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RISK MANAGEMENT AND SHAREHOLDERS' WEALTH MAXIMIZATION

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ABSTRACT

Risks are fundamentally part of business operational models; it cannot be completely eliminated and if not efficiently managed could result to loss of value. Wealth creation could only take place when the prevailing financial risks in the banking sectors are identified and carefully handled. An expost-facto study of 100 firm-year observations was conducted using ten listed Deposit Money banks in Nigeria for a period of 10 years from 2009 to 2018. The results of the multiple regression analysis carried out revealed that risk management significantly affected shareholders' wealth of listed banks. Credit risk (NPLR) and operating efficiency risk (OPER) had significant negative effect on Market Value (MV) while capital risk and liquidity ratio (LQR) had significant positive effect on market value (MV). This study concluded that four elements of risk (credit risk, capital risk, operating risk, liquidity risk) significantly affected shareholders' wealth of listed banks in Nigeria. Therefore, the management of the Nigerian banks should ensure that non-performing loan ratio to total loan is kept at its minimum; ensure adequate liquid fund in meeting customers demand as when needed, engage competent hands where deemed necessary in their operations to mitigate operating efficiency risk and possess adequate capital ratio in accordance with CBN minimum capitalization ratio, if possible, beyond the minimum required by the regulatory bodies.

Contribution/Originality: This study is one of the few studies which have examined the four elements of risk associated with banking industry, as it affects the wealth of the shareholders. The four risk elements considered were credit risk, operating risk, capital risk and liquidity risk.

1. INTRODUCTION

Shareholders' wealth maximization has been one of the primary goals of corporate organization globally, hence the profitability and good financial performance of banks that promote wealth maximization strives when banks identify inherent risks and strategically prioritize risk management in each one of them. Shareholders' wealth maximization occurs when there is an increase in the value of the firm's common stock which is considered the most important business objective over profit maximization (Ezelibe & Aniefor, 2017).

Risk management potency is ignited when managerial expertise and competence of those saddled with the operational and administrative responsibilities live up to their responsibilities. Adegoke and Yusuf Olatunji (2018); Sensarma and Jayadev (2009) asserted that risks are fundamentally part of business operational models, as this cannot be completely eliminated, banks have designed several ways of identifying them and develop risk management approach to reduce its impact on the operations. Shareholders' wealth maximization is enhanced when an effective and pragmatic risk management model is implemented and adopted in the system from top to bottom level of management. The risks associated with banks include but not limited to: Operational efficiency risk, capital adequacy risk, interest rate risk, non-performing loans risk, loans loss risk, market risk, credit risk, liquidity risk (Tandelilin, Kaaro, Mahadwartha, & Supriyatna, 2007).

According to the Central Bank of Nigeria, majority of the deposit money banks have not been living up to expectation in meeting shareholders wealth maximization objective which is evident in the drastic fall in market share price and shareholders wealth eroded as observed in the daily activities posted at the capital market by the Nigeria Stock Exchange as at end of 2018 financial year. Recently, Nigeria banks posted improvement in their financial performance but a Fitch Ratings (2018) reported that Nigeria banks were constraint in meeting the primary objective of wealth creation and professionally handling them because some banking related risks especially non-financial risk is not adequately reported in the audited report of banks. Also, with the recent directives by CBN in 2019, increasing loan to deposit ratio to 65% effective from December 2019 means the problem of shareholders' wealth maximization may persist due to expected rise in non-performing loan (credit risk) and added to the existing non-financial risk inherent in the banking industry.

Akit, Hamzah, and Ahmad (2015) stated that wealth creation could only take place when the prevailing financial risks in the banking sectors are identified and carefully handled. Al-Eitan and Bani-Khalid (2019) expressed that a rise in credit risk and worsening asset quality negatively impacted the shareholders' wealth maximization. To maximize shareholders' wealth, apex banks need to increase bank loan portfolio and ensure appropriate risk management strategy. Also, non-performing loan should be kept minimal since high non-performing loan is detrimental to the value of the bank as observed in the empirics. On the other hand, adoption of an efficient risk management policy could help to reduce non-performing loan and boost profitability. Unfortunately, most banks do not see operational risk as priority and the most threatening risks to their performance.

