



RISK MANAGEMENT AND FIRM VALUE OF DEPOSIT MONEY BANKS IN NIGERIA

**Ajakpo Vivian Chioma (Anetoh) Ph.D, Udeachu Peter Izuchukwu and Ezekwonna
Chinedu Emeka**

Department of Accountancy, Anambra State Polytechnic Mgbakwu, Anambra State, Nigeria*.

Bursary Department, Anambra State Polytechnic Mgbakwu, Anambra State of Nigeria.

Bursary Department, Anambra State Polytechnic Mgbakwu, Anambra State of Nigeria.

Abstract: This research work investigated risk management and firm value of listed deposit money banks in Nigeria. The specific objectives of the study were to investigate the effect of credit risk, liquidity risk, operational risk, capital adequacy risk and market risk on firm value of listed deposit money banks in Nigeria. The study adopted an ex-post facto research design method. The target population of the study was all the deposit money banks while only those listed in Nigeria Stock Exchange were used in the study which formed the sample size. The study used secondary sources of data from Central Bank of Nigeria as well as from annual reports and financial statement of accounts of deposit money banks under investigation from 2010-2022. The Structural Equation Modeling was used to test the formulated hypotheses at 5% level of significance. The findings showed that credit risk had a significant but negative effect on firm value of deposit money banks in Nigeria. Liquidity risk had an insignificant but positive effect on firm value of deposit money banks. Operational risk had less significant but positive effect on firm value of deposit money banks. Capital adequacy risk had a positive and significant effect on firm value of deposit money banks. Market risk had a significant but negative effect on firm value of deposit money banks in Nigeria. The study recommended that banks should ensure that their credit exposures are adequately managed. Banks should apply proper liquidity management strategies and they should use competent and skilful employees that are experts in banking professionalism. Banks should continue to be mindful of ceaseless and high incidence of market volatility in stock prices and they should use other forms of financial engineering strategies such as the use of options, futures and swaps so as to manage their market risk exposures.

Key Words: Risk Management, Firm Value, Deposit Money Banks, PLS-SEM, Nigeria.

I. INTRODUCTION

The Nigerian banking sector has experienced a lot of problems notwithstanding that banks support economic growth of Nigerian economy. Banks contributes to the economy by providing credit in order to finance investments and consumptions. Bank serves as a source from which various loss-making savings entities can draw funds for investment purposes (Bhattarai, 2016). Banks' credit creation process likely makes them vulnerable to credit risk, as a large part of banks' income comes from lending interest (Gadzo, Kportorgbi & Gatsi, 2019).

Unfortunately, banks that are doing well can suddenly reduce performance due to credit exposures, stock market volatility that may or may not have been taken to hedge against balance sheet risk. Facing this ugly phenomenon, it is imperative that Nigerian banks pay enough attention to risk management in Nigerian banking sector.

The 2017 NDIC Annual Report and Statement found that loans and advances classified as bad loans totaled US\$201.37 billion, contributing to US\$26.18 billion in non-performing loans (Hall, 2017). This development was pivotal in the establishment of the Asset Management



Corporation of Nigeria by the Nigerian federal government in Jul, 2010 to provide a permanent solution to the recurring NPL problems that have plagued Nigerian banks (Olalekan & Adeyinka, 2013). The Nigerian Central Bank increased the banks' capital base to 25 billion naira in 2004 to provide stakeholders and depositors with a safety margin (Soyemi, 2014). CBN's mandate to recapitalize banks with a capital base of US\$25 billion prompted rapid mergers and acquisitions of some money custodians, reducing their number to 22. This provided Nigerian banks favorable positions in the global financial market (Soludo, 2005). However, risk management is highly required in the Nigerian banking sector (Sanusi, 2010).

Unfortunately, despite the attention that has been devoted to risk management in recent years, the recent financial crisis has put the issue back in the spotlight. Across the banking industry, the most visible area that eats into most of their profits is risk management. The problem with this research is the due to high incidence of risk-related volatility among deposit money banks in Nigeria. In order to increase the value of the bank, it is necessary to eliminate the sources of the risk for its anticipation and also

for prudent management. Unfortunately, despite the huge and tremendous growth of the industry, custodian banks in Nigeria still face many challenges in managing the risks they face in the course of their operations (CBN, 2011). The financial crisis has allowed stronger banks to take control of other banks due to the losses the troubled banks have suffered. These losses can be minimized if their credit risks were better managed.

Specifically, some researchers have found a positive effect of risk management on firm value of money deposit banks (Nurty, 2018; Udom; 2018). Conversely, some researchers have found that risk management has a negative effect on the firm value of deposit money banks (Ahmad, 2017; Murithi, 2017; Pradan, 2017). It is noteworthy that there is still disagreement in the conclusions of different scientists about the research variables based on empirical evidence. For example (Ramadan, 2019) found that credit risk has a negative impact on the firm value of custodian banks, contrary to the results (Akinselure, 2019; Bishnu, 2019; Nwude, 2019) who found that credit risk had a positive and

significant effect on the firm value of deposit money banks. Marozva (2015) found that liquidity risk has a negligible but positive effect on firm value of deposit money banks, contradicting the finding of (Nigist, 2015). Kim (2015) found that liquidity risk has a significant but negative effect on firm value of banks, while Olarewaju (2015) found that liquidity risk has a negligible and negative effect on custodian banks' goodwill.

Furthermore, Kerong (2016) found that operational risk has an insignificant but positive effect on the firm value of custodian banks, contradicting the finding by (Hyey-yeh, 2016) that operational risk has a positive and significant effect on firm value of banks. This also contradicts the findings of Murithi (2017), who reported that operational risk has a significant but negative effect on the firm value of money deposit banks. The finding of (Udom, 2018) show that capital adequacy risk has a significant and positive effect on the value of banks, which is inconsistent with the finding of (Ahmad, 2017) that found an insignificant effect of capital adequacy risk on bank values. Pradhan (2017) also found that capital adequacy risk has a significant but negative effect on custodian banks' firm value. The finding of (Diby, 2019) suggest that market risk has a significant but negative effect on the value of banks which is against the finding by (Abdul, 2019) an insignificant effect of market risk on firm value of deposit money banks. Ofofu-Hene (2016) found that market risk has a positive and significant effect on firm value, in contrast to (Kolapo, 2015) who found that market risk has a positive but negligible effect on the value of custodian banks. Apparently, inconsistencies in the literature concerning the study variables suggest further empirical investigation. In addition, previous studies such as (Mucheru et al., 2017; Murithii & Muigai, 2017) used Tobin Q as a proxy for firm value, but this study used both Tobin Q and price to book value as proxies for firm value. Based on the challenges identified in the literature, the study aimed to bridge the gap in the literature so as to contribute to knowledge.

