EFFECT OF CREDIT RISK MANAGEMENT ON THE STOCK MARKET
PERFORMANCE OF MONEY DEPOSIT BANKS IN NIGERIA

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Abstract

Credit risk is the possibility of losing the outstanding loan partially or totally, due to default risk and credit risk management are plans and activities put in place in order to combat risk/losses arising from credit activities (lending activities in the bank). The dependent variable of this study being Market performance and the independent variables being credit risk insurance and credit portfolio diversification. This study strives to find out the effect of credit risk management on the market performance of money deposit banks in Nigeria. The entire population of 22 listed money deposit banks in Nigeria were considered for the study and secondary data was obtained from their financial statement (2009-2016) which statutorily were released to the public for consumption. Both correlational and regression analysis were carried on the data obtained by using statistical package for social science (SPSS22). The findings of the study shows there was significant and positive relationship between two of the independent variable (credit risk insurance, credit portfolio diversification) and the dependent variable, all these was substantiated with the p-value of less than 0.05 recorded by each construct of the independent variable and the researcher concluded that the credit risk insurance and credit portfolio diversification has an effect on the market performance of money deposit banks in Nigeria Among the major recommendations of the study is that banks should banks should insure their credit as this gives a good impression in the market because it shows that the bank will be indemnified from future default from its credit counterparties. Also, banks should diversify their allocation of credit in order not to be susceptible to a class of risk.

Keywords: *credit risk insurance, credit portfolio diversification and Market performance*

1.1 INTRODUCTION

Banks are germane to economic development through the financial services they provide. Their intermediation role can be said to be a catalyst for economic growth (Ojo, 2010). The efficient and effective performance of the banking industry over time is an index of financial stability in any nation (Kithinji, 2010). The extent to which a bank extends credit to the public for productive activities accelerates the pace of a nation's economic growth and its long-term sustainability. The credit function of banks enhances the ability of investors to exploit desired profitable ventures. Credit creation is the main income generating activity of banks; however, it exposes the banks to credit risk (Kargi, 2011).

Coyle (2000) defines credit risk as losses from the refusal or inability of credit customers to pay what is owed in full and on time. It arises mainly from direct lending and certain off-balance sheet products such as guarantees, letters of credits, foreign exchange, forward contracts & derivatives and also from the bank's

holding of assets in the form of debt securities. It may take the form of delivery or settlement risk. It is critical to bank survival or failure because banks traditionally earn their huge 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 a commercial bank.

Also the Basel committee on banking supervision (2001) defined credit risk as the possibility of losing the outstanding loan partially or totally, due to credit events (default risk). Credit risk is an internal determinant of bank performance. The higher the exposure of a bank to credit risk, the higher the tendency of the banks to experience financial crisis and vice-versa

The main source of credit risk includes, limited institutional capacity, inappropriate credit policies, volatile interest rates, poor management, inappropriate laws, low capital and liquidity levels, direct lending, massive licensing of banks, poor loan underwriting, laxity in credit assessment, poor lending practices, Ojo (2010) defined credit risk as the probability that a payment will not be fully settled because the debtor becomes insolvent.

Risk management is a complex task for any organization and increasingly important in a world where economic events are linked, it is a two-step process; the first is to identify the source of the risk, which is to identify the leading variables causing the risk (Kealhofer, 2003). The second is to devise methods to quantify the risk using mathematical models, in order to understand the risk profile of the instrument (Kealhofer, 2003). The techniques of risk identification are facilitative tools intended to maximize the opportunity of identifying all the risks or hazards inherent in a particular facility, system, or product. The tools may be categorized under the broad headings of intuitive, inductive and deductive techniques. Kealhofer (2003) stated that various approaches can be used to mitigate against credit risk and these includes; securitization, portfolio diversification, credit Insurance and loan loss provision.

Overall, the rapid development in the market for credit risk transfer played a major role altering banks' functions (Kane, 2010). Structurally, securitization allowed banks to turn traditionally illiquid claims (overwhelmingly in the form of bank loans) into marketable securities. The development of securitization has therefore allowed banks to off-load part of their credit exposure to other investors thereby lowering regulatory pressures on capital requirements allowing them to raise new funds (Fahri and Tirole, 2009). The massive development of the private securitization market experienced between 2006&2007 coincided with a period of low risk aversion and scant defaults. This resulted in a number of shortcomings in firms' risk management tools and models, which often used default figures from this period and tended to underestimate default and liquidity risks. The most prominent example is the securitization of mortgage loans which diversify idiosyncratic risks but renders the underlying portfolio subject to macroeconomic risks including declines in housing prices (Fahri and Tirole, 2009).