It was believed that the distress in big financial institutions resulted from the subprime mortgage lending and unreliable credit management (Adeusi, Akeke, Obawale, & Oladunjoye, 2013). Abobakr (2017) posited that banks are faced with the problem of satisfying shareholders who depend on their returns in dividend for survival. While Akram, Omair, Ameen, Babar, and Jaskani (2014) stated that though other expectation are important, yet, the most important and huge problem facing banks is to have a good and sustainable market share price in the daily trading results emanating from the capital market. According to Dauda and Nyor (2018) 11 out of the 24 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 needed 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; Dauda & Nyor, 2018).

This study viewed inability of deposit money banks to meet shareholder's wealth expectation as worrisome which may lead to collapse of some of the banks if not curtained. Therefore, the effect of risk management on shareholders wealth maximization was examined in this paper.

2. REVIEW OF LITERATURE

2.1. Review of Concepts

The shareholders wealth maximization criterion proposed that managerial decisions in any organization should be centered on how to maximize the market value of the share or shareholders' wealth which is measured as market valuation (Khan & Hussanie, 2018). Market value is the stock exchange market share price as at the end of the financial year of all equity shares in issue (Ogundajo, Enyi, & Oyedokun, 2019).

Risk refers to the potential adverse variations in future outcomes (Zhongming, Frimpong, & Guoping, 2019). The process of monitoring, estimating and assessing risk is called risk management. According to Mehmood, Sheraz, Mehmood, and Mujtaba (2017) risk is defined in financial terms as the chance that an outcome or investment's actual gain will defer from an expected outcome or return. Risk management is the practice of identifying potential loss or damage (risk) in advance, analyzing them and taking precautionary steps to reduce or curb the risk. According to Mehmood et al. (2017) risk can be classified as non-financial (operating) risk and financial (credit, capital, and liquidity) risks.

The credit risks are those risks associated with the possibility of loans going bad, that is, the potential that banks loan facilities advanced to borrowers may turn to non-performing loans or completely bad due to the borrowers not meeting the agreed terms of payment on both the principal, the interest, the accrued default charges or all of the three. 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, improper collateral system, government interference and inadequate supervision by the Central Bank (Kithinji, 2010). An increase in bank credit risk gradually leads to liquidity and solvency problems. The higher the exposure of a bank to credit risk, the higher the tendency of the bank to experience financial crisis and vice-versa (Funso, Kolade, & Ojo, 2012).

The operational efficiency risk management is banks' ability to effectively manage the affairs of the banks professionally, exercise due diligence and professional competence. Operational risks are those risks related to human errors, bank financial fraudulent activities, inefficiencies, and or due to natural disaster. Due to the rise of automated technology and increasing trends of e-commerce, the possibility of the occurrence of operational risk has been increased. Operational inefficiency risk is the ratio of operating expenses to net operating income.

The capital ratios have long been valuable tool for assessing safety and soundness of banks. Bank supervisors use capital ratios as rules of thumb to measure the adequacy of banking institution's level of capital (Francis, Hasan, Koetter, & Wu, 2012). The ratio of equity to total assets is considered one of the basic ratios for capital strength. It is expected that the higher this ratio, the lower the need for external funding and the higher the profitability of the bank. It shows the ability of the bank to absorb losses and handle risk exposure with shareholders (Antwi & Apau, 2015).

The probability of a bank lacking sufficient cash needed for operational activities and settle the credit request of customers is seen as liquidity risk. The liquidity ratio which is currently at 30% (CBN, 2018) is the ratio or percentage of banks deposits that must be kept in cash or in risk free money market instruments such as treasury bills. This is the amount of bank deposit that must be set aside in cash which cannot be lend out to customers in form of loans or overdraft.

2.2. Review of Related Theories

Milton Friedman propounded the shareholder theory in 1970. He opined that the objective of most businesses is to increase shareholders' interest. As pointed out by Baah, Agyapomaa, Elikplimi, and Alexander (2018) the emphasis of the shareholder theory is on the maximization of shareholder's value. The shareholder theory is also premised on the fact that managers are hired as agents by shareholders to operate a business in their interest, thus empowering them legally and morally to act on their behalf. The shareholder theory is opined to be associated with

ancient business methods; it is also greatly criticized. One of the criticisms is that it solely focused on shareholder's interest which contradicts the interest of other people in the same business (Green, 1993).