Objectives of the Study

The main objective of the study is to investigate the effect of risk management on firm value of deposit money banks in Nigeria. The specific objectives of the study are to;



1. Investigate the effect of credit risk on firm value.
2. Ascertain the effect of liquidity risk on firm value.
3. Determine the effect of operational risk on firm value.
4. Assess the effect of capital adequacy risk on firm value.
5. Determine the effect of market risk on firm value of listed deposit money banks in Nigeria.

Research Questions

The following research questions are formulated based on the objectives of this study.

1. To what extent does credit risk affect the firm value of listed deposit money banks in Nigeria?
2. How far does liquidity risk affect firm value?
3. What is the effect of operational risk on firm value?
4. To what degree does capital adequacy risk affect the firm value?
5. To what level does market risk affect the firm value of listed deposit money banks in Nigeria?

Research Hypotheses

H₁: Credit risk has a significant effect on firm value of listed deposit money banks in Nigeria.

H₂: Liquidity risk has a significant effect on firm value of listed deposit money banks in Nigeria.

H₃: There is a significant effect of operational risk on firm value of listed deposit money banks in Nigeria.

H₄: Capital adequacy risk has a significant effect on firm value of listed deposit money banks in Nigeria.

H₅: Market risk has a significant effect on firm value of listed deposit money banks in Nigeria.

Significance and Scope of the Study

The findings from the study will also guide banks in making informed decisions on how to manage the various types of risk faced by banks. The results of this study will contribute to a better understanding of the value proposition of risk management for corporate executives thus giving them a detailed knowledge on the importance of risk management implementation. The findings from the study are expected to facilitate the corporate executives to make better decision on how to invest in risk management and on the scheming factors that would otherwise affect their organization if they fail to implement risk management. In addition, the findings from the study are expected to be of great benefit to bank shareholders as it is

expected to reveal the value of having enterprise-wide risk management measures in their organizations for purposes of improved firm performance. Also, it is expected that the policy makers from the findings of the study will obtain knowledge as regards Risk management of listed deposit money banks in Nigeria. Furthermore, this study is expected to provide useful information to future researchers on risk management or related topics. This study covered a period of 13 years from 2010-2022 and concentrated on listed deposit money banks in Nigeria.

2. LITERATURE REVIEW

2.1: Review of Relevant Concepts

2.1.1 Credit Risk

Credit risk refers to the delay of repayment on loan contract or the inability of a borrower to pay its debts, which can cause cash flow problems and affect a bank's liquidity position. Campbell further advanced that credit risk is the risk that a loan which has been granted by a bank, will not be either partially repaid on time or fully. It is most simply defined as the potential that a bank borrower or counterparty will fail to meet its obligations in accordance with agreed terms (Ogboi, 2013). Credit risk is the risk that a financial loss will be incurred if counterparty to a transaction does not fulfill its financial obligations in a timely manner (Kithinji, 2010). It is therefore a function of the following: the value of the position exposed to default (the credit or credit risk exposure); the proportion of this value that would be recovered in the event of a default; and the probability of default (Kithinji, 2010). Credit risk is also used loosely to mean the probability of default, regardless of the value that stands to be lost (Kargi, 2011).

2.1.2 Liquidity Risk

Liquidity is a bank's capacity to fund increase in assets and meet both expected and unexpected cash and collateral obligations at reasonable cost and without incurring unacceptable losses (Al Tamimi, 2015). Liquidity risk is the inability of a bank to meet such obligations as they fall due, without adversely affecting the bank's financial condition (Lake, 2013). Effective liquidity risk management ensures a bank's ability to meet its obligations as they fall due and reduces the probability of an adverse situation developing (Muteti, 2014). This



entails that liquidity crisis, even at a single institution, can have systemic implications. Liquidity risk is defined as a situation when a bank can't meet all the request of depositors either totally or partially for a given period (Jenkinson, 2008). Also, it can be defined as the inability of a bank to meet short-term financial demands.

2.1.3 Operational Risk

Operational risk is the risk of loss from an operational failure. It encompasses a wide range of events and actions as well as inactions and includes, for example, inadvertent execution errors, system failures, acts of nature, conscious violations of policy, law and regulation, and direct and indirect acts of excessive risk taking (Casualty Actuary, 2003). Operational losses can be caused by junior staff; but they can also be caused by mid-level officers, senior managers, C level executives and Boards of Directors. They are sometimes caused by individuals and in other cases by groups of people working in collusion. Many of the largest losses take place when operational failures are present at the senior-most level (Casualty Actuary, 2003).

2.1.4 Capital Adequacy Risk

The concept of capital adequacy is a result of the idea of rearranging banks' existing capital structures in order to restructure the banking industry against widespread distress. Adequate capital creates an opportunity for better standards in any business establishment by improving business exertion and performance. Olalekan and Adeyinka (2013) stated that the minimum ratio of capital to total risk-weighted assets should remain at 8 per cent. Thus, at least 50 per cent of a bank's capital should comprise of paid-up capital and reserves, while every bank should maintain a ratio of not less than 8% (CBN, 2019). Archer (2010) maintained that capital adequacy refers to availability of reasonable capital that will safeguard the sanctity of any customer deposits held by an organization. Olalekan and Adeyinka (2013) assert that availability of adequate capital is necessary to prevent a firm from failure by absorbing any possible losses.

2.1.5 Market Risk

Market risk is the possibility of an investor experiencing losses due to factors that affect the overall performance of the financial markets in which he or she is involved (Lake, 2013). Interest rate risk covers the

volatility that may accompany interest rate fluctuations due to fundamental factors, such as central bank announcements related to changes in monetary policy. This risk is most relevant to investments in fixed-income securities, such as bonds (Muteti, 2014). Equity risk is the risk involved in the changing prices of stock investments, and commodity risk covers the changing prices of commodities such as crude oil and corn (Tarfi, 2009). Types of market risks are; interest rate risk, equity risk, currency risk and commodity risk (Chukwunulu, 2018).

