Credit Risk and Shareholders' Value in Nigerian Deposit Money Banks

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Abstract: *Banks have been known for their role of financial intermediation and by this function exposed to credit risk. A sound credit risk decision by banks is very vital as it enhances earnings as well as increases shareholders' wealth. This study examines the effect of credit risk on shareholders' value in Nigeria Deposit Money Bank. Data were sourced from audited annual report of the nine (9) banks sampled for a period of thirteen (13) years from 2004 to 2016. A panel multiple regression technique of data analysis was applied using the Generalized Least Square (GLS) estimators. The GLS model regressed the predictor variables of non-performing loans (NPL), loan loss provisions (LLP), and capital adequacy (CAR) on market capitalization while controlling for bank size. The result shows that credit risk has a significant effect on shareholders' value of Deposit Money Banks in Nigeria. Non-performing loans and loan loss provision reveal a negative significant effect of shareholders' value, implying that increase in Non-performing loans and loan loss provision will reduce shareholders' value. Hence, the study recommends that Deposit Money Banks in Nigeria should redefine and restructure their credit products and also formulate credit policies that will ensure operational consistency as well as curtail lending that could lead to losses.*

I   Introduction

A vibrant and efficient banking system influences the growth of any economy of a nation through its lending activities. Banks are known for providing a wide range of financial services aimed at maximizing profit as well as shareholders' value. In practice, banks do two things: banks offer (financial) products and provide services to their clients; banks engage in financial intermediation and the management of risk. Management of risk is an activity resulting from the creation of risk assets. Banks create risk assets through their traditional function of intermediation. In other words, banks take deposits from savers and lend them to borrowers.

The extension of credit as a lending activity to prospective borrowers for productive ventures accelerates the growth and sustainability of an economy. However, lending activity exposes banks to credit risk (CR) which could invariably lead to a financial crisis. It is obvious that the critical source of CR for deposit money banks is loans and advances. However, other sources of CR exist in banks which include on and off balance sheet items like interbank transactions, trade financing, foreign exchange transaction and guarantees. It is worthy of mentioning that aside CR, banks in their operational activities are faced with other relational risks which largely include market risk, liquidity risk, and operational risk. This study is primarily concerned with examining the effect of credit risk on shareholders' value.

Credit risk as one of the associated risks of financial institutions is a direct threat to the solvency of the institutions (Chijoriga, 2011). CR is not only directly associated to solvency but it's magnitude as well as level of loss is severe compared to other risks. It may results in high magnitude of loan losses which could lead to failure of a financial institution (Richard, Chijoriga, Kaijage, Peterson & Bohman, 2008; Chijoriga, 2011).

Credit risk arises from uncertainty in a given counterparty's ability to meet its obligations. It is a risk of financial loss arising from a borrower's failure to honor commitments under an agreement and such failure usually has an adverse effect on shareholders' values. The increasing variety in the types of counterparties (from individuals to sovereign governments) and the ever-expanding variety in the forms of obligations (from auto loans to complex derivatives transactions) have meant that credit risk has jumped to the forefront of risk management activities carried out by banks in the financial industry.

A high credit risk level is often reflected as high non-performing loans ratio especially in relation to the industry ratio and vice versa. In effect, a high level of credit risk experienced by a bank has the tendency to reduce the lending ability and possibly affect its going concern. Consequently, loan loss provisions which usually arise to deal with expected losses negatively impact on the earnings level of the banks. The loan loss provision is based on the credit-cycle position of the bank in such a way that the higher the credit growth of the

individual bank, the more it has to make provision. On the contrary, the lower the credit growth, the more provisions the bank can liberate from the previously built reserve.

The global financial crisis of 2008 to 2010 revealed the impact of banks' credit risk on the impairment of shareholders' value. The high level of credit risk in form of non-performing loan exhibited by banks globally during the financial crisis emphasizes the need to pay critical attention to credit risk evaluation. During this period some banks in Nigeria considered to be household names such as Intercontinental bank and Oceanic bank went into extinction due to high non-performing loan (Sanusi, 2010). This is corroborated by Adeleke (2017) who opined that between 1994 and 2011 a total of fifty (50) banks have been liquidated due to high level of non-performing loan.