The value at risk theory was brought to literature in 1996 by Leong Latiny. The scholar postulated that there are values attached to every risk in business ventures, all that is required by the investor is to analyze the risks inherent in the business and decide ahead of time whether the risk is worth taking. Value at risk theory known as (VART) and its analysis is relevant to any consideration of risk management and assessment, as it is a risk quantification tool with a long history of use in trading risks (Leong, 1996). VAR is able to measure risk while it happens and is an important consideration when firms make trading or hedging decision (Manganelli & Eangle, 2001).

Value at risk theory has been supported by many researchers for its logicality and rationality but on the other hand, overreliance on its application and justifying important decisions solely on its basis are likely to be counterproductive. No risk management system can replace the sound judgment of managers, and those using it should be aware of its limits (Yamai & Yoshiba, 2002). The benefits of measuring risk in decision making cannot be underestimated; but under certain circumstances, risk is difficult to be accurately measured, its estimation is subject to large estimation errors, and a downward bias in the estimation can easily be exploited by employees or the entire company to their own benefit (Marty, 2013). Also, risk can only be estimated based on available information to the investors in which cases of information asymmetry could lead investors in taking decision using either wrong or partial information; thus leading to biased opinions (Florin, Florin, Petre, Pavel, & Sorina, 2017). Another criticism of the value at risk theory lies in the occurrence of cascading and/or herding effect; a situation when cost of obtaining information is low, more likely, people collect information themselves, but when it is high, most likely they herd (Arratia, 2014). Cascading effects are dynamic over time and condition dependent, making measurement extremely difficult. As conditions evolve (innovations in communications and financial instruments; changes in politics regimes) it resulted into cascading tendencies. Despite the availability of real-time comprehensive data on risk assessment, the analysis would need to have perfect understandings of both present conditions and those likely to occur in the future (Baker & Filbeck, 2013).

While the shareholders' theory is associated with shareholders' wealth maximization, the value at risk reflects the risk inherent in every investment and expects every investor to analyze the possible risk associated with investment. Although, the shareholders expect much from their investment, yet should realize that the inherent risk in banks can only be managed and cannot be out-rightly whisked away. Consequently, both theories reflect the ideology of the relationship between risk management and shareholders' wealth maximization.

2.3. Review of Extant Literature

Prior studies from advanced economies have written on risk management as it affects shareholders in various forms; for example, the studies of Amin, Imam, and Malik (2019); Lestari (2018); Manz (2019); and the study of Arroyave (2018) from Colombia and that of Bussoli, Gigante, and Tritto (2015) from Italy. Some of these studies have argued that shareholders' wealth maximization is in danger if risk management is not properly handled. Louzis, Vouldis, and Metaxas (2012) work revealed that banks specific determinant of non-performing loans and shareholders' wealth maximization depend on the banks' ability to manage risk. From, Japan, Konishi and Yukihiro (2014); opined that risk management is essential among the factors affecting banks in Japan, and Rosenberg and Schuermann (2016) posited the general approach to integrating risk management is to create wealth for the owners. However, mixed results were found in Costa-Rica in the study conducted by Boland (2012) which found that non-performing loans had a negative significant effect on return on assets while capital adequacy ratio positively impacted on net interest margin.

Etale, Ayunku, and Etale (2016); Kolapo, Ayeni, and Oke (2012) investigated the impact of credit risk management on performance of banks in Nigeria and found that doubtful standard loans had a negative significant

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impact on market share price while substandard loans had a negative insignificant impact on market share price. Similar study conducted by Rufai (2018) using Union Bank of Nigeria Plc as a case study; reported that credit risk had a positive effect on performance of Union bank and was of the opinion that the bank should conduct a proper review on the credit worthiness of the customers and thorough risk analysis carried on the level collaterals backing each loan advancement. Iwedi and Onuegbu (2014) obtained that credit risk had a positive significant impact on the performance of deposit money banks in Nigeria. Contrarily, Ucheaga, Achugamonu, Adetiloye, Okoye, and Agwu (2017) reported that credit risk management had a negative but insignificant impact on growth of total loans and advances of deposit money banks in Nigeria. Olusanmi, Uwuigbe, and Uwuigbe (2015) concluded that an insignificant negative association exist between risk management and banks' performance in Nigeria; the study posited that banks performances are always tied to compliance or non-compliance to the Basel' regulations of the financial institutions.