1.2   Statement of the Problem

While financial institutions have faced difficulties over the years for a multitude of reasons, the major cause of serious banking problems continues to be directly related to laxity in the credit standards for borrowers and counterparties, poor risk portfolio management, or a lack of attention to changes in economic or other circumstances that can lead to a deterioration in the credit standing of a bank's counter-parties (Olokoyo, 2011).

McDonough (1998) and Laker (2007) identified credit risk failures as: overconcentration of risk exposure, credit approval limits violation by managers, insufficient or non-existence collateral and underwriting standards among others. These deficiencies are negatively perceived in the market as depicted by the worsening

market indices recorded by the banks. For effective credit risk management, both the board and management are required to set policies and procedures which at a minimum should address parameters for composition and spread of credit portfolio. 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. Banks need to manage the credit risk inherent in the entire portfolio as well as the risk in individual credits or transactions.

The Basel committee on banking supervision (2001) called for global sound credit management systems capable of early identification, measurement, monitoring and controlling the various banking risks, particularly credit risk. banks require risk management processes that cover four critical aspects of management oversight, policies, measurement and internal controls (Central Bank of Nigeria, Annual Report, 2006).

Despite the aforementioned and various studies that has been carried empirical evidences and results of various studies show a mixed trend on the relationship between credit risk and market performance of banks. While some established a negative relationship between credit risk and bank performance, other found a positive relationship and it is still unclear as to how credit risk management affect the market performance of money deposit banks in Nigeria. 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 from 2000 to 2010, the results shows that an increase in total loans and advances increase profitability. While Kargi (2011) investigated the impact of credit risk on the profitability of Nigerian banks, using data on six selected banks for the periods of 2004 to 2008 From their findings, it is established that banks profitability is inversely influenced by the levels of loans and advances, non-performing loans and deposits, thereby exposing the banks to great risk of illiquidity and distress.

Furthermore various studies in Nigeria have failed to establish the effect of credit risk on money deposit banks market performance and also the effect of credit risk insurance and credit portfolio diversification, In light of this this study will strive to find out the effect of the aforementioned on the market performance of money deposit banks in Nigeria.

1.3   Research Objective

1.3.1   General Objective

The general objective of this study is to examine the effect of credit risk management on the market performance of Money Deposit Banks in Nigeria.

1.3.2   Specific Objectives

The specific objectives are:

1. To examine the effect of credit risk insurance on the market performance of Money Deposit Banks in Nigeria

2. To determine the effect of credit portfolio diversification on the market performance of Money Deposit Banks in Nigeria.

1.4   Research Hypotheses

H_0:   There is no significant effect of credit risk insurance on the market performance of Money Deposit Banks in Nigeria

H_0:   There is no significant effect of credit portfolio diversification on the market performance of Money Deposit Banks in Nigeria.

1.5   Scope of Study

This study looked at some basic theoretical considerations in providing better conceptualization of the relationship between Credit Risk Management and the market performance of Money Deposit Banks in Nigeria. This approach will enable the researcher to consolidate the two concepts "Credit Risk Management" and "market performance" from different broad views and sub-scale them into specific perspectives

This study covered an 8year period of 2009-2016 in which the population of the study will be the 22 listed money deposit banks in Nigeria. The inferences from theories and other relevant literature materials to be explored will assist the researcher to show, without any ambiguity, that Credit Risk Management has serious antecedents for financial performance in Commercial Banks.

2.0 LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 Asymmetric Information Theory

Three economists were particularly influential in developing and writing about the theory of asymmetric information: Akerlof, Spence and Stiglitz in the 1970s. Information asymmetry deals with the study of decisions in transactions where one party has more or better information than the other. This asymmetry creates an imbalance of power in transactions, which can sometimes cause the transactions to go awry. Eppy (2005). It describes a condition in which all parties involved in an undertaking do not know relevant information. In a debt market, information asymmetry arises when a borrower who takes a loan usually has better information about the potential risks and returns associated with investment projects for which the funds are earmarked. The lender on the other hand does not have sufficient information concerning the borrower (Edwards & Turnbull, 1994).

Qualitative and quantitative techniques can be used in assessing the borrowers although one major challenge of using qualitative models is their subjective nature. However according to Derban, Binner and Mullineux (2005), borrowers attributes assessed through qualitative models can be assigned numbers with the sum of the values compared to a threshold. This technique minimizes processing costs, reduces subjective judgments and possible biases. The rating systems will be important if it indicates changes in expected level of credit loan loss. Brown (1998) concluded that quantitative models make it possible to numerically establish which factors are important in explaining default risk, evaluating the relative degree of importance of the factors, improving the pricing of default risk, screening out bad loan applicants and calculating any reserve needed to meet expected future loan losses.