2.1.6 Firm Value

Firm value is as appreciation given by investors against a company which is reflected in the stock prices of companies in the capital market (Silveira & Barros, 2007). Moreover, firm value is an economic measure of a firm's performance which reflects the worth of the entire business (Sarma & Rao, 2009). Investors usually see firm value as stock prices, stock returns, earnings per share (EPS), price earnings ratio (PER), Tobin's Q, and price to book value (PBV). Tobin's Q is used to measure firm performance, especially for the firm value which shows the management performance in managing the firm assets. Tobin's Q value describes a condition of investment opportunities owned by the company or the firm growth potentials (Tobin, 2009). In addition, the price/book value ratio is the ratio of the market value of equity to the book value of equity, i.e., the measure of shareholders' equity in the balance sheet. $\text{Price/Book Value} = \text{Market Value of Equity} / \text{Book Value of Equity}$. Price to book value ratio is a valuation ratio that is used by investment advisors, fund managers and investors to compare a company's market value (market capitalization) to its book value (shareholders' equity). The price to book value ratio which is expressed as a multiple (how many times a company's share is trading per share compared to the company's book value per share) is an indication of how much shareholders are paying for the net assets of a company. Price to Book Value (PBV) is a ratio used to measure market price performance to the book value of stock market. Also, PBV ratio is the ratio between stock prices and book value of equity (Ang, 2007).

2.2. Theoretical Foundations



a. Credit Risk is anchored on the Anticipated Income Theory (Prochnow, 1944)

The Anticipated Income Theory was formulated by H.V. Prochnow in 1944. The theory posits that the cash flow of the borrower is enough to hedge against risks from a default. This theory assumes that banks extend loan based on the expectation of incomes of the borrower, and not based on the present value of the borrower's asset. The assumption of an anticipated income theory is that the borrower has a sustainable cash flow to cater for loan repayment.

b. Liquidity Risk is anchored on the Shiftability Theory (Moulton, 1918)

The shiftability theory was propounded by H.G. Moulton in 1918 which holds that the liquidity position of a bank can be enhanced if the bank maintains a substantial number of earning assets that can be shifted to other banks with a better cash position without material loss in case of necessity. This theory assumes that assets may not be necessarily tied on only self-liquidating bills but can also be held in other shiftable open-market assets.

c. Operational Risk is anchored on Loan Pricing Theory (Fischer and Myron, 1973)

Loan pricing theory by Fischer and Myron (1973) states that banks should not charge very high interest rates in a bid to maximize interest income as doing so will lead to the problems of adverse selection and moral hazard. The theory states that banks at initial stage may not be able to predict the behavior pattern of the borrower. This theory posits that banks should not set too high-interest rates..

d. Capital Adequacy Risk is anchored on Buffer Theory (Calem and Robin, 1996)

Buffer theory was propounded by Calem and Robin in 1996. The theory states that whenever a bank's capital is marginally above the regulatory minimum ratio, there is a need for the bank to increase the ratio in order to minimize risk and avoid the regulatory cost as a result of a breach of the capital requirements. This theory believes that banks that hold excess capital enjoy enough buffers against bankruptcy and insolvency. It also assumes that the level of risk of a bank's total assets determines the level of buffer capital that is held by the bank.

e. Market risk is anchored on the Modern Portfolio Theory (Markowitz, 1952)

Modern portfolio theory was propounded by Markowitz in 1952. This theory states that investors are risk-averse since risk is an inherent part of a higher reward. Investors prefer a less risky portfolio to a riskier one for a given level of returns. This implies that an investor will be ready to take on more risk only when more reward is expected.

2.3 Empirical Review

Nwude and Okeke (2018) investigated the impact of credit risk management on the performance of deposit money banks in Nigeria. The findings showed a significant and negative relationship between loan loss provision and financial performance of money deposit banks in Nigeria. Sirak (2016) assessed the impact of liquidity on profitability of private commercial banks. The study found that liquidity ratio had a significant and positive impact on profitability. Olarewaju and Adeyemi (2015) examined the causality between liquidity and profitability of deposit money banks in Nigeria. The findings of the study revealed that there is no significant relationship between liquidity and profitability of deposit money banks in Nigeria. Kerongo and Mwaura (2016) examined the effect of operational risk management practices on financial performance of commercial banks in Tanzania. The findings showed that operational risk had an insignificant but positive effect on the financial performance of Tanzanian banks. Huey-Yeh and Hsiao-Yi (2016) investigated the relationship between operational risk and the operational performance of banks in Taiwan. The findings showed that significant relationship exists between operational risk and performance of Taiwan banks. Furthermore, Amahalu et al. (2017) examined the effect of capital adequacy on financial performance of quoted deposit money banks in Nigeria. The finding of the study revealed that there is a positive and significant relationship between capital adequacy and financial performance. Pradhan and Parajuli (2017) investigated the effect of capital adequacy on the performance of Nepalese commercial banks. The findings showed that capital adequacy ratio has a negative impact on return on assets. Diby et al. (2019) examined the effect of market risk on the financial performance in Casablanca. The findings showed



that market risk had a significant and negative influence on firm’s financial performance. Kolapo and Fapetu (2015) examined the effect of interest rate risk on the performance

of DMBs in Nigeria. The findings showed that interest rate risk had an insignificant effect on bank performance.