Asia and Ratan (2019) investigated the relationship between corporate governance and non-performing loans of listed commercial banks in Bangladesh and found that corporate governance had a significant positive effect on non-performing loans of the sampled listed banks in Bangladesh. Mawutor and Awah (2014) reported that liquidity and bank size had insignificant negative effect on return on assets, while credit risk, leverage and productivity also had a negative but significant effect on return on assets of the listed banks in Ghana. In Taiwan, Chen and Pan (2012) concluded that credit risk efficiency had a weak but insignificant correlation with shareholders' wealth of the sampled banks for the period under consideration.

Adrian (2014) study conducted in Kenya opined that capital management risk, financial risk, solvency risk and liquidity risk had negative effect on financial performance of the insurance companies in Kenya. In contrast, Mutua (2015) obtained a significant association between bank performance and credit risk management; and concluded that Kenyan banks have in place regulatory policies and strategy in mitigating credit risk with direct impact on their performance. In Vietnam, Vinh (2017) reported that non-performing loans had negative effect on return on assets and on lending behavior. Also, that high level of non-performing loans deteriorates the assets quality and caused low profitability. The study equally found that the non-performing loans affect the banks' ability to advance more loans to deserving customers.

Ben, Patrick, and Caleb (2015) conducted an investigation to ascertain the association between financial risks, non-financial risks and banks profitability in Nigeria, and found significant positive relationship between financial, non-financial risks and shareholders' wealth. Rajha (2017) discovered that non-performing loans had a significant positive effect on return on total assets of Jordan listed banks. In Nepal, Poudel (2012) reported that credit risk management had a negative influence on the financial performance while Osuka and Amako (2015) showed that credit management positively impacted on return on assets, but exerted a negative impact on return on equity of banks in Nepal.

Bussoli et al. (2015) opined that loans quality and financial performance of banks in Italy were insignificantly related. Likewise, Hooshyar, Mohammadi, and Valizadeh (2017) discovered that financial leverage and liquidity risk had negative but insignificant effect on financial flexibility of the selected firms. In contrast, Ahmad, Guohui, Hassan, Naseem, and Rehman (2016) reported that corporate governance exerted positive effect on banks risk management in Pakistan. In Ghana economy, Boahene, Dasah, and Agyei (2012) found that non-performing loans and pre-provision had significant positive relationship with bank profitability. The study posited that the selected banks had enjoyed high performance and high profitability regardless of the presence of credit risk in Ghana.

Maria, Mehmood, and Kashif (2016) investigated the impact of risk management on shareholder' fund of the banking sector in Pakistan, and obtained that risk management had a weak correlation with shareholders' fund and negative but insignificant relationship. The study recommended that non-executive directors of banks should exercise the statutory monitoring roles expected of them. Buchory (2015) conducted an assessment of effect of

credit risk and operational efficiency risk on profitability of banks, and found that non-performing loans had a significant positive effect on return on assets while operational efficiency negatively affected the return on assets.

Taiwo and Taiwo (2013) studied the impact of credit risk management on the profitability of selected commercial banks in Nigeria and found that credit risk management had significant positive effect on profitability. Similar results were obtained by Okere, Isiaka, and Ogunlowore (2018) who reported that there was a significant positive relationship between risk management and financial performance of deposit money banks. The study opined that banks in Nigeria should speedy up their capacity, pragmatically analyze identified risks and adhere strictly to the rules from the regulatory bodies in relation to risk.