2.1.2 Modern Portfolio Theory Model

Modern portfolio theory was largely defined by the work of Markowitz in a series of articles published in the late 1950s. The theory was extended and refined by Sharpe (1934), Litner (1916-1983), Tobin (1918), and others in the subsequent decades. MPT is a theory of finance which attempts to maximize portfolio expected return for a given amount of portfolio risk, or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. Modern Portfolio theory was introduced by Harry Markowitz in his paper "Portfolio Selection," which appeared in the 1952 Journal of Finance. The portfolio theory integrates the process of efficient portfolio formation to the pricing of individual assets. It explains that some sources of risk associated with individual assets can be eliminated or diversified away, by holding a proper combination of assets (Derban *et al.*, 1999).

The fundamental concept behind MPT is that the assets in an investment portfolio should not be selected individually, each on their own merits. Rather, it is important to consider how each asset changes in price relative to how every other asset in the portfolio changes in price. Investing is a tradeoff between risk and expected return. In general, assets with higher expected returns are riskier. For a given amount of risk, MPT describes how to select a portfolio with the highest possible expected return. or for a given expected return, MPT explains how to select a portfolio with the lowest possible risk (the targeted expected return cannot be more than the highest-returning available security, of course, unless negative holdings of assets are possible.) Therefore, MPT is a form of diversification. Under certain assumptions and for specific quantitative definitions of risk and return, MPT explains how to find the best possible diversification strategy.

In summary, portfolio management theory assesses risk and return relationships for combinations of securities. While the expected return of a portfolio is the simple weighted average of the expected returns of its component securities, portfolio risk must also consider the correlation among the returns of individual securities. Since part of the price fluctuation of a security is unique, it does not relate to price fluctuations of other securities held. This allows the investor to diversify, or eliminate a portion of each security's risk (Olokoyo 2011).

2.2   Conceptual Framework

A conceptual framework "lays out the key factors, constructs, or variables, and presumes relationships among them" (Miles & Huberman, 1994). For the purpose of this study, the dependent variable is identified as market performance which will be measured using Market Returns while the Independent Variable will be identified through the following constructs: Credit Risk Insurance and Credit Portfolio Diversification.

Independent Variables   **Dependent Variable**

(Credit Risk Management)   **(Stock Market Performance)**

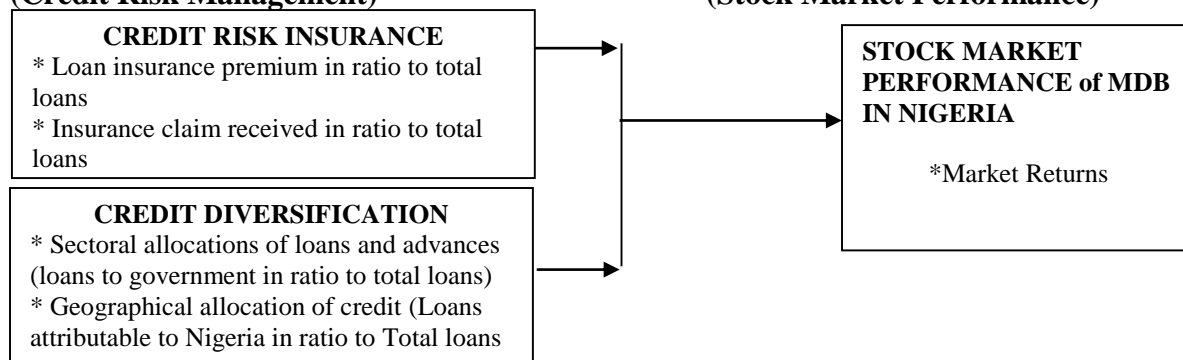| CREDIT RISK INSURANCE * Loan insurance premium in ratio to total loans * Insurance claim received in ratio to total loans	STOCK MARKET PERFORMANCE of MDB IN NIGERIA *Market Returns
CREDIT DIVERSIFICATION * Sectoral allocations of loans and advances (loans to government in ratio to total loans) * Geographical allocation of credit (Loans attributable to Nigeria in ratio to Total loans)	