2.4 Proposed Research Model for the Study

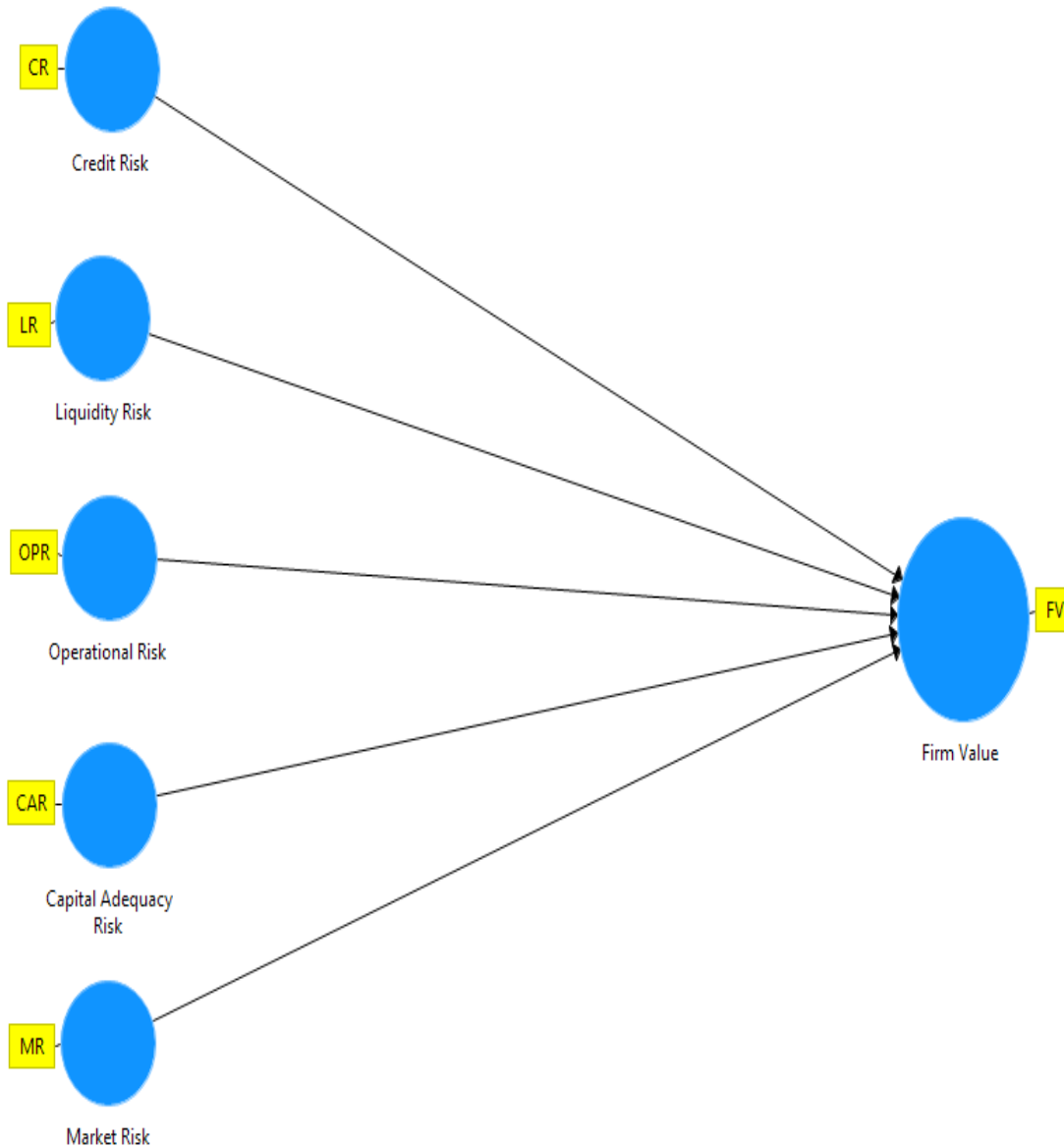
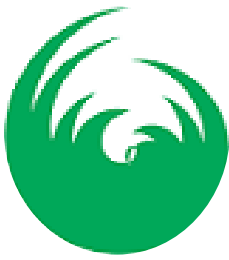


Figure 1: Proposed Research Model for the Study

Source: Adapted from Gadzo, Kportorgbi and Gatsi (2019).

3. METHODOLOGY

The study adopted an ex-post facto research design which uses mostly on secondary data. It allows the use of already existing data from CBN statistical bulletins and financial



statements of accounts/annual reports of banks under review thereby averted any form of manipulations. The population of the study comprises 22 deposit money banks.

by (Ogboi, 2013; Waleed, 2016). The study utilized an operational model and used pooled data. The PLS measurement model was presented thus:

Hypotheses	P. Coefficients	T-values	P-values	Decision	Remark	Model A: Tobin's Q = $\beta_0 + \beta_1$ CRN + β_2 LRN + β_3 OPRN + β_4 CARN + β_5 MRN + μ
CRN -> FV(TBQ)	-0.700	7.976	0.000	Significant	Supported	
CRN -> FV(PBV)	-0.674	7.809	0.000	Significant	Supported	
LRN -> FV(TBQ)	0.047	0.432	0.666	Not significant	Not supported	
LRN -> FV(PBV)	0.044	0.435	0.664	Not significant	Not supported	
OPRN -> FV(TBQ)	0.164	2.011	0.045	Significant	Supported	
OPRN -> FV(PBV)	0.157	1.932	0.054	less significant	less supported	
CARN -> FV(TBQ)	0.617	8.959	0.000	Significant	Supported	
CARN -> FV(PBV)	0.604	9.149	0.000	Significant	Supported	
MRN -> FV(TBQ)	-0.209	3.410	0.001	Significant	Supported	
MRN -> FV(PBV)	-0.190	2.810	0.005	Significant	Supported	

The study adopted a purposive sampling technique and used those listed in Nigeria Stock Exchange (13) namely; Access Bank Nigeria, Fidelity Bank Nigeria, First Bank Nigeria, Zenith Bank, Sterling Bank, First City Monumental Bank, Guaranty Trust Bank, Stanbic IBTC Holding, Union Bank of Nig, UBA, Unity Bank, Wema Bank and Ecobank. The data generated covered the period from 2011 to 2022 which is 12 years period. The study adopted a structural equation modeling as the statistical technique for the study. PLS-SEM is used in this study to test for the hypothesized significance as well as effect of risk management variables on firm value. The study measured credit risk as: ratio of non-performing loan to total loans. Liquidity risk: loans & advances to deposit ratio. Operational risk: ratio of operation expenses to operation income. Capital risk: capital to total risk weighted asset ratio. Market risk: rate of change in stock price movement. Tobin Q: outstanding stock \times stock price (average opening & closing price) / total asset. Price to book value: firm's price per share / firm's book value per share. These variables have been measured in the studies

β_4 CARN + β_5 MRN + μ .