The Central Bank of Nigeria (2016) revealed that the industry ratio of non-performing loans net of provision to capital increased significantly to 30.9 per cent at end-June 2016 from 5.9 per cent at end-December 2015, depicting weak capacity of the sector to withstand the adverse impact of non-performing loans (NPL). Also, the non-performing loans grew by 158% from N649.63 billion at end-December 2015 to N1.679 trillion at end-June 2016.The industry wide NPL ratio rose to 11.7% in June from 5.3% in December 2015, exceeding the prudential limit of 5.0 per cent. Capital adequacy which is a critical component of the banks' statement of financial position representing shareholders' value showed marginal declines in the Nigerian banking sector, compared with the positions in the preceding and corresponding periods of 2015. The Central Bank of Nigeria (CBN), however, noted that only five large banks showed resilience to the rising credit risk, even at the point of a 200 per cent increase in the NPLs, while the others showed vulnerabilities.

Nawaz, Munir, Siddiui, Tahseen, Afzal, Asif and Ateeq (2012) postulated that the magnitude of non-performing loans in the Nigerian banking system eroded investors' confidence and alarmed both shareholders and stakeholders. Osuka and Amako (2015) opine that between 1999 and 2009, non-performing loans rose to 35% in deposit money banks in Nigeria. According to African Report (2009), eleven out of the twenty four banks that successful emerged from the consolidation exercise in 2005 were classified as either "shaken" or "stressed" primarily caused by poor credit risk management practices. More worrisome is the increase in the non-performing loan by the aggregate banks from 2009 to 2016 showing a disturbing trend that needs to be accorded special attention. Precisely, as at December 2016, the twenty-five (25) Deposit Money Banks (DMBs) had a total loans portfolio of N18.53 trillion out of which N1.85 trillion or 10% were NPLs and N740 billion or 40% constituted insider/directors related loans. In addition, this rate was far above the regulatory threshold of five (5) percent for the DMBs (Central Bank of Nigeria, 2016).

Previous empirical studies (Al-Taamimi & Al-Mazrooei, 2007; Carty,2000) posit limited research work relating to credit risk and shareholders' funds and the studies were theoretical in nature. This necessitates the need for empirical studies on the effect of credit risk on shareholders' values of Nigeria deposit money banks. In addition, Adebisi and Oyedijo (2012) carried out a study on credit risk management to shareholders' wealth-sustenance which is limited to a co-relational study. It is for these reasons that this study examines the effect of credit risk on shareholders' values in Nigeria deposit money banks.

The main objective of the study is to examine the effect of credit risk on shareholders' values in Nigerian Deposit Money Banks. In specific terms, the study ascertains the effect ofNon-performing loan, Loan loss provision and Capital adequacy ratio on shareholders' value.

The study considered all the deposit money banks in Nigeria existing from 2004 to 2016.The study chose this period because of significant events that characterised the Nigerian banks, such as consolidation of banks, merger and acquisition as well as the global financial crises.

This study is divided into five sections. Section two is literature review. It attempts to review related concepts and empirical studies in different countries. Section three contains the methodology of the research. Section four presents the result of data analysis and discussion thereon. Section five is conclusion and recommendations.

II. Literature Review

This section explains related concepts and variables of the study such as credit risk, and shareholders' values, non-performing loans, loan loss provision and firm size. The section also presents review of relevant empirical studies with a view to identifying a gap to be filled by this study.

2.1 Credit risk

Risk in a banking context arises from any transaction or business decision that contains uncertainty concerning the result. Because virtually every bank transaction is associated with some level of uncertainty, nearly every transaction contributes to the overall risk of a bank. Some of the risks faced by banks include repayment expectation/schedule; and fluctuation of interest or pricing rate as at the time of application or in the near future. All of these risks lead to possible fluctuations in the bank's income stream and hence the value of the bank (Schroeck, 2002).

Credit risk has long been an important and widely studied topic in bank lending decisions and profitability. For all banks, credit remains the single largest risk, difficult to offset, despite advances in credit

measurement techniques and the diversification of portfolio. Continuing increases in the scale and complexity of financial institutions and in pace of their transactions demand that they employ sophisticated risk management techniques and monitor rapidly changing credit risk exposures. At the same time, fortunately, advances in information technology have lowered the cost of acquiring, managing and analyzing data, in an effort to build more robust and sound financial systems (**Angelini,** Tollo, & Roli,2006).

Credit risk as a major category of risk faced by banks occurs when a borrower defaults and does not honor his/her obligation to service a debt. It occurs when the borrower is unable to pay the debt as agreed or fails to make timely payment on the debt servicing. The Basel Committee on Banking Supervision (BCBS) defined credit risk as the probability that a bank borrower will fail to meet its obligations in accordance with agreed terms or the possibility of losing the outstanding loan partially or totally due to credit events (Iwedi & Onuegbu, 2014).