Figure 2.1 Conceptual Framework

2.3.   Effect of Credit Risk Insurance on Stock Market Performance

Credit insurance or debt cancellation coverage is sold by lenders: banks, credits unions, auto dealers and finance companies whenever credits are extended to their customers. The debtor pays the premium and if he loses his job, become unable to work due to a disability, or die, the insurance protects the lender by making payments on your behalf. Credit insurance makes the debtor to sleep at night, but it can cost significant money for little payout (SwissRe, 2006). The premium for credit insurance is often included in the total amount of the loan or credit, meaning he pays interest on it. This can cost you a lot of money over time. There are four kinds of credit insurance available: Credit life insurance - Pays off all or some of the debtor's loan if he dies. Credit disability - Pays a limited number of monthly payments. Credit involuntary unemployment - Pays a specified

number of monthly loan payments if the debtor is laid off. Credit property - Protects personal property used to secure a loan if it's destroyed during the term of the coverage.

In some insurance market segments there is underwriting exposure to the epic-center of the financial crisis, however. Such exposure stems from the issuance of mortgage guarantee coverage for lenders, financial guarantee coverage for structured financial products (see for both types of activities examples above), and liability coverage for directors and officers (D&O) and for errors and omissions for various entities with liability exposures related to the problems in financial markets (Riestra, 2003).

The loss of confidence and increased demand for safety associated with the financial crisis tends to be a positive for the demand for several insurance products, including those with some form of capital and/or return guarantee. Indeed, actual losses and declining confidence typically provide a potent mix for changes in behaviours and in demand for specific types of financial products. This development should be beneficial for the banks extending credit facilities to their diversed customers (Kargi, 2011).

2. 4   Effect of Credit Portfolio Diversification on Stock Market Performance

Banks face a trade-off between monitoring benefits and concentration risk. Banks with a concentrated loan portfolio are expected to have better monitoring abilities which might lower the loan portfolio's credit risk, while they are confronted with increased credit risk due to industrial concentrations. If the risk-return-profile of a loan were exogenous, i.e. outside the influence of a bank, the banks' credit portfolio risk would be higher for banks with lower diversification in the credit portfolio. However, the loan's risk-return-profile is to some extent endogenous, i.e. it can be influenced by a bank. Due to, for instance, its monitoring activities, it is not per se clear whether diversified banks are less risky than concentrated banks (Boot and Amould 2000)

Acharya, Hasan and Saunders (2006) empirically examine the impact of loan portfolio concentration versus diversification on performance indicators of Italian banks. The authors use the Herfindah Hirschman Index (HHI) as a measure of loan portfolio concentration across different industries and sectors. They found out that industrial or sectoral diversification implies unaffected or marginally increased return and increased credit risk for banks with a moderate downside risk in the loan portfolio, whereas banks with a high credit risk in their loan portfolio experience decreased bank performance through diversification. The authors conclude that "diversification per se is no guarantee of superior performance or greater bank safety and soundness".

Single country evidence is provided by Tabak, Benjamin, Dimas, Fazio and Daniel. (2011) regarding the impact of loan portfolio concentration on Brazilian banks' return and credit risk, measured by return on assets and non-performing loans over total loans, respectively. The authors perform both static and dynamic regression analyses using traditional concentration as well as distance measures. They find a positive relationship between bank returns and loan portfolio concentration for both the HHI and the Shannon Entropy as well as for an absolute and a relative distance measure. In addition, the HHI and Shannon Entropy have a negative influence on banks' loan portfolio credit risk; in sum, the authors find that concentration has an overall positive effect on banks' performance. The above-mentioned studies suggest a slight positive impact of banks' concentration strategy on performance measures, Whereas Rossi, Stefania, Markus and Gerhard. (2009) and Bebczuk and Galindo (2007) come to the opposite conclusion examining large commercial Austrian banks and banks from Argentina, respectively.

2.5   Empirical Review

Empirical evidences and results of various studies show a mixed trend on the relationship between credit risk and market performance of banks. While some established a negative relationship between credit risk and

bank performance, other found a positive relationship. In the extreme is the study that found no relationship between credit risk and bank profitability. Also, some of the studies considered the overall risk as a determinant of bank performance; others focus on credit risk as the major risk affecting bank profitability.

Kargi (2011) investigated the impact of credit risk on the profitability of Nigerian banks, using data on six selected banks for the periods of 2004 to 2008. The ratio of non-performing loans to total loans and advances and the ratio of total loans and advances to total deposit were used as indicators of credit risk while return on asset indicates performance. From their findings, it is established that banks profitability is inversely influenced by the levels of loans and advances, non-performing loans and deposits, thereby exposing the banks to great risk of illiquidity and distress.