NB: PLS-SEM integrated model A and B into one measurement model as shown by figures 2&3.

4. RESULTS AND DISCUSSIONS

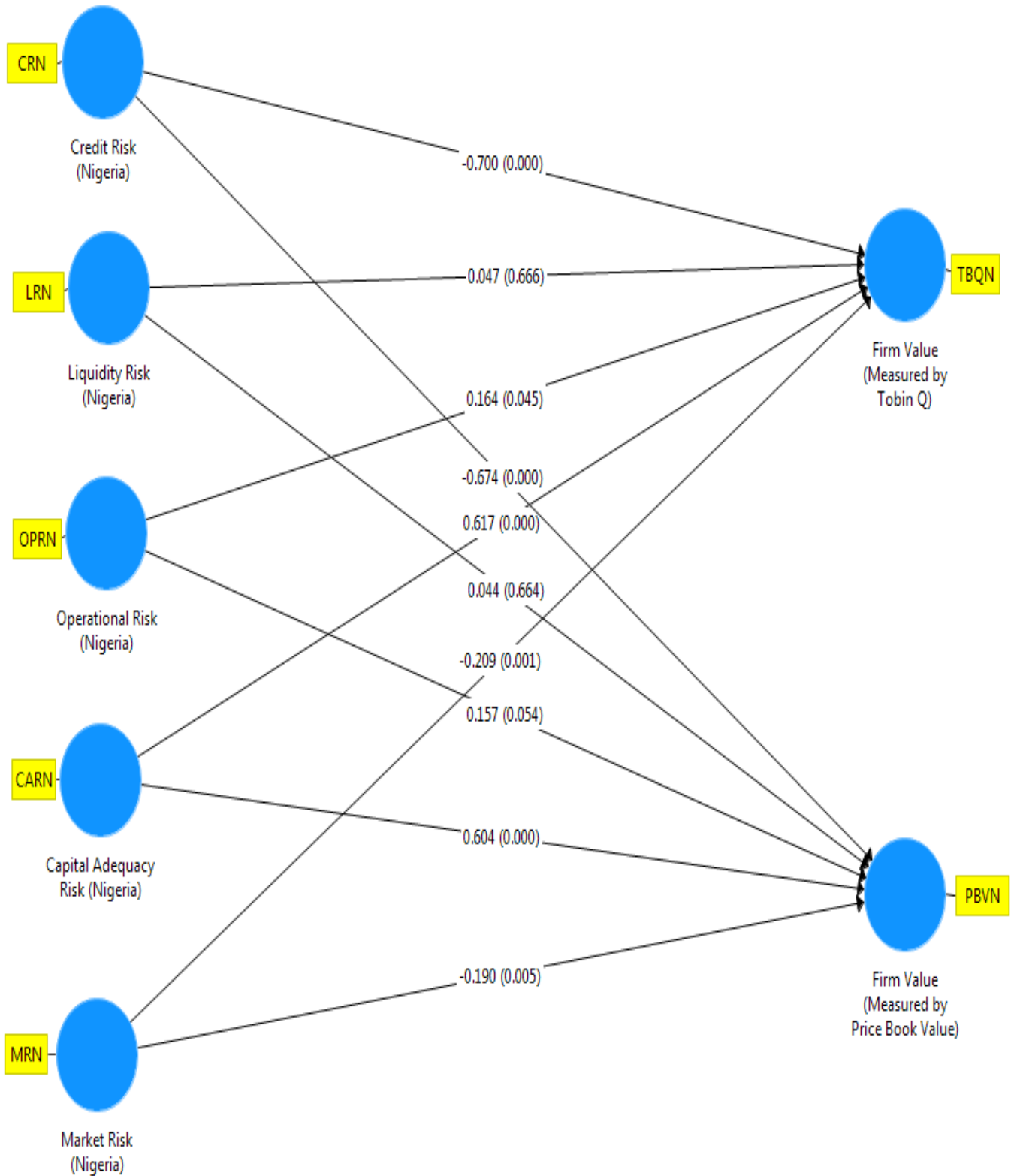
The hypotheses earlier formulated were tested at 5% level of significance. The goodness of fit of the model was determined by SRMR value of 0.031, RMS theta value of 0.024 and NFI value of 0.918. The coefficients of determination (R^2) value are 0.710 (71%) for TBQ and that of PVB is 0.668 (68.8%). Importantly, the values obtained are above the threshold proposed by (Hair et al., 2017). Hence, taking cognizance that the path coefficient should equal to or greater than 0.15 to have strong effect, t- value should be ≥ 1.96 while the p-value should be ≤ 0.05 to be significant as stated by (Wong, 2013). The PLS-SEM bootstrapping result is presented on table 1.

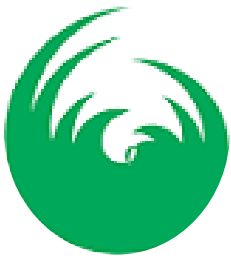
Table 1: PLS-SEM Bootstrapping Result

*Note: Path is significant at 5% level of significance; if the t-value is ≥ 1.96 , or p-value ≤ 0.05 .

Source: PLS-SEM Bootstrapping Output, 2023

The study also depicted the PLS-SEM result as figure 2 for ease of comprehension.





***Figure 2:** PLS-SEM Bootstrapping Result Showing the P-values and Path Coefficients.

Source: PLS-SEM Bootstrapping Output, 2023.