The results of the study conducted by Vincent and David (2012) on the effect of credit policy on the performance of banks in Rwanda revealed that the banks are making impressive proactive efforts and uses the financial indexes in maximizing the shareholders profits. Alshatti (2015) discovered that risk management exerted a significant positive effect on financial performance of the commercial banks in Jordan. In Namibia, Sheefeni (2015) obtained that non-performing loans had significant negative impact on return on assets but insignificantly impacted on dividend per share while a positive but insignificant relationship was derived between non-performing loans and return on equity.

Poudel (2012) found that liquidity risk management had significant negative impact on market share price of the commercial banks in Nepal. In addition, default rate exhibited a negative but significant influence, while cost per loan assets had negative but insignificant impact on market share price. Lestari (2018) reported that capital adequacy and non-performing loans had negative impact on the market share price of the banks. Also, risk management acted as controlling factors of the banks financial performance in Indonesian. Moti, Masinde, Mugenda, and Sindani (2012) obtained that bad debt and credit risks negatively impacted on market share price, but positively influenced the return on assets. Also, that liquidity risk had a significant positive impact on return on assets.

The study conducted in India by Singh and Sharma (2018) showed that non-performing loans had significant negative impact on return on assets while capital adequacy ratio had insignificant effect; the study was of the opinion that banks should focus on credit risk management to reduce the level of non-performance loans and as well attain the desired profitability expectation of the shareholders. In the same context, Arif and Showket (2015) found that capital management risk and solvency risk had significant negative relationship with shareholders fund, while liquidity risk, company size and volume of capital revealed significant positive association. In Tanzania, Madishetti and Rwechungura (2013) found that capital adequacy, operating efficiency; liquidity risk and credit risk and bank size had negative effect on the performance of the selected banks in Tanzania.

Nagaraju and Boateng (2018) opined that capital adequacy, non-performing loans, bank size, inflation and GDP growth rate negatively influenced market share price while loans and advances positively influenced the profitability of savings and loans companies in Ghana. In Sri Lanka, Kodithuwakku (2015) concluded that non-performing loans and the loans provisions had negative impact on return on assets of the selected commercial banks in Sri Lanka. Atta and Amowine (2013) examined the effect of operational efficiency on financial profitability of listed banks in Ghana and discovered that loan loss provision exhibited negative effect on financial profitability.

In Ethiopia, Gizaw, Kebede, and Selvaraj (2015) reported that credit risk, non-performing loans, loan loss provision and capital adequacy had significant positive impact on profitability of Ethiopia banking industry. Boadi (2015) discovered that capital adequacy, assets quality, investment, GDP growth and bank resilience had significant positive impact on profitability, while funding risk negatively impacted on the profitability of the banks in Ghana. From Pakistan banking sector, Ahmad. and Bashir (2013) examined the effect of risk management on shareholders' fund and concluded that nonperforming loans, inefficiency ratio and reserve ratio had significant positive effect on return on assets while the non-performing loans, inefficiency ration and efficiency ratio had significant effect on return on equity.

Ugoani (2015) studied the extent of poor credit risk management's effect on bank failure in Nigeria, revealed that weak practice of corporate governance brings about bank failures and that credit risk management is complex and peculiar with bank operations. Charles and Kenneth (2013) found that credit risk management and capital adequacy ratio had a positive significant impact, however, loan advances exhibited negative significant impact on the banks profitability of Nigeria banks. Abiola and Olausi (2014) reported that credit risk management had a positive significant impact on performance of the commercial banks in Nigeria. Juanita and Sanusi (2014) found that credit risk management exerted a significant positive effect on profitability of listed banks in Nigeria. It was suggested that the banks' management should be more scientific (application of risk evaluation techniques) in their credit risk assessment and management of loan portfolios in order to minimize the high incidence of non-performing loans and their negative effect on profitability

3. RESEARCH METHODS

The research design adopted in this paper was *ex-post facto* as casual-effect relationship between risk management and shareholders' wealth was examined. The population of this study entailed all the listed 13 banks on the floor of the Nigeria Stock Exchange (NSE) as at 31 December 2018. The 13 banks are classified by the Central Bank of Nigeria under three major categories as International, National and Regional banks. The study selected 10 banks out of the 13 listed banks as the sample subjects using convenience sampling technique. The sample size represented approximately 77% of the entire population. The ten (10) selected banks were selected from the three categories of banks in Nigeria based on CBN banks categorization of international, national and regional bank so that the selected banks include all banks as categorized by CBN using stratified sampling technique. Secondary data extracted from the audited annual reports and accounts of the selected banks were used.