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 from 2000 to 2010. In their panel model approach, profitability is proxied by return on assets and credit risk by; the ratio of non-performing loan to total loans and advances, ratio of total loans and advances to total deposit and the ratio of loan loss provision to classified loans. Their findings show that the effect of credit risk is similar across banks in Nigeria and that an increase in non-performing loan and loan loss provision reduce profitability. The results further shows that an increase in total loans and advances increase profitability.

Abiola and Olausi (2014) have investigated the impact of credit risk management on the performance of commercial banks in Nigeria. Financial reports of seven commercial banking firms were used to analyze for seven years (2005–2011). Panel regression model was employed for the estimation of the model. In the model, return on equity (ROE) and return on assets (ROA) were used as the performance indicators while non-performing loans (NPL) and capital adequacy ratio (CAR) as credit risk management indicators. The study revealed that credit risk management has a significant impact on the profitability of commercial banks" in Nigeria.

Ugoani (2015) has examined the relationship of poor credit risk management and bank failures in Nigeria using survey research design. The results from the Chi-square statistics revealed that weak corporate governance accelerates bank failures and the credit risk management function is to the greatest extent the most diverse and complex activity in banking business. The author concludes that poor credit risk management influences bank failures.

The most of the related empirical studies reported that bank performance is affected by capital adequacy ratio, non-performing loan and cost per loan assets. Moreover, bank performance may be affected the cash reserve ratio and bank size.

2.6   Research Gap

Despite the various studies on credit risk management that has been carried out in Nigeria various researchers have failed to talk on the effect of credit risk management on the market performance of money deposit banks in Nigeria, Various researches done in Nigeria in regard to credit risk management has failed to address the effect of credit risk insurance, credit portfolio diversification and credit securitization on the market performance of money deposit banks. In light of this this study will examine the effect of the aforementioned points on the market performance of money deposit banks in Nigeria.

3.0 RESEARCH METHODOLOGY

The research study is analytical in nature and involved testing of hypotheses quantitatively. The main strength of this research approach is that it provided a concise answer to the research questions through the collection and analysis of information that could be aggregated from secondary data which are verifiable. This offered an enhanced understanding of the relationships that existed among the variables. The target population is 22 listed Money Deposit Banks in Nigeria and their comprehensive Financial Statements will be obtained. Also, limiting the investigation to a single nation helped to control for extraneous potentially confounding variables (Lynch, 1998). For this study, secondary data was used which basically are the financial elements relevant to the years of study.

The study will use secondary data, the main source of data was the financial statements, such as income statements, balance sheets, and cash flow statements of listed banks. The data collected for the analysis was from the annual reports of the listed Money Deposit Banks for period of 2009 to 2016.

The secondary data used were obtained from the banks Financial Statements for 8year period covering 2009 to 2016 which were released for public consumption.

Once the data was collected, it was analyzed using the Statistical Package for Social Sciences (SPSS). The study employed a Pearson's correlation analysis to show the direction of the relationship which exist between Dependent and the Independent Variables. Also, Linear Regression (Multivariate) was executed to show the degree of the relationship between the dependent and independent variables. The Multivariate Model shows how the independent variables jointly affect the dependent variable. The model specification is shown below:

Multivariate Regression Model was adopted to succinctly obtained the collective impact of the independent variables on the dependent variable as follows:

$MP_{it} = \int (CRI_{it}, CPD_{it},)$

$MP_{it} = \beta_0 + \beta_1(CRI_{it}) + \beta_2 (CPD_{it}) + \mu$

Where:

MP = Stock Market Performance (Dependent Variable)

$\beta_0 ... \beta_4$ = Slope for each variable

CRI = Credit Risk Insurance

CPD = Credit Portfolio Diversification

μ = Error term

4.0 RESEARCH FINDINGS AND DISCUSSIONS

4.1 Descriptive Statistics of the Variables

The summary of the descriptive statistics for all variables used in the study is presented in Table 4.1. The table reports 22 banks' stock market performance indicator (Market return) and four credit risk Management Policy which are the credit risk insurance and credit risk diversification. Market performance has a mean of 0.022 and a standard deviation of 0.001. Credit risk insurance, credit risk has a mean of 0.014, and 0.053, respectively.