The Structural equation modeling results were presented to ascertain the significance, direction and effects of the independent variables on dependent constructs. Table 1 as well as figure 2 presents the PLS-SEM bootstrapping results. The results of path coefficients, t-values and p-value revealed that credit risk had a significant but negative effect on firm value measured by Tobin Q ($\beta = -0.700$, $t = 7.976$ and $p = 0.000$). Moreover, it had a negative but significant effect on firm value measured by share price to its book value ($\beta = -0.674$, $t = 7.809$ and $p = 0.000$). Liquidity risk had a positive but insignificant effect on firm value as measured by Tobin Q ($\beta = 0.047$, $t = 0.432$ and $p = 0.666$). Also, liquidity risk had an insignificant but positive effect on firm value measured by share price to its book value ($\beta = 0.044$, $t = 0.435$ and $p = 0.664$). Interestingly, operational risk had a significant and positive effect on firm value measured by Tobin Q ($\beta = 0.164$, $t = 2.011$ and $p = 0.045$). On the other hand, it had less significant but positive effect on firm value measured by share price to its book value ($\beta = 0.157$, $t = 1.932$ and $p = 0.054$). A careful look on table 1 as well as figure 1 shows that capital adequacy risk had a positive and significant effect on firm value as measured by Tobin Q ($\beta = 0.617$, $t = 8.959$ and $p = 0.000$). In addition, it had a significant and positive effect on firm value measured by share price to its book value ($\beta = 0.604$, $t = 9.149$ and $p = 0.000$). Furthermore, market risk had a significant but negative effect on firm value measured by Tobin Q ($\beta = -0.209$, $t = 3.410$ and $p = 0.001$). Additionally, it had a significant but negative effect on firm value measured by share price to its book value ($\beta = -0.190$, $t = 2.810$ and $p = 0.005$). To sum it up, all alternative hypotheses were significant and were also supported except hypothesis two (liquidity risk).

Discussions

Credit risk had a significant but negative effect on firm value of deposit money banks in Nigeria. The finding of the study agrees with the finding of (Adebayo, 2017) that reported that credit risk has a significant but negative effect on firm value. Contrary, the finding of this study negates the finding of (Nwude, 2019) that reported that credit risk

has a positive and significant effect on firm value of deposit money banks. Also, liquidity risk has an insignificant but positive effect on firm value of deposit money banks in Nigeria. The finding of this study is in agreement with the finding of (Marozva, 2015) that found that liquidity risk has a positive but no significant effect on firm value. The findings contradict the findings of (Nigist, 2015) that reported that liquidity risk has a significant effect on firm value. Operational risk had a significant and positive effect on firm value of deposit money banks in Nigeria. This finding is in agreement with the finding of (Gikundi, 2014) that found that operational risk has a positive but less significant effect on firm value. On the other hand, the finding did not concur with the finding of (Muriithi, 2017) that found that operational risk has a negative effect on firm value of deposit money banks. Capital adequacy risk had a significant and positive effect on firm value of deposit money banks in Nigeria. The finding of this study agrees with the finding of (Umoru, 2016) that found that capital adequacy risk has a significant and positive effect on firm value. The finding of this study negates the finding of (Ahmad, 2017) that found that capital adequacy risk has an insignificant but positive effect on firm value. The finding of the study negates the findings of (Ikpefan, 2013) that found that capital adequacy risk has a negative effect on firm value of deposit money banks. Market risk had a significant but negative effect on firm value of deposit money banks. The findings agree with the findings of (Murty, 2018; Amenawo, 2016) that found that market risk has a significant but negative effect on firm value. Our study negates the finding of (Malik, 2014) that reported that market risk has a positive effect on firm value while (Kolapo, 2015) found a positive but insignificant effect on firm value of deposit money banks.

5. CONCLUSION AND RECOMMENDATIONS

This study has provided comprehensive evidence that risk management significantly affects firm value of deposit money banks in Nigeria. Credit risk significantly but negatively affect the value of deposit money banks in Nigeria. Liquidity risk was found not to have been properly managed. Many banks in Nigeria are still confronted with



the problem of cash management. The level of technological advancement is still very low among deposit money banks in Nigeria which affect their operational efficiency adversely. Banks are still faced with the challenge of defaults by bank customers on loan repayments. Capital adequacy risk significantly affects the value of deposit money banks' performance in Nigeria. This was as a result of increase in banks' capital base which has a positive and significant effect on firm value. Market risk such as high incidence of stock price precariousness discourages investors from investing in stock market which has adversely affects the performance of deposit money banks. The study concludes that liquidity risk has not significantly increased the value of deposit money banks. Also, the management of credit and market risks has not yielded the positive effects on deposit money banks in Nigeria.

Based on the findings and conclusion of this study, the following recommendations are made;

1. Banks should ensure that their credit risks are properly managed through proper scrutiny of loan processing by identifying viable projects to reduce loan defaults by bank customers.
2. They should integrate adequate liquidity management like regular conduct of financial stress test, use of formal contingency funding plan to overcome liquidity shortfalls.
3. They should strive to employ qualified and competent workers who are experts in banking work in order to reduce unsound banking practices.
4. They should continue to review their capital adequacy ratios in order to sustain and meet up with current economic realities as stipulated by regulatory authorities.
5. Banks should continue to be mindful of incessant high incidence of market volatility in stock prices in order not

to be affected adversely. Banks should use other financial engineering strategies such as the use of options, futures and swaps to manage market risk exposures.

6. CONTRIBUTIONS TO KNOWLEDGE

Conceptually, this study has contributed to knowledge through the conceptualization and contextualization of risk management variables. The present study has conducted an in-depth search on the study constructs. The study has provided a, comprehensive explanations of the variables used in measuring risk management and firm value. Practically, findings from this study are expected to make significant impacts to bank managers. The findings of this study will serve as a threshold for strategic policies formulations and implementations. Interestingly, several empirical studies on the risk management proxy firm value with Tobin Q only but the present study utilized two surrogates for measuring firm value namely; Tobin Q and Price book value. Statistically, this study utilized the partial least square structural equation modeling; a multivariate statistical technique. Empirically, this study has provided an emergent model as depicted by figure 3. The emergent model is an addition to the literature and body of knowledge.

7. ACKNOWLEDGMENTS

The authors acknowledge the TETFUND for funding this institutional based research.