The study investigated the effect of risk management on the shareholders' wealth of listed banks in Nigeria. The functional equation was developed as:

$Y = f(X)$

Where:

Y= Dependent Variable: Shareholders' Wealth (SHWM).

X= Independent Variable: Risk Management (RM).

$$MV_{it\ it} = \alpha_0 + \alpha_1 NPLR_{it} + \alpha_2 CAR_{it} + \alpha_3 OPER_{it} + \alpha_4 LQR_{it} + \varepsilon_{it}\ldots\ldots\ldots\text{equation (1)}$$

Where:

Y= Market Value.

x_1= Credit risk (CR) measured as non- performing loan to total loan ratio (NPLR).

x_2= Capital risk (CAR) measured as capital adequacy ratio (CAR).

x_3 = Operational Efficiency Risk (OPER) measured as operating risk expenses ratio.

x_4 = Liquidity Risk (LQR) measured as liquidity ratio.

α_0= constant; ε = error term; $_i$ = Entity; $_t$ = Time

4. RESULTS OF THE ANALYSES AND EXPLANATIONS

4.1. Preliminary Estimations

The pre-estimation analysis were conducted to explain the characteristic of the variables as well as to test for the existence of multicolinearity problem using descriptive statistics, correlation analysis and Variance Inflation factor (VIF) test. The results of the descriptive statistics were presented in Table 1 while that of multicolinearity (correlation analysis and VIF) were shown in Table 2 respectively.

4.1.1. Descriptive Statistics

Table-1. Description of distribution series.

Variable	MV	NPLR	CAR	OPER	LQR
Mean	251.32	7.58	23.06	69.73	50.63
Std. Dev.	250.58	10.48	8.86	24.70	16.68
Min	6.67	1.35	11.07	34.73	4
Max	1187.72	69	63.62	220.5	110.67

The descriptive statistics of the variables as shown in Table 1 revealed that market value of Nigerian listed banks are predictable to an extent as the risk factor measured by the standard deviation is approximately equals to the mean value. This implies that the values of the banks within the period of study centred around the mean value; market values did not dispersed widely from the mean value over the years under study. The banks have a least value of ₦6.67billion with highest value of ₦1.187trillion; on the average, the market value of the studied banks within the time frame of the study was ₦251billion.

The ratio of operating expense to operating income was averagely 70% with the minimum and maximum values of 35% and 221% respectively. The maximum ratio of OPER is an indication that the operating expenses of the banks outweighed the operating income at a point within the study time frame while the banks least ratio of operating expense to operating income was 35%. 221% OPER is extremely high and a reflection of losses generated by these banks in some years of the study as expenses exceeded income.

The ratio of non-performing loan to total loan showed good loan management as the average value is 7.6%, which means that roughly 7.6% of all loaned fund turned non-repayable within 180days and above. The least value of 1.35% evidenced that 1.35% of the bank total loan become non-repayable for over 180days and above while the maximum of 69% showed the worst of non-performing loan ratio that the studied banks had experienced within the time frame of the study.

The standard deviations of all the series except for MV revealed that all the series in the distribution are widely dispersed from the mean; it is an evidence of risk-factor which means that these series are risky in prediction, that is, not predictable with certainty.

4.1.2. Multicolinearity Analysis

The determination of the existence of multicolinearity problem among the variables was carried out using Pearson correlation coefficient and variance inflation factor (VIF). While Pearson correlation coefficient depicts the extent of association (non-causal effect) that exist among the variables; VIF only examined whether the variables are multi-correlated.

Table-2. Multicolinearity Test.