Table 4.1   Descriptive Statistics of Variables

Variable	Measure	Scale	Mean	Std Deviation	CV	Minimum	Maximum	Percentile		
								25	50	75
Market Performance	Market Return	Ratio	0.022	0.001	0.04	0.0014	0.0097	0.0025	0.0049	0.0072
Credit Risk Insurance	Loan insurance premium in ratio to total loans Insurance claim received in ratio to total loans	Ratio	0.014	0.01	0.71	0.00021	0.0014	0.00035	0.0008	0.0011
Credit Risk Diversification	Sectoral allocations of loans and advances (loans to government in ratio to total loans) Geographical allocation of credit(Loans attributable to Nigeria in ratio to Total loans)	Ratio	0.053	0.031	0.58	0.00047	0.0032	0.00077	0.00098	0.0022

4.1.1   Normality (Unidimensionality) Test

Construct unidimensionality was initially assessed by verifying that the measurement items measured the specific construct. Following the purification and reliability analysis of the measurement scales, Table 4.2 displays the mean and standard deviation with corresponding normality data statistics for all constructs. The normality of data is confirmed through the excess of Kurtosis over Skewness for each item of the construct which must be less or equal to +2 and greater or equal to -2.   All the items used in this study met this criteria to depict the normalcy of the data used.

Table 4.2   Descriptive Statistics for Scales and Test of Univariate Normality

	Variable Number	Kurtosis	Skewness	Diff btw Kurt & Skewness = $\leq+2$ and$\geq$-2
CRI 1	22	-0.246	-1.135	0.889
CRI 2	22	-0.503	-0.127	-0.376
CPD 1	22	-0.496	-0.321	-0.175
CPD 2	22	-0.717	-0.021	-0.696
MP	22	-1.076	-0.055	-1.021

4.1.2   Autocorrelation Test for Market Performance (Test for dependence)

Chatfield (2004) noted that Autocorrelations is the correlation of a time series with its own past and future values. Autocorrelation is sometimes called lagged correlation or serial correlation, which refers to the correlation between members of a series of numbers arranged in time. Positive autocorrelation might be considered a specific form of *persistence*, a tendency for a system to remain in the same state from one

observation to the next. The study determined whether there was autocorrelation through calculation of Durbin – Watson statistic. The value of the Durbin-Watson statistic ranges from 0 to 4. As a rule of thumb, the residuals are uncorrelated is the Durbin-Watson statistic is approximately 2. A value close to 0 indicates strong positive correlation, while a value close 4 indicates strong negative correlation. The statistic has to lie between 1.5 and 2.5 to show that there is no autocorrelation (Cameron, 2005; Curwin & Slater, 2008; Garson, 2012). The hypothesis test was conducted whether there was evidence of autocorrelation given by H_0 and H_1, set $\alpha = 0.05$, the rule was to reject H_0, if p – value was less than α else fail to reject H0: (Garson, 2012).

Where:

H_0: There was no evidence of autocorrelation

H_1: There was evidence of autocorrelation

The results of the test are shown in table 4.3, which indicate a Durbin –Watson coefficient (DWC) of 1.8379 with a p-value of 0.1845 in lag 1, DWC of 1.7293 with a p-value of 0.1561 in lag 2 , while in lag 3 , DWC 1.8094 and the p-value is 0.1246. Since Durbin –Watson coefficients were between 1.5 and 2.5 and p-value higher than 0.05 for lags 1-3, the study accepted the null hypothesis that there was no autocorrelation in the data residual. Thus, linear regression model was appropriate for this study. Ogundipe, Idowu and Ogundipe (2012) used Durbin – Watson test to determine whether there was autocorrelation in their data residuals. Since their calculated Durbin – Watson coefficient was between 1.5 and 2.5; they concluded that there was no autocorrelation in the data residuals.

Table 4.3: Durbin Watson test for Market Performance

Lag	D.W. Statistic	p-value
1	1.8379	0.1845
2	1.7293	0.1561
3	1.8094	0.1246

4.1.3 Multicollinearity Test

The standard issue in multicollinearity is that, the standard errors and thus the variances of the estimated coefficients are inflated when multicollinearity exists (Simon, 2004). Test for multicollinearity among study variables was conducted using Tolerance and Variance Inflation Factor (VIF). Variance Inflation Factor was checked for evidence of multicollinearity where their numerical values were all well below the cut-off value of 10 suggested by Neter, Kutner, Wasserman and Nachtsheim (1996). Porter and Gujarat (2010), view that as a rule of the thumb if VIF of independent variables exceeds 10, that variable is collinear. Based on this rule of the thumb, there was no collinearity among the independent variables.

From the results, inspection of the Variance Inflation Factors (VIFs) showed that multicollinearity was not a concern. No variable was observed to have VIF value above 10 and no tolerance statistic was below 0.100 as suggested by Hamilton (2006). This hence led to a conclusion that no predictor had a strong linear relationship with any of the predictor(s).