8. CONFLICT OF INTEREST / COMPETING INTERESTS

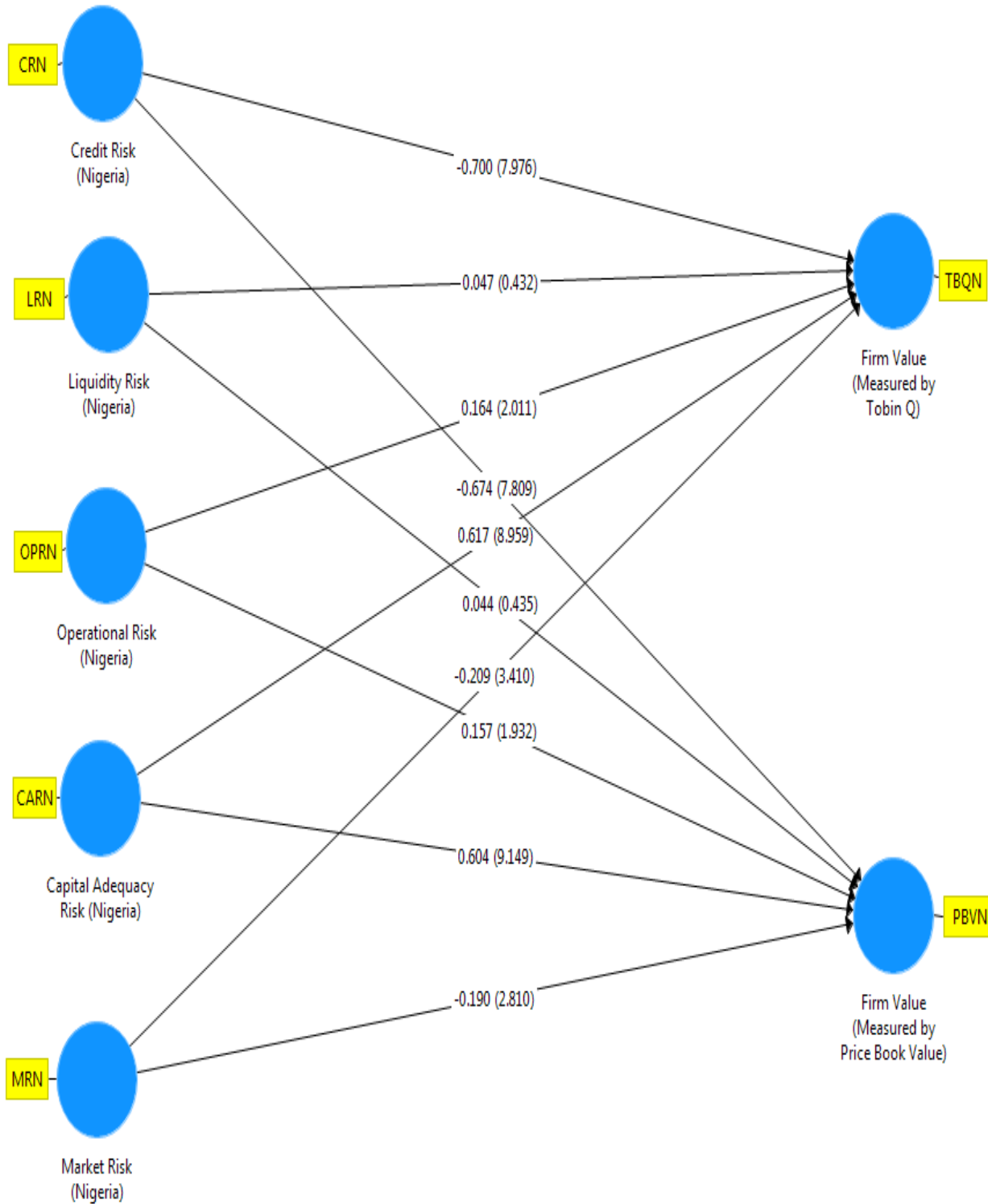
The study as well as the authors declares no conflict of interest.

9. AUTHORS' CONTRIBUTIONS

The authors jointly collaborated and did the work. They also consented for its publication.



Contribution to knowledge in model form





*Figure 3: Contributions depicted using the path coefficients and t-values for each constructs

Source: PLS-SEM Bootstrapping Output, 2023.

10. SUGGESTIONS FOR FURTHER STUDY

The researchers suggested that similar studies should be conducted in other West African countries so that their findings will be compared with the findings of this study from Nigeria.

11. REFERENCES

- Abdul, A., Dhamayanthi, A., & Kahyahthri, S. (2019). The impact of market risk and fair value measurement on the financial performance of public corporation in Malaysia, *International Journal of Recent Technology and Engineering (IJRTE)*, 7(5), 2278-3075.
- Acharyya, M. (2009). The influence of enterprise risk management on insurers' stock market performance: an event analysis. *Working Paper for 2009 ERM Symposium*.
- Ahmad, A.A., & Ahmad, M.A. (2017). The effect of capital adequacy on profitability: a comparative study between samba and SAAB banks in Saudi Arabia. *International Journal of Economics, Commerce and Management*, 5(11), 86-102.
- Akinselure, O., & Akinola, A. (2019). Impact of credit management on financial performance of Deposit money banks in Nigeria, *International Journal of Economics, Commerce and Management*, 7(9), 254-269.
- Amahalu, N., Emmanuel, I., Nweze, C., & Obi, J. (2017). The 2017 international conference on African entrepreneurship and innovation for sustainable development (AEISD), 841-859, Chapter 57.
- Amenawo, I.O., Rima, H.B., & Akpan, E.S. (2016). Foreign exchange fluctuations and firm value of commercial banks in Nigeria. *Research Journal of Finance and Accounting*, 7(18), 121-126.
- Aruwa, S.A & Naburgi, M.M. (2014). Impact of capital adequacy on the financial performance of quoted deposit money banks in Nigeria. *International Journal of Commerce and Management*, 5(2), 186-201.
- Basel Accord (2006). Basel II: International convergence of capital measurement and capital standards: A revised framework comprehensive version. Retrieved from <http://www.bis.org/publ/bcbs128.htm>.
- Basel Committee on Banking Supervision (2008). Sound Practices for the Management and Supervision of Operational Risk, *Bank for International Settlements, Basel*.
- Bessis, R. (2010). Risk, return and risk management. *Journal of Real Estate Finance and Economics*, 16, 55-110.
- Bhattarai, Y.R. (2016). The effect of credit risk on the performance of Nepalese commercial banks. *NRB Economic Review*, 28(1), 41-62
- Bishnu, P. (2019). Effect of credit risk on the financial performance of commercial banks in Nepal. *European Journal of Accounting, Auditing and Finance Research*, 7(5), 87-103.
- CBN. (2012). *Exposure draft code for banks in Nigeria* from Central Bank of Nigeria.
- Chukwunulu, J., Ezeabasili, N., & Igbodika, M. (2018). Risk management and the performance of commercial banks in Nigeria. *IIARD International Journal of Banking and Finance Research*, 5(1), 231-247.
- Diby, F., Dilesha, N., Pierre, A. & Ning, D. (2019). Market risk and financial performance of