Global Risk Management Group (1999) defines CR as the potential that bank borrower will fail to meet obligation in accordance with agreed terms. Coyle (2000) also defined credit risk as losses from the refusal or inability of credit customers to pay what is owed in full and on time. CR arises mainly from direct lending and certain off-balance sheet products such as guarantees, letters of credits, foreign exchange, forward contracts and derivatives and holding of assets in the form of debt securities. CR can be seen as critical to bank survival or failure because banks traditionally earn significant profits from interest on their risk exposures. The management of credit risk is a critical component of a comprehensive approach to risk management and is essential to the long-term success of deposit money banks.

It is common knowledge that the lending activity of banks exposed them to credit risk. This credit risk is perhaps caused by limited institutional capacity, weak credit policies, volatile interest rates, low liquidity levels, laxity in credit assessment, poor lending practices (Kithinji, 2010). An increase in bank credit risk gradually leads to financial crises, hence, the need for a sound credit risk system. In other words, a sound evaluation of credit risk is crucial for banks so as to enhance its overall value and guarantee survival.

Bagchi (2003) suggests that a good credit risk policy, structure, credit rating system, monitoring and control contribute to the success of an effective credit risk system. Similarly, Muninarayanappa and Nirmala (2004) in a related study opined that the success of credit risk requires maintenance of proper credit risk environment, credit strategy and policies.

A cornerstone of safe and sound banking is the design and implementation of written policies and procedures related to identifying, measuring, monitoring and controlling credit risk. Credit policies establish the framework for lending and guide the credit-granting activities of the bank. Effective policies and procedures enable a bank to maintain a sound credit-granting standard; monitor and control credit risk; properly evaluate new business opportunities; identify and administer sensitive credits. To ensure diversification, exposure limits are needed in all areas of the bank's activities that involve credit risk. Excessive concentration of credit portfolio may render a bank vulnerable to adverse changes in the market value of such portfolio. Therefore, a sound and prudent risk management would enable the minimization of concentration risk through diversification. More so, banks need to develop and implement comprehensive procedures and information systems to effectively monitor and control the risks inherent in every credit portfolio. Where deteriorating credit exists in a credit portfolio, banks should have a system in place for remedial actions and management process.

2.2 Non-performing loans

International Monetary Fund (IMF) under the framework of the Financial Soundness Indicators (FSIs) recommends that loans (and other assets) should be classified as NPL when (1) payments of principal and interest are past due by three months (90 days) or more, or (2) interest payments equal to three months (90 days) interest or more have been capitalized (re-invested into the principal amount), refinanced, or rolled over (i.e. payment has been delayed by arrangement). The 90-day criterion is the time period that is most widely used by countries to determine whether a loan is nonperforming (IMF, 2006).Usually, non-performing loans impact on two major components of the banks, namely, liquidity and profitability. The occurrence of NPL in banks will necessitate the creation of provision which eventually affect the value of shareholders' wealth.

2.3 Loan loss provisions

Loan loss provision refers to reserves set aside to absorb any eventual loss that may arise from loan defaults. Loan losses are provided generally or specifically against the earnings of the bank. General provisioning is as a result of the likely amount of loss an aggregate loan portfolio may incur while specific provisions entail setting aside a proportion of funds from already classified loan portfolio. Loan loss provisions serve as controlling mechanism over expected loan losses and are usually triggered by default incidents on loans (Hasan & Wall, 2004). While high non- performing loan is a requisite for high level of loan provisioning banks can also use loan loss provisions to assess their financial strength (Ahmad, Takeda & Thomas, 1999).

A loan loss provision represents charges against earnings for the period in which they are recognized. An increase in LLPs in line with deterioration in loan quality will reduce the retained earnings of the bank

entity. Weaker banks face a strong incentive to understate LLPs because, under the Basel Accord risk based capital requirements, retained earnings are counted as core (Tier I) capital while loan loss reserves are counted as supplementary (Tier II) capital up to 1.25% of banks' risk weighted assets (Ford and Weston, 2003).

2.4 Capital adequacy

One of the objectives of the Bank of International Settlement through the Committee for Banking Supervision commonly known as the Basel Accord was to ensure that a consistent standard be applied when determining minimum capital requirements across internationally active banks. Under the rules of the Basel Accord, capital for supervisory purposes is considered in two tiers: Tier I and Tier II. The Tier I (core capital) comprises the highest-quality capital elements. A bank's capital base is the sum of its Tier I and Tier II capital less any deductions. At least 50% of a bank's capital base must be Tier I capital. The Basel Accord requires that the ratio of a bank's capital to risk weighted assets (referred to as the capital adequacy ratio) must be at least 8% (Anandarajan, Hassan, & Mc Carthy,2006). That is, a bank is required to cover every N100 of risk-weighted assets (loan) with at least N8.00 of capital. CAR helps to manage credit risk and enable banks to bear shocks caused by credit risk.

2.5 Bank Size

The size of a bank may be likened to the concept of too-big-to-fail (TBTF). Allowing banks to fail can cause significant damage to the financial system and the economy as observed in the global financial crisis where banks were bailed out. Galil (2003) maintains that TBTF distorts free markets, motivates risky behavior, and creates unwholesome and unfair competitive advantage among banks. All of these factors can have significant influence on the creditworthiness of a bank.

Fitch (2007) in its rating methodology criteria creates a rating type for banks to capture the level of support banks would receive if they ran into difficulties. It also maintains that it analyses the stability of the shareholder structure, as well as the bank's ability to attract support willingly from its owners and home government if needed. Indeed, large banks may arguably become too big to be downgraded by rating agencies (Melaschenko & Reynolds, 2013). International banks have become extremely large and complex, and interconnected with the global financial system.

2.6. Shareholders' Value

Banks are expected by shareholders to continually uphold the objective of maximizing their wealth and this can be supported through a sound credit risk sustenance which aims at ensuring a sustainable returns. Rene (2000) argues that the only reason a bank ought to manage its risk is to make its stakeholders better off. In addition, she argues that a well-designed credit risk policy enables a bank achieve the objective of creating value for its shareholders.

The measurement of shareholders' value has developed from the traditional accounting indicators to more sophisticated techniques. The traditional accounting indicators include earnings per share (EPS), return on equity (ROE), return on assets (ROA),dividend per share (DPS), and market capitalization (Banerjee, 2015). These measures revealed short comings that triggered the development of other techniques. Rappaport (1998) noted that earnings fail to reflect the real picture of the company performance as it depends a lot on accounting principles such as various methods of depreciation, pooling interest versus purchase method for mergers and acquisitions. In addition, it ignores time value of money.

Another technique is explained in Serven (1999) who considered the measurement of shareholders' value in the light of the price of stock. He sees shareholder value as being the market value of a common stock. Scott (1998) wrote that shareholder value is another term for the total value of equity of a firm or its "market capitalisation". He added that the market capitalisation of a publicly traded firm is highly transparent and it is the number of shares listed on the market multiplied by the average price per share.

The Economic Value Added (EVA) is a measurement technique introduced in the 1920s by General Motors Corporation and later reintroduced by Stern Stewart Company in the 80's- a New York- based consulting firm, as a replacement to the traditional measure of value creation (Shaked, Allen, and Leroy, 1997). This technique considers all related charges to the cost of all capital against profit. It is defined as the net operating profit after taxes less the percentage of cost of capital multiplied by the total capital. Ehrbar (1998) claims that under the EVA framework the capital charge triggers the evaluation of the final accounts (income statement and balance sheet) of a bank with a view to ascertain a basis for weighting trade-off between both accounts.

The Market Value Added (MVA) technique defines shareholders' value as market value less total capital. The total value is seen as the market value of debt and equity while total capital is define as total assets as contained in the balance sheet (Weissenrieder, 1998). MVA measures the financial markets' view of future performance relative to the capital invested by banks hence assesses the expectations on the level of the performance. Ehrbar (1998) opines that MVA reflects the banks positioning for the long term because market value considers the present value of expected long-term pay-off as well as investor's judgment about risk

performance. The essence of all these measures is to enable banks make value-created decisions and orientate all relevant support system towards value creation (Copeland, Koller, & Muller, 2000).

2.7 Empirical Review

The study of credit risk has received global attention because of its relevance on the creation of shareholders' value through the sustenance of a bank's retain earnings. A number of research articles have attempted to explain credit risk in relation to shareholders values. However, empirical evidence revealed a mixed trend on the effect of credit risk on shareholders' value. While some established a negative relationship between credit risk and shareholders' value, others found a positive relationship.

Arif, Abrar, and Afzal (2012) carried out a study on credit risk and shareholders' value of Pakistan banking system from 2004 to 2009 on twenty banks listed on Karachi Stock Exchange (KSE). The study considered credit risk as independent variable with capital adequacy ratio, loan loss provision, and advances used as proxies while return on equity and return on shares were used as proxies of shareholders' value as a dependent variable. The study also employed control variables of market economy as proxy by stock exchange 100 index and gross domestic product. The findings of the study reveal that loan loss provision and loan advances are negatively related to return on equity while all the proxies of independent variables are positively related to return on shares. More so, both control variables are positively related to return on shares which explain the event that a flourishing economy will enable shareholders to earn more on the value of their shares.

Aghababaei, Ataei and Azizkhani (2013) investigated the effects of credit risk indicators on shareholders' value of commercial banks in Iran for a six-year period from 2005 to 2010. The study employed a linear regression with return on assets and return on equity as proxies to the dependent variable of shareholders' value while non-current receivables, capital adequacy, loans and advances, and ratio of doubtful debts storage as proxies to the independent variable of credit risk indicators. The findings reveal that only capital adequacy and ratio of doubtful debts storage have a significant negative relationship with return on equity at 1% significant level. In addition, loans and advances, and non-current receivables revealed a significant positive relationship with return on equity.

Perera and Morawakage (2016) investigated the effect of credit risk management on the shareholder value in listed banks in Sri Lanka from 2009 to 2015.The study employed regression models at 1% significant level with return on shares as proxy to the dependent variable of shareholder value while non-performing loan, capital adequacy and loan to deposit as proxies to the independent variable of credit risk management. The study reveals that credit risk management has a significant effect on shareholder value. This study confirms that non-performing loan had the most significant effect on the return of shares which explains the fact that the tendency for the depletion of retained earnings of a bank resulting from a high non-performing loan that would have ordinarily generate more interest income would affect the shareholders' value.

Zahid and Saeed (2016) analysed the impact of credit risk on profitability of five (5) big commercial banks in the United Kingdom from 2007 to 2015. The study employed a regression model with return on assets and returns on equity a s proxies to the dependent variable of profitability while bank size, growth, leverage, net-charge off, non-performing loans as proxies to the independent variable of credit risk. The findings reveal that all independent variables have positive impact on return on assets and return on equity.

Million, Matewos and Sujata (2015) investigated the impact of credit risk on profitability of commercial banks in Ethiopia for a-12 year period (2003-2014). The study measured credit risk as an independent variable with Loan Loss provisions, non-performing loans and capital adequacy while profitability as a dependent variable was measured by return on asset (ROA) and Return on Equity (ROE).The findings of the study reveal that non-performing loan and loan loss provision have a negative effect on the return on assets and return on equity while capital adequacy ratio has a significant negative effect on return on equity which substantiate the position that credit risk affects the profitability of banks.

Mwaurah, Muturi, and Waititu (2016) examined the influence of credit risk on stock returns in commercial banks listed on the Nairobi Securities Exchange from 2006-2015. The study employed a generalized least square regression model with stock returns as the dependent variable while non-performing loan and loan loss provisions as proxies to the independent variable of credit risk. The study also considered bank size as the moderating variable. The findings reveal that non-performing loans was negatively significant to stock returns while the ratio of loan loss provisions was positively significant to stock returns at 5% significant level. Furthermore, bank size had a positive moderating effect on the influence of credit risk on stock returns.

In Nigeria, related studies have been carried out on credit risk and shareholders' value with focus on Nigerian banks. Adebisi and Oyedijo (2012) carried out a study on the roles and strategic importance of credit risk management to shareholders' wealth-sustenance in Nigerian banks from 2006 to 2010. The study employed multiple regression and correlation analysis to test hypotheses as well as explaining the relationship between credit risk management and shareholders' funds. The study sampled five Nigerian banks with dividend per share and earnings per share as proxies to the dependent variables of shareholders' value while return on capital employed, performing loan and earnings per share as proxies to the independent variable of credit risk

management. The findings at 5% significant level reveal a significant positive relationship among the variables. However, the variables used as indicators of credit risk managements suitably explain measures of credit risk as credit risk management is seen as the process involve in ensuring that the credit approval process is adhered to and in order to prevent credit risk from impacting negatively on the earnings of the bank.

Kolapo, Ayeni, and Oke (2012) carried out an empirical investigation into the quantitative effect of credit risk on the performance of commercial banks in Nigeria over the period of 11 years (2000-2010) from the selected five commercial banks. The study employed return on asset (ROA) as a proxy to the dependent variable of performance while non-performing loan, loan and Advances, and loan loss provision as proxies for the independent variable of credit risk. Their findings reveal that loans and advances have a significant positive effect on profitability while non-performing loan and loan loss provision have a significant negative effect on profitability. Impliedly, the findings explain that profitability is reduced by increase in non-performing loan, and loan loss provision. However, a reversed effect was revealed as increase in total loan and advances increased profitability.

Ogboi and Unuafe (2013) examined the impact of credit risk and capital adequacy on banks financial performance in Nigeria. Their study used a time series and cross sectional data from 2004-2009 obtained from selected banks annual reports and accounts in Nigeria. Panel data model was used to estimate the relationship that exists among loan loss provisions (LLP), loans and advances (LA), non-performing loans (NPL) and capital adequacy (CA) which were the independent variables and return on asset (ROA) as the dependent variable to measure the profitability of the banks. The findings showed that sound credit risk management and capital adequacy impacted positively on bank's financial performance with the exception of loans and advances which was found to have a negative impact on banks' 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 reveal 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.

It can be seen from the above review that most of the Nigerian studies are either on credit risk and performance/profitability (Kolapo, Ayeni, & Oke, 2012; Kargi, 2011), credit risk and capital adequacy (Ogboi & Unuafe, 2013). The only study that relates to shareholders value is on credit risk management (Adebisi & Oyedijo, 2012). In addition, the proxies used by Adebisi and Oyedijo, (2012) for shareholders value are more of profitability /performance. This study uses market capitalization as a measure of shareholders value

III. Research Methodology

The population of this study consists of all licensed Deposit Money Banks listed on the floor of the Nigerian Stock Exchange as at 31 December, 2016. In selecting the sample size, the study ensured that the banks have international bank license and must have been in existence and identities remained unchanged since 2004. As a result, a sample size of nine banks was arrived at for the study. They are Access Bank Plc, Diamond Bank Plc, Fidelity Bank Plc, First Bank Nigeria Plc and First City Monument Bank Plc. Others are Guaranty Trust Bank Plc, Union Bank of Nigeria Plc, United Bank of Africa Plc and Zenith Bank Plc. However, the sample size obtained which represents above 30% of the population is sufficient enough to generalize the result (Kantudu, 2006). The source of data was audited annual reports of deposit money banks in Nigeria; fact book of the Nigeria Stock Exchange; and relevant reports from the regulatory agencies of deposit money banks in Nigeria such as Central Bank of Nigeria, National Deposit Insurance Corporation.

Table 1 below summarizes and defines the variables of the study.

Table 1 Variable Definitions

Variable Name (Abbreviation)	Description	Measurement	Study Source
Independent			
NPL	Non-performing loan	Non-performing loan/ Total loan and advances	Taiwo et.al (2016)
LLP	Loan loss provision	Loan loss provision/Total loan and Advances	Sufian (2009)
CAR	Capital adequacy ratio	Equity/ Total loans and advances	BIS (2011)
Dependent			
MCAP	Market Capitalisation	Natural Logarithm of Average Market Capitalisation Value	Scott (1998)
Control			
BSZ	Bank size	Natural logarithm of total assets	Mwaurah, Muturi, and Waititu (2016)

Source: Authors' Compilation

The need to employ a control variable of bank size support the position that large banks with huge deposit base or asset base are likely to have a high loan portfolio that possibly gives rise to high credit risk level. The application of natural logarithm as a measurement for bank size helps to normalize the distribution of assets (Altman, 1968).

The study employed the use of multiple regression for analysis of data, and consistent with Afzal, Abrar , and Arif (2012), the following model is adopted with little modification.

$$MCAP_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 LLP_{it} + \beta_3 CAR_{it} + \beta_4 BSZ_{it} + \mu_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots i$$

Where:

t = time period 2004-2016

$MCAP_{it}$	=	return on equity of bank i in year t
NPL_{it}	=	non-performing loan of bank i in year t
LLP_{it}	=	loan loss provision of bank i in year t
CAR_{it}	=	capital adequacy ratio of bank i in year t
BSZ_{it}	=	bank size of bank i in year t
μ_{it}	=	error term where i is cross sectional and t time identifier
β_0	=	Intercept
β_1 to β_4	=	Coefficient Parameters

In view of the panel nature of the data and in order to arrive at a reliable and robust findings the study applied the fixed effect model considered more reliable to obtaining results under a panel data study (Baltagi,1995; Gujarati and Sangeetha,2004; Brooks, 2008). A robustness test was also carried out in order to ensure the validity and fitness of the result. In addition, a data normality test which includes heteroskedacity and multicolinearity were conducted in order to justify the model of the study.

IV. Data Analysis and Discussions
This section presents and discuses the result of data analysis carried out by the study.
4.1 Descriptive Results
The descriptive statistics of the analysis carried out is shown in table 2 below.

Table 2 Descriptive Statistics

Variables	Mean	SD	Min	Max	Skewness	Kurtosis	N
MCAP	17.4633	1.7560	14.0124	22.0692	-0.1182	2.3477	117
NPL	0.1201	0.1678	0.0003	1.0702	2.6286	11.6525	117
LLP	0.0505	0.0848	0.0009	0.5683	4.0588	21.3801	117
CAR	0.4285	0.2344	-0.7607	1.3195	0.3457	10.8061	117
BSZ	14.8029	0.6694	13.8165	16.7761	0.5980	2.6835	117

Source: STATA OUTPUT (Appendix 1)

Table 2 provides the summary of descriptive statistics of the sample banks showing mean, standard deviation, minimum, and maximum of the independent variables, control variable and the dependent variable. The results revealed an average market capitalization of N17.46 billion with a minimum of N14.01 billion and maximum of N22.07 billion in value. The loan loss provision of 5.05% with a deviation of 8.48% is an indication that Nigerian Deposit Money banks cushioned their investments against the implications of credit risk on the available investments funds. However, the sample banks collectively maintained an average capital adequacy ratio of 42.85% which is above the recommended CAR ratio of 8% by the Basel III accord and the regulatory threshold of 15% recommended by the central bank of Nigeria. In addition, this means that the banks have to increase and sustain their equity holding in order to be able to absorb any form of capital loss. The non-performing loan revealed an average of 12.01% which exceeds the prudential limit of 5% recommended by the CBN, hence, the need for the banks to review their credit risk decisions and strategies. Meanwhile, the average bank size stood at an average of N13.608 trillion naira.

4.2 Normality Test
The analysis of the data suggests that the data did not follow the normal distribution. Therefore, the study adopts Shapiro Wilk test for normal data to determine statistical evidence as to whether the data from the variables of the study follow the normal curve or not. The results of the test are presented in table 3 as follows:

Table 3 *Normal Data Test*

Variables	W	V	Z	P-Values	N
MCAP	0.9793	1.9500	1.4940	0.0676	117
NPL	0.6616	31.9260	7.7490	0.0000	117
LLP	0.5011	46.9900	8.6140	0.0000	117
CAR	0.8029	18.5610	6.5350	0.0000	117
BSZ	0.9511	4.6110	3.4200	0.0003	117

Source: STATA OUTPUT (Appendix 1)

The Shapiro-Wilk (W) test was conducted to check the normality of the data. Table 3 indicates that data from the variables of the models are not normally distributed because the P-values of all the variables are significant at the level of 1% (p-values of 0.0000). Therefore, the null hypothesis (that, the data is normally distributed) is rejected for all the variables. Nonetheless, this may lead to some problems in Ordinary Least Square (OLS) regression and, hence, the need for a more generalized regression models. Therefore, following the analysis of the descriptive statistics and normality of the data, the inferential statistics of the data collected from which the hypotheses of the study are tested were presented and interpreted.

4.3 Correlation Results

The Pearson correlation Coefficients was employed to explain the association among the variables of study as revealed in table 4.

Table 4

Correlation Matrix

Variables	MCAP	NPL	LLP	CAR	BSZ
MCAP	1.0000				
NPL	-0.3729	1.0000			
	(0.0000)				
LLP	-0.3438	0.3287	1.0000		
	(0.0001)	(0.0003)			
CAR	-0.1281	0.0261	0.1912	1.0000	
	(0.1687)	(0.7797)	(0.0389)		
BSZ	-0.2463	-0.1006	-0.0590	0.0776	1.0000
	(0.0074)	(0.2803)	(0.5274)	(0.4055)	

P-values in parenthesis

Source: STATA OUTPUT (Appendix 1)

The correlation matrix from table 4 revealed the relationships between credit risk variables (non-performing loans, loan loss provision, and capital adequacy ratio), a moderating variable of bank size, and the shareholders' value (market capitalisation) of deposit money banks in Nigeria. The result revealed a significant statistical negative association between MCAP and NPL at 1% significant level (p-value of 0.0000).This suggests an inverse relationship between the shareholders' value and non-performing loans during the study period. The result also suggested a significant statistical negative association between MCAP and LLP at 1% level of significance (p-value of 0.0001). This suggests an inverse relationship between the shareholders' value and loan loss provisions during the period. The result revealed a statistical negative association between MCAP and CAR but not statistically significant at 10% level (p-value of 0.1687) while as against BSZ revealed a positive association statistically significant at both 1% level.

4.4 Regression analysis

The hypothesis testing result on the influence of credit risk on shareholders' value of deposit money banks in Nigeria are outlined in table 5.