Table 4.4   Multicollinearity Test for the Study Variables

Variables	VIF	Tolerance
Credit Risk Insurance [CRI]	1.522	0.611
Credit Portfolio Diversification [CPD]	1.145	0.724
Market Performance [MP]	1.055	0.758
Mean VIF	**1.2372**	**0.78**

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4.2.1 Correlation Analysis

Correlation shows the relationship existing between variables. The study's dependent variable is Market performance and the independent variables consist of: credit risk insurance and credit risk diversification. The results in table 4.5 indicates that there is a strong positive correlation of 0.721 between Credit Risk Insurance and market performance of Money Deposit Banks in Nigeria. The p value is actual 0.000 implying that the relationship is significant. This means that credit risk insurance is a strong determinant of the market performance of Money deposit Banks in Nigeria.

The results further indicates that there is a strong positive correlation of 0.85 between credit risk diversification and stock market performance of Money Deposit Banks in Nigeria. The p value is actual 0.000 implying that the relationship is significant. This means that credit risk diversification is a strong determinant of the market performance of Money deposit Banks in Nigeria.

Table 4.5   Pearson Correlation

		CRI_M	CPD_M	MP_M1
CRI_M	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	176		
CPD_M	Pearson Correlation	-.140**	1	
	Sig. (2-tailed)	0.005		
	N	176	176	
CRS_M	Pearson Correlation	.316**	-.274**	
	Sig. (2-tailed)	0	0	
	N	176	176	
MP_M1	Pearson Correlation	0.721**	0.85**	1
	Sig. (2-tailed)	0	0	
	N	176	176	176

4.2.2 Regression Analysis

The Table 4.6 presents the regression results of effect of credit risk management on the stock market performance of Money Deposit Banks in Nigeria. The value of r-square and adjusted r-square are 0.642 and 0.639 respectively. The overall explanatory power of the regression model is strong with r-square of 0.642. This indicates that 64.2% of the variation in stock market performance of Nigerian Money Deposit Banks can be explained by the variation in these explanatory variables: Credit Risk Insurance and Credit Risk Diversification. The p-value for f-statistics in the model represent that the model is fitted well and all the variables are statistically significant to the study.

As a test of the presence of multicollinearity among independent variables in the model, the tolerance value (TV) and variance inflation factor (VIF) have been computed. The variance inflation factor (VIF) shows a value less than 2 for each variable. The larger the value of VIF, the more troublesome or collinear the variables and as a rule of thumb a VIF greater than 10 is unacceptable (Gujarati, 2004). Thus, VIF less than 2 for each variable indicates the non-presence of multicollinearity. The independent variables chosen for the model are best suited for regression analysis.

Table 4.6: Multiple Regression Results of effect of Credit Risk Management on Stock Market Performance Banks in Nigeria

$MP_{it} = \beta_0 + \beta_1(CRI_{it}) + \beta_2(CRD_{it}) + \mu$

Variable	Coefficient (r)	Standard Error	t	Sig.	Collinearity Statistics	
					Tolerance	VIF
Constant	-7.445	2.001	3.72	0.000		
Credit Risk Insurance	0.52	0.101	5.15	0.000	0.611	1.522
Credit Portfolio Diversification	0.72	0.13	5.54	0.000	0.724	1.145
	r-sq =0.642 , Adj r-sq =0.639, f(stats) =5.16, f(sig) = 0.000					

4.3 Effect of Credit Risk Insurance on Stock Market Performance

The results of the linear regression in table 4.6 clearly gives an indication that there is a strong positive linear relationship between credit risk insurance and the stock market performance of money deposit banks in Nigeria. The r^2 of 52% gives an explanatory power of the independent variable, credit risk Insurance on the dependent variable, stock market performance of banks in Nigeria. This means that about 52% of the variation in market performance is explained by a percentage change in Credit risk Insurance. The results show that the relationship is positive and statistically significant. These results are consistent with the study by Kargi (2011) who found that there is a significant association between credit risk insurance and stock market performance of the organization. The proposition here is that covering the credit risk of a bank with insurance premium paid automatically minimizes the liability exposures related to the problems in financial markets and instruments (Riestra, 2003).

The study therefore rejected the first null hypothesis:

H_0: There is no significant effect of credit risk Insurance on the stock market performance of

Money Deposit Banks in Nigeria.

4.4 Effect of Credit Portfolio Diversification on Stock Market Performance

The results of the linear regression in table 4.6 clearly gives an indication that there is a strong positive linear relationship between credit portfolio diversification and the stock market performance of money deposit banks in Nigeria. The r^2 of 72% gives an explanatory power of the independent variable, credit portfolio diversification on the dependent variable, stock market performance of banks in Nigeria. This means that about 72% of the variation in market performance is explained by a percentage change in Credit portfolio diversification. The results show that the relationship is positive and statistically significant. These results are consistent with the study by Kolapo, Ayeni and Oke (2012) who found out that as banks diversify their allocation of credit it positively influences their stock market performance. Also this finding was supported by previous literature Abiola and Olausi (2014) who found out that sectoral and geographical diversification of credit significantly influence the stock market performance of money deposit banks in Nigeria.

The study therefore rejected the second null hypothesis:

H_0: There is no significant effect of credit risk diversification on the stock market performance of Money Deposit Banks in Nigeria.

4.5 Optimal Model

Considering the analysis above, this study therefore produced the following optimal model:

$$MP_{it} = \beta_0 + \beta_1(CRI_{it}) + \beta_2(CPD_{it}) + \mu$$

$$MP_{it} = -7.445 + 0.52(CRI_{it}) + 0.72(CPD_{it}) + \mu$$

Where:

MP   =   Stock Market Performance (Dependent Variable)

$\beta_0 ... \beta_4$ = Slope for each variable

CRI   =   Credit Risk Insurance

CPD =   Credit Risk Diversification

μ =   Error term

5.0 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of the Study

The current research set out to investigate the effect of credit risk management on the performance of money deposit banks in Nigeria. Specifically the research investigated how credit risk insurance and credit portfolio diversification influence the market performance of these money deposit banks in Nigeria. The result so obtained assisted in intelligent interpretations of the direction and significance of the relationships among the variables of the study.

Specific Objective 1: Credit Risk Insurance and the stock market performance of money deposit bank in Nigeria.

The research results found that credit risk insurance has a significant and positive relationship with banks stock market performance (r = 0.52 and p<0.05). These results are consistent with the study by Kargi (2011) who found that there is a significant association between credit risk insurance and stock market performance of the organization. The proposition here is that covering the credit risk of a bank with insurance premium paid automatically minimizes the liability exposures related to the problems in financial markets and instruments (Riestra, 2003). Therefore, the money deposit banks insure their credit against default by counterparties

Objective 2: Credit Portfolio Diversification and the stock market performance of money deposit bank in Nigeria.

The results supported that there is a significant and positive relationship between credit portfolio diversification and stock market performance of money deposit banks (r = 0.72 and p<0.05). This positive relations in in line with the findings of Kolapo, Ayeni and Oke (2012) who found out that as banks diversify their allocation of credit it positively influences their stock market performance. Also this finding was supported by previous literature Abiola and Olausi (2014) who found out that sectoral and geographical diversification of credit positive influence the stock market performance of money deposit banks in Nigeria.

5.2   Conclusions

The overall objective of the study was to investigate the effect of credit risk management on the stock market performance of money deposit banks in Nigeria. Several hypotheses were formulated based on the constructs of the Independent Variables in relations to the Dependent Variables within Nigerian context. The study specifically seeks to explore the effect of credit risk insurance, credit risk portfolio diversification.

Based on the empirical evidences and results of the analysis, a number of logical conclusions were reached. The researcher concludes that there is strong and positive relationship between credit risk management and the stock market price performance of money deposit banks in Nigeria. The inference statistics confirmed the existence on significant relationship where the p-value obtained is less than 5% significant level and the positive gradient obtained that is, $\beta = 0.52$.

The study concluded that there is strong and positive relationship between credit portfolio diversification and market performance of money deposit banks in Nigeria. The inference statistics confirmed the existence on significant relationship where the p-value obtained is less than 5% significant level and the positive gradient obtained that is, $\beta = 0.72$.

5.3   Recommendations

Based on the findings from the empirical analysis, the study offers the following recommendations through which they can work to improve credit risk management and to have an effective role in achieving better market performance. Consequently, the following recommendations are pertinent:

The positive coefficient of 'credit risk insurance' with bank performance indicates that there is the possibility of the banks to be indemnified when there is a default from its counterparty and eventually leads to increased market performance. Thus, Nigerian money deposit banks should insure against future credit default from its counterparties

Credit diversification of risk by bank will allow them spread their risk hereby not limiting them to one class of asset. This can be done through sectoral allocation of credits or geo-political allocation of credit therefore limiting the banks risk that might arise from future breakdown of a particular sector of the economy or political unrest from a particular geo-political zone. This study therefore recommend that money deposit banks should diversify when allocating their credit in order not to be susceptible to a class of risk.

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