- non-financial companies listed on the Moroccan stock exchange. *International Journal of Business and Finance*, 2(4), 344-359.
- Ebong, B. B.(2006), “Banking Sector Reforms: Opportunities and Challenges”, Available at <http://www.unionbankng.com/reforms.pdf>. Retrieved on 16th July 2009.
- Ekinci, A. (2016). The effect of credit and market risk on firm value: Evidence from Turkey. *International Journal of Economics and Financial issues*, 6(2), 427-434.
18. Gadzo, S.G., Kportorgbi, H.K., & Gatsi, J.G. (2019). Credit risk and operational risk on financial performance of universal banks in Ghana: A (PLS SEM) approach. *Cogent Economics and Finance*, 7(1), 1-16. <https://doi.org/10.1080/23322039.2019.1589406>.
- George, O., Frimpong S., Jonas, B., Osman, B., & Peter, K. (2015). Credit Risk Management and Its Impact on Financial Performance of Listed Banks in Ghana, *International Journal of Financial Markets*, 2(2), 24-32.
- Gikundi, N.M., Alala, O., Wabwile, E.S., & Musiega, D. (2014). Effect of operational risk in the lending process of commercial banks profitability in Kakamega town. *International Journal of Business and Management Invention*, 3(5), 11-17.
- Greuning, H. & Bratanovic, S. B. (2009). *Analyzing banking risk: a framework for assessing corporate governance and risk management*, Washington: The World Bank
- Grossman, S. & Hart, O. (2009). The costs and benefits of ownership: a theory of vertical and lateral integration. *Journal of Politic*
- al Economy*, 94(4), 691-719
<http://dx.doi.org/10.1086/261404>
- Hsiang-His, L. & Mauricio, C. (2014). An assessment of the efficiency of operational risk management in Taiwan’s banking industry: an application of stochastic frontier approach. *International Journal of Operational Risk*, 10(1), 127-156.
- Huey-Yeh, L. & Hsiao-Yi, C. (2016). Analysis of correlation between operational risk and operational performance. *International Journal of Business and Commerce*, 4(8), 1-16.
- Ikpefan, O.A. (2013). Capital adequacy, management and firm value in the Nigerian commercial bank. *African Journal of Business Management*, 7(30), 2938-2950.
- Kargi, H. S. (2011). Credit risk and the performance of Nigerian Banks. *M.Sc. Dissertation Ahmadu Bello University, Zaria*, 1-129.
- Kerongo, M.M. & Mwaura, R.W. (2016). The effect of operational risk management practices on the financial performance in commercial banks in Tanzania. *American Journal of Finance*, 1(1), 29-39.
- Kim, C.L. (2015). Liquidity risk, regulation and bank performance: evidence from European banks. *Global Economy and Finance Journal*, 8(1), 11-33.
- Kolapo, T.F. & Fapetu, D. (2015). The influence of interest rate risk on the performance of deposit money banks in Nigeria. *International Journal of Economics, Commerce and Management*, 3(5), 1218-1227.
- Lake, E. (2013). Financial risks and profitability of commercial banks in Ethiopia. *Doctoral dissertation, Addis Ababa University Addis Ababa, Ethiopia*, 1-241.



- MacDonald, S. & Koch, W. (2009). *Bank Management*. USA: Joe Sebatino.
- Machiraju, N. (2003). *Risk in the new Palgrave dictionary of economics*, London, UK: MacMillan publishers.
- Malik, M.F., Khan, S., Khan, M.I. & Khan, F. (2014). Interest rate and its effect on firm value. *Journal of Applied Environment and Biological Sciences*, 4(8), 225-229.
- Marozva, G. (2015). Liquidity and bank performance. *International Journal of Business and Economics Research Journal*, 14(3), 453-462.
- Mendoza, R. & Rivera, J. (2017). The effect of credit risk and capital adequacy on the profitability of rural banks in the Philippines. *Scientific Annals of Economics and Business*, 64(1), 83-96.
- Micocci, M., Masala, G., Cannas, G. & Flore, G. (2009). Reputational effects of operational risk events for financial institutions. *Working Paper*, University of Cagliari, Cagliari, Italy.
- Mucheru, E., Shukla, J. & Kibachia, J. (2017). Effect of liquidity management on firm value of commercial banks in Rwanda. *European Journal of Business and Social Sciences*, 6(7), 1-11.
- Muriithi, G., Munyua, W. & Willy, M. (2016). Effect of credit risk on financial performance of commercial banks in Kenya. *IOSR Journal of Economics and Finance*, 7(4), 72-83.
- Muriithi, J. & Muigai, R. (2017). Quantitative analysis of operational risk and firm value of commercial banks using cost income ratio. *IOSR Journal of Economics and Finance*, 8(3), 76-89.
- Muriithi, J. & Waweru, K. (2014). Operational risk, bank size and the firm value of commercial banks in Kenya. *Journal of Finance & Banking studies*, 6(3), 39-50.
- Murty, V. & Chowdary, E. (2018). Effectiveness of interest rates changes on profitability of banking industry in India: an empirical research on the profitability performance of nationalized banks in India. *IOSR Journal of Economics and Finance*, 8(3), 76-89.
- Muteti, S.R. (2014). Relationship between financial risk management and financial performance of commercial banks in Kenya. *An unpublished MBA project, School of Business*,
- Nigist, K. & Laximikantham, N. (2015). Determinates of bank liquidity; empirical evidence on Ethiopian commercial bank, *Journal of Economics and Sustainable Development*, 6(15), 234-257.
- Nuraina, E. (2012). Pengaruh Kepemilikan Institusional dan Ukuran Perusahaan terhadap Kebijakan Hutang dan Nilai Perusahaan (Studi pada Perusahaan Manufaktur yang terdaftar di BEI)”, