6.792826	5.225538	5.668065	21.07837	20.59064	20.88224
Probability	0.251232	0.000000	0.000000	0.000046	0.000006	0.000000	0.000000	0.000000
Jarque-Bera	2.762758	364.2669	33.54180	19.95556	24.08117	420.9237	398.6562	411.3560
Sum	1454.610	8.28E+08	81.08000	1.41E+10	13235.82	-199.5300	4.69E+10	2.91E+10
Sum Sq. Dev.	4370.218	1.75E+17	375.9373	3.17E+19	32260607	162348.8	2.33E+20	1.10E+20
Observations	25	25	25	25	25	25	25	25

Source: Eviews Computations

#### 4.2 Correlation Coefficient

The strength of the relationship is shown through Correlation Coefficient (depicted by r) which can have a range from -1.00 to + 1.00. A correlation having 0 shows no relationship at all, a correlation having 1.0 shows a perfect positive relationship while that of -1.0 shows a perfect negative correlation. As put forward by Cohen (1988), the interpretation of result between 0 and 1 is: r = 0.10 - 0.29 or -0.10 to -0.29 (weak); r = 0.30 - 0.49 or -0.30 to -0.49 (moderate) and r = 0.50 - 1.0 or -0.50 to -1.00 (strong). The above table 4.1.2 shows that the correlation between return on equity (ROE) and non-performing loan (NPLR) (-0.498) which implies a moderate negative relationship between non-performing loan and Return on Equity. The correlation between return on equity (ROE) and loan loss provision ratio (LLPR) is -0.677 which indicate a strong negative relationship between return on equity (ROE) and loan loss provision ratio (LLPR). Finally, the correlation between return on equity (ROE) and loan deposit ratio (LDR) is 0.267 which indicate a weak positive relationship between return on equity (ROE) and loan deposit ratio (LDR).

**Table 4.1.2** Correlations Table

		NPLR	LLPR	LDR	ROCE
NPLR	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	25			
LLPR	Pearson Correlation	.012	1		
	Sig. (2-tailed)	.002			
	N	25	25		
LDR	Pearson Correlation	.104**	-.162**	1	
	Sig. (2-tailed)	.000	.000.		
	N	25	25	25	
ROCE	Pearson Correlation	-.498	-.677**	.267	1
	Sig. (2-tailed)	.000	.000	.000	
	N	25	25	25	25

\*. Correlation is significant at the 0.05 level (2-tailed).

\*\*..Correlation is significant at the 0.01 level (2-tailed).

#### 4.3 Regression Analysis and Hypothesis Testing

This section deals with examination of the relationship that exist between the variables identified in the study as stated in the research objectives and the hypothesis. The model formulated earlier is tested using the Univariate and Multiple linear regression.

### 4.3.1 Univariate Regression Analysis

The linear regression analysis models the relationship between the dependent variable and independent variable. The coefficient of determination ( $r^2$ ) and correlation coefficient ( $r$ ) shows the degree of association between these two variables among listed manufacturing companies in Nigeria. The results of the linear regression in Table 4.3 indicate values obtained  $r^2$  and  $r$  each relationship with their respective significance position using ANOVA test. Their beta values were obtained from the model summary table as obtained from SPSS

**Table 4.3 Univariate Regression Analysis**

Variable	Model	B	R	$r^2$	Sig.
LLPR -> ROCE	$FP = \beta_0 + \beta_1(LLPR) + e$	14.06	-0.677 <sup>a</sup>	0.458	.000
NPLR -> ROCE	$FP = \beta_0 + \beta_2(NPLR) + e$	3.11	-0.498	0.248	.000
LDR -> ROCE	$FP = \beta_0 + \beta_3(LDR) + e$	2.68	-0.267	0.071	.000

This table 4.3 shows that there is a negative association between financial performance and each variable from Independent Variable as absolute value of 'r' obtained ranged from 26.7% to 67.7%. The explanatory power of each independent variable to a unit change in financial performance, as depicted by 'r-square', ranged from 7.1% to 45.8%. All the independent variables have significant influence on the financial performance as their  $p < 0.05$  significant level.

### 4.3.2 Multiple Regression Analysis

The proposed model for this study integrated three constructs, and the financial performance proxied by Return on Capital Employed (ROCE) was obtained for 5 years (2011-2015). The essence of this study was to examine the interaction of all these variables and come forth with a virile predictive model beneficial to operators of Money Deposit Banks and the country at large. In the light of this, it is imperative to ascertain joint interactions of all constructs with the dependent variable thus the following function and the operational equation:  $P(ROE)_{it} = \alpha + \beta_{LLR}it + \beta_{NPLR}it + \beta_{LDR}it + \mu_{it}$ . Running the data through the Statistical Package for Social Science (SPSS 20) we obtained the following tables

**Table 4.4 Model Summary**

Model	R	R Square	Adjusted R Square
1	.696 <sup>a</sup>	.485	.481

**Table 4.5 Anova**

Model		Sum of Squares	Df	Mean Square	f	Sig.
1	Regression	78684.333	3	26228.111	6.583	.003 <sup>b</sup>
	Residual	83664.515	21	3984.025		
	Total	162348.847	24			
a. Dependent Variable: ROE						
b. Predictors: (Constant), LD ratio, LLP ratio, NPL ratio						

**Table 4.6 Coefficients**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-5.263	63.204		-.083	.934
	LLP ratio	-12.218	4.028	-.588	-3.033	.006
	NPL ratio	-.008	.014	-.112	-.556	.000
	LD ratio	.707	1.014	.116	.697	.003
a. Dependent Variable: ROE						

### 4.3.3 Interpretation

The coefficients of NPL and LLP show that there is inverse relationship with ROE while LD shows a positive relationship between with ROE. The r-squared proves that non-performing, loan loss provision and loan deposit is responsible for 48.5% change in return on equity. The regression equation can further describe this change using the regression equation obtained from value in the coefficient table, by applying dependent-variable score for each independent-variable score. Each x value substituted into the equation and the y value that results provides an ordered pair that falls on the regression line thus:  $ROE = -5.263 - 12.218LLP - 0.008NPL + 0.707LD + 63.2$

**4.4 Test of Hypotheses**

CRITERIA	LLPR	NPLR	LDR
B			
Univariate	14.06	3.11	2.68
Multiple	-12.218	-0.008	0.707
<b>Decision</b>			
$\beta = 0$ ; Accept Ho	reject	Reject	Reject
$\beta \neq 0$ ; Accept H1	accept	Accept	Accept
p-Value			
Univariate	0.000	0.000	0.000
Multiple	0.006	0.000	0.003
<b>Decision</b>			
$p > 0.05$ Accept Ho	reject	Reject	reject
$p \leq 0.05$ Accept H1	accept	Accept	accept

Using both the Beta value( $\beta$ ) and the Significant Value (p-value) criteria (as obtained under Univariate and Multiple Regression) to test the Hypotheses, there is a clear consistency in final decision obtained under the two criteria as the study failed to accept any of the Null Hypotheses (Ho1, Ho2 and Ho3) set with respect to each specific objective. Thus, there is significant relationship between Loan Loss Provision and Financial Performance of MDBs in Nigeria, Volume of Non-Performing Loans and Financial Performance of MDBs in Nigeria and Loan Deposit Ratio and Financial Performance of MDBs in Nigeria.

**4.5 Discussion of Findings**

The test of hypothesis one shows inverse relationship between loan loss provision and performance of Money deposit banks. However, the relationship is significant at 5% because the probability value is lesser than 0.05. It was also discovered that loans decreased the profitability of Nigerian banks. This is at variance with the findings of Kolapo, Ayeni & Oke (2012) who found positive relationship. The inverse relationship is true of Nigerian banking system during the period under study when most loans and advances were concentrated in the stock market to create what is known as margin loans. (This is the art of granting loans to stock brokers to purchase share using the share as security for the loan). Unfortunately, most of these loans were lost as a result of global financial crisis when foreign portfolio investors had to divest their funds.

Neely & Wheelock (1997) examined whether loan loss provisions taken by money central banks and other large banks in the 1980s contributed to the increased dispersion of state-level bank earnings in those years and concluded that these factors had some effect on dispersion of state-level bank earnings. Further analysis led to the conclusion that the nine money central banks with significant foreign loan exposure dramatically influenced average ROE in their states in 1987 and 1989. Without its six money centre banks, New York would have posted state-level ROE of - 0.05 percent in 1987, instead of its actual - 0.66 percent.

The test of hypothesis two shows inverse relationship between non-performing loan and performance of Money deposit banks. However, the relationship is significant at 5% because the probability value is lesser than 0.05. The increase in non-performing loan over time would cause 3.5% lower in return on equity. The negative relationship between NPLR and ROE are in accordance with most of the previous researches which are conducted in one specific country, including the one conducted by Kargi (2011) in Nigeria, one conducted by Epure & Lafuente (2012) in Costa-Rican banking industry, one conducted by Ara, Bakaeva & Sun (2009) in Sweden and one conducted by Felix & Claudine (2008). All the mentioned researchers have found an inverse relationship between the NPLR and ROE. The test of hypothesis three shows a positive relationship between loan to deposit ratio and performance of Money deposit banks. However, the relationship is significant at 5% because the probability value is lesser than 0.05.

**V. Conclusion And Recommendations**

This study investigated the influence of credit risk management on performance of money deposit banks in Nigeria. From statistical evidence, it is concluded that there is a significant relationship between credit risk management (in terms of loan performance and bank performance (in terms of profitability). Thus, it is of crucial importance that banks practice prudent credit risk management and play within acceptable level of safety so as to ensure enhance profitability (ROE) and protect the investor’s interest and depositors funds. Better credit risk management results in better bank performance. The study also reveals that banks with good or sound credit risk management policies have lower loan default ratios (bad loans) and higher interest income (profitability). The study also reveals banks with higher profit potentials can better absorb credit losses whenever they crop up and therefore record better performances.

Based on the result from the research hypotheses, the following recommendations should be given consideration by Nigeria’s Money Deposit Banks for effective credit risk management and good performance:

1. Policies already put in place for the management and measurement of credit risk should be reviewed from time to time to ensure its effectiveness that is, there should be policy updating.
2. Assessment and the continuous monitoring of counterparty and portfolio to know when loan is becoming non-performing.
3. Bank managers should put more efforts to the credit risk management, especially to control the non-performing loan (NPL) by extensively evaluating their credit customer's capacity to pay promptly both the principal and the interest before extending the facility.
4. Finally the Central Bank of Nigeria (CBN) should ensure strict adherence of all the banks to her stipulated credit risk management policies. Also, figures and other information contained in the statutory Returns rendered to CBN should be further verified from the cumulative figures disclosed in the published annual reports of the banks.

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**Appendix: Financial Data from Published Annual Reports of Banks (2011-2015)**

**ACCESS BANK**

Year	TL (#)	LLP (#)	TDP (#)	NPL (#)	ROE(%)	NPLratio(%)	LLPratio(%)	LDPratio(%)
2011	490877501	19155497	522922292	23308639	2.81	4.75	3.9	93.87
2012	554592199	11616078	1093979220	13240000	15.3	2.39	2.09	50.69
2013	735300741	6685033	1217176793	17924179	10.69	2.44	0.91	60.41
2014	1019908848	10609300	1324800611	19966522	14.57	1.96	1.04	76.99
2015	1243215309	13287613	1528213883	19699690	16.35	1.58	1.07	81.35

Source: Access bank Annual reports 2011-2015

**UBA BANK**

Year	TL (#)	LLP (#)	TDP (#)	NPL (#)	ROE (%)	NPL ratio (%)	LLP ratio (%)	LDP ratio (%)
2011	552526000	7312000	1216511000	12450000	-4.37	2.25	1.32	45.42
2012	570714000	1527000	1461131000	8583000	21.5	1.5	0.27	39.06
2013	796942000	-264000	1797376000	8317000	17.91	1.04	-0.03	44.34
2014	884587000	2292000	1812277000	10522000	14.21	1.19	0.26	48.81
2015	822694000	2418000	1627060000	13043000	12.27	1.59	0.29	50.56

Source: UBA bank Annual reports 2011-2015

**FIRST BANK**

Year	TL (#)	LLP (#)	TDP (#)	NPL (#)	ROE(%)	NPLratio(%)	LL ratio(%)	LDPratio(%)
2011	1144461000	32165000	1784490000	27882000	6.11	2.44	2.81	64.13
2012	1316407000	9847000	2171807000	36978000	19.11	2.81	0.75	60.61
2013	1473839000	19838000	2570719000	41448000	16.93	2.81	1.35	57.33
2014	1794037000	20924000	2551022000	38070000	18.76	2.12	1.17	70.33
2015	1457285000	120046000	2399822000	137651000	8.05	9.45	8.24	60.72

Source: First bank Annual reports 2011-2015

**ECO BANK**

Year	TL (#)	LLP (#)	TDP (#)	NPL (#)	ROE(%)	NPLratio(%)	LLPratio(%)	LDPratio(%)
2011	410150000	15260000	890425000	17618000	25.67	4.3	3.72	46.06
2012	546873000	12342000	1043213000	22372000	5.08	4.09	2.26	52.42
2013	625907000	32606000	1118401000	34823000	7.44	5.56	5.21	55.96
2014	892721000	32994000	1251015000	38235000	14.99	4.28	3.7	71.36
2015	11200349000	427081000	16427553000	26283680	4.26	0.23	3.81	68.18

Source: ECO bank Annual reports 2011-2015

**WEMA BANK**

Year	TL (#)	LLP (#)	TDP (#)	NPL (#)	ROE(%)	NPL ratio (%)	LLP ratio (%)	LDP ratio (%)
2011	67236605	10711114	147387408	2014563000	-67.5	2996.23	15.93	45.62
2012	73745728	10001172	174302424	2014563000	-394	2731.77	13.56	42.31
2013	98631825	4076942	217734559	4076942000	3.86	4133.5	4.13	45.3
2014	149293849	2998166	258956478	2998166000	5.42	2008.23	2.01	57.65
2015	185596590	2426332	284977836	2426332000	5.05	1307.31	1.31	65.13

Source: WEMA bank Annual reports 2011-2015