Table 5

Regression Models Summary

Variables	Model
	Coefficients
R Square	0.2371
Hettest: Chi2	0.2364
Mean VIF	1.09
Hausman Tests	0.8252
LM Test	0.0000

Source: STATA OUTPUT (Appendix 1)

The Wald chi2 of 41.19, which is significant at 1% level, indicates that the model is well fitted in explaining the relationship between the independent and dependent variables. A review of model on table 5 revealed the presence of heteroskedasticity in the panel data as indicated by the Breuch Pagan/Cook-Weisberg test for heteroskedasticity Chi2 of 23.64 with p-value of 0.0000. This substantiate the assumption of constant variance of the error term (homocedasticity) not been met and as a result OLS estimators are not BLUE (Best

Linear Unbiased Estimators). The table also indicated the absence of a perfect multicolinearity among the explanatory variables as revealed by the mean variable inflation factor (VIF) of 1.09. The decision criterion for the VIF is that a value of 10 and above implies the presence of perfect multicollinearity (Gujarati & Sangeetha, 2004). In view of the shortcomings of the hausman specification test and the presence of heteroskedasticity in the model the generalized least square (GLS) regression model was adopted. Also, the overall R squared of 0.2371 means that the independent variables with the control variables explain up to approximately 24% of the variation in market capitalisation.

4.5 Hypotheses Testing and Discussion of Results
The hypotheses for the study are tested and analyzed from the results in table 6.

Table 6

GLS Estimators

Variables	Model	
	Coefficients	P-Value
NPL	-2.4600	0.003
LLP	-5.3000	0.001
CAR	-0.1300	0.814
BSZ	0.5600	0.004
CONSTANT	9.8400	0.001

Source: STATA OUTPUT (Appendix 1)

The ratio of non-performing loans (NPL) to total loans and advances of the sample banks has a significant negative effect on market capitalisation at 1% significant level (coefficient of -2.4600 with p-value of 0.003) which further suggests the rejection of the null hypothesis. This explains that the higher the level of non-performing loan the lower the shareholders' value arising from provisions for non-performing laon. The result agrees with the study of Million, Matewos & Sujata (2015), Mwaurah, Muturi & Waititu (2016) and Kolapo, et al (2012) which find credit risk to be negatively related to shareholders' value. However, the result is not consistent to the study of Abiola and Olausi (2014) which found a positive relationship between non-performing loan and shareholders' value. Going by the model, the study does not support the null hypothesis that non-performing loans has no significant effect on the shareholders' value of deposit money banks in Nigeria.

The regression result shows that Loan Loss Provision (LLP) of the sampled banks has a negative effect on market capitalisation, which is statistically significant at 1% level with a coefficient of -5.3000 and a p-value of 0.001. Hence, the null hypothesis is not supported. This implies that increase in loan loss provision will lead to decrease in shareholders' value. The result agrees with the study of Arif, Abrar and Afzal (2012), Million, Matewos and Sujata (2015), Kolapo, et.al (2012) that revealed a negative relationship between loan loss provision and shareholders' value. However, the finding is not consistent to the study of Ogboi and Unuafe (2013), Mwaurah, Muturi and Waititu (2016) who reveal a positive relationship.

The regression result reveals that capital adequacy ratio (CAR) of the sample banks has a statistically insignificant negative effect on market capitalization. This suggests that the study does support the null hypothesis. This result is consistent with study of Aghababaei, Ataei, and Azizkhani (2013), Million, Matewos and Sujata (2015) which reveal a negative relationship. The finding is not consistent to the study of Arif, Abrar and Afzal (2012), Ogboi and Unuafe (2013) which reveal a positive relationship. This result explains that a reduction in the capital adequacy ratio will affect shareholders' value.

Bank size as a moderating variable reveals a positive effect on market capitalisation which is statistically significant at 1% level (p-value of 0.004).This further suggest that the study does not support the null hypothesis. The result is consistent with the study of Zahid and Saeed (2016). However, the result was not consistent with the findings of Haq and Heaney (2012); and Deelchand and Padgett (2009).

V. Conclusion And Recommendations
Based on findings from data analysis and hypotheses testing, the study concludes after moderating for the effect of bank size that credit risk has significant impact on the shareholders' value of Deposit Money Banks in Nigeria. Credit risk (proxied non-performing loan, loan loss provisions and capital adequacy ratio) has negative relationship with shareholders' value of Deposit Money Banks in Nigeria.

The negative significant effect of non-performing loans and loan loss provision on shareholders' value is a pointer that banks should profile their borrowers by employing the expert system of analyzing a credit request using the six "Cs" of credit and basis for the banks to redefine and restructure their credit products. Banks should also formulate credit policies that will ensure operational consistency as well as curtail insider lending. Furthermore, the Central Bank of Nigeria should enforce compliance towards capital adequacy ratio for global competition and safeguarding the economy from adverse impact of too big banks to fail.

Acknowledgements

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