Variable	MV	NPLR	CAR	OPER	LQR	VIF	1/VIF
MV	1.0						
NPLR	–0.18	1.0				2.36	0.42
CAR	0.17	0.44	1.0			1.89	0.53
OPER	–0.48	0.64	0.08	1.0		1.42	0.70
LQR	0.28	–0.24	0.11	–0.29	1.0	1.15	0.87
						Mean = 1.70	

In Table 2, the results of the correlation analysis were presented; from the view of the coefficients values, it is deduced that no evidence of multicolinearity problem as all the figures (in absolute form) are less than the threshold of 0.75. Market value is negatively correlated with NPLR (-0.18) and OPER (-0.48) but positively correlated with CAR (0.17) and LQR (0.28) respectively. This implies that MV is inversely associated with NPLR and OPER but has direct association with CAR and LQR. CAR is positively associated with all other variables (MV, NPLR, OPER,

LQR), which means that CAR is directly associated with all the series in the distribution. OPER is positively correlated with all the variables except MV; NPLR inversely associated with LQR and MV but directly associated with CAR and OPER. Lastly, LQR has positive association with MV and CAR but inversely related with NPLR and OPER.

The result of the VIF as presented together that of correlation coefficients in Table 2 aligned with the results of the correlation analysis that no multicolinearity problem exist among the series in the distribution. The result revealed the mean value of 1.70 which is less than the yardstick of 5 and the individual reverse factors of 0.42, 0.53, 070, and 0.87, which are all below the threshold of "1". Therefore, this study concluded that multicolinearity problem does not exist among the variables.

4.2. Results and Discussions

Table-3. Test of the Hypotheses.

Variable	Regression Estimates				Post-Estimation Results:
	β	E	t-test	P	Hausman Test: $chi^2_{(3)}$ = 1.18 (0.88)
Constant	194	174	1.12	0.29	Breusch & Pagan LM Test: $chi^2_{(1)}$ = 140.1 (0.00)
NPLR	-1.53	2.04	-0.75	0.47	
CAR	5.63	2.20	2.56	0.03	Heteroskedasticity Test: $chi^2_{(1)}$ = 14.35 (0.00)
OPER	-1.58	1.44	-1.10	0.3	Serial Auto-Correlation Test: $F_{(1, 9)}$ = 46.15 (0.00)
LQR	0.96	0.79	1.21	0.25	
Overall R²; Wald Test (Prob)	0.2415 Wald $chi^2_{(4)}$ =23.09 (0.00)				Cross-Sectional Dependence: 7.57 (0.00)

Note: $MV_{it\ it} = \alpha_0 - 1.53NPLR_{it} + 5.63CAR_{it} - 1.58OPER_{it} + 0.96LQR_{it} + \varepsilon_{it}$..........(1)

The result of the Hausman test (ρ = 0.88) supported Random Effect and the confirmation test conducted using LM test (ρ = 0.00) also supported Hausman result for the appropriateness of Random Effect. From the diagnostic tests carried out, the heteroskedasticity test (0.00) showed that the residuals of the model are trending (not constant over time) which connotes heteroskedasticity in the model; the result of Pesaran CD test (ρ = 0.00) that the model has cross-sectional dependence problem as well as serial autocorrelation issue when tested by Wooldridge test (ρ = 0.00); due to the existence of heteroskedasticity, serial autocorrelation and cross-sectional dependence problem in the model; the study estimated the regression equation between risk management (credit risk, capital risk, operating efficiency risk, and liquidity risk) and Shareholders' wealth measured as market value (MV) using Random-effects GLS regression with Driscoll-Kraay standard errors

The result of the regression estimate as presented in Table 3 showed that NPLR negatively but insignificantly affects market value (MV) considering the sign and probability of the t-test and the sign of the coefficient (α = -1.53, t-test = -0.75, ρ = 0.47). The value of the regression coefficient revealed that a percentage increase in the ratio of non-performing loan to total loan (NPLR) would result to ₦1.53billion decrease in market value (MV). Also, capital adequacy ratio (CAR) has significant positive effect on market value (MV) considering the sign and probability of the t-test and the sign of the coefficient (α = 5.63, t-test = 2.56, ρ = 0.03). The value of the regression coefficient showed that a percentage increase in the capital adequacy ratio (CAR) would result to ₦5.63billion increase in market value (MV). In addition, OPER negatively but insignificantly affects market value (MV) considering the sign and probability of the t-test and the sign of the coefficient (α = -1.58, t-test = -1.10, ρ = 0.30). The value of the regression coefficient revealed that a percentage increase in the ratio of operating expense to operating income (OPER) would result to ₦1.58billion decrease in market value (MV). It was discovered that liquidity ratio (LQR) has insignificant positive effect on market value (MV) considering the sign and probability of the t-test and the sign of the coefficient (α = 0.96, t-test = 1.21, ρ = 0.25). The value of the regression coefficient showed that a percentage increase in the liquidity ratio (LQR) would result to ₦0.96billion increase in market value (MV). The value of the coefficient of multiple determination of 0.2415 implies that only 24.15% variations in MV

could be explained by the joint variations in the four measures of risk management (NPLR, CAR, OPER, and LQR) while the remaining 75.85% variations is caused by other factors beyond the scope of this model.

The result of this study aligned with the findings of Madishetti and Rwechungura (2013) conducted an examination to ascertain the effect of risk management as risk determinants on profitability of banks in Tanzania. Capital adequacy, operating efficiency, liquidity risk, and credit risk and bank size were the proxy variables to measure risk management while annual GDP growth and annual inflation were used as the determinants of the level of profitability contribution of the banks to the Tanzanian economy. The study found that the independent variables of capital adequacy, operating efficiency, liquidity risk and credit risk and bank size had a negative effect on the performance of the selected banks sampled in Tanzania.

The ratio of non-performing loan to total loan is quite huge; although it is understandable that management are trying to grant loans to customers in accordance to CBN and other regulatory bodies' directives but this need to be checked as it negatively impacted on the market value of the listed banks. The ideas of mandating financial institutions to grant stipulated percentage of their deposits as loan to customers is great as it tends towards the development of the indigenous industries and economic growth as a whole; but the policy makers should also consider the credit worthiness of the citizens applying for the loan in order not to overburden the banks for granting loans to unqualified, with inadequate securities thus increasing the non-performing loans. The findings showed that the banks complied to regulatory directives on the proportion of reserves and capital base to possess, thus having positively impacted on the shareholder's wealth; all the same, the significant negative impact of the non-performing loan to total loan calls for attention as to improve on the strategies measures for loan recovery.

5. CONCLUSION AND RECOMMENDATIONS

The study examined the effect of risk management on the shareholders' wealth of listed banks in Nigeria. Risk management was considered from four dimensions, that is credit risk, capital risk, operating risk, and liquidity risk. Credit risk and operating risk negatively influenced market value while capital risk measured as capital adequacy ratio, and liquidity risk positively affect the market value of listed banks in Nigeria. Conclusively, it was discovered that risk management significantly affected shareholders' wealth of listed banks in Nigeria. Based on the findings of this study, it is therefore recommended that managers should ensure that appropriate risk evaluation techniques are put in place when granting loans as the higher the non-performing loan the lesser the shareholders' wealth. There should be proper screening of all processes for granting loan and if possible adequate collateral should be obtained before such loans are granted to customers in order to reduce the non-performing loan to the barest minimum. As the mangers are considering meeting up with the CBN regulations on granting of loans, they should not overlook the negative impacts it will have on attaining their shareholders' wealth maximization objective. Management should maintain their capital adequacy ratio; ensure that as they are following the directives of the regulatory bodies, they should have investors' in mind in safeguarding their investment.

The risk associated with the operations of the banks is very high and this could be seen on its significant negative impact on shareholders' wealth. The management should put in place stringent measures to mitigate the operational risk to improve efficiency and reduces its consequences on the wealth of the shareholders. Several policies like strict authorization, restricted access to certain systems and software relating to operations to avoid hacking and fraudulent practices should be put in place. Generally risk management in Nigeria listed banks is germane as it significantly impacted on shareholders wealth. The management should ensure that non-performing loan ratio to total loan is kept at its minimum, ensure adequate liquid fund in meeting customers demand as when needed, engage competent hands where deemed necessary in their operations to mitigate operating efficiency risk and possess adequate capital ratio in accordance with CBN minimum capitalization ratio, if possible, go beyond the minimum required by the regulatory bodies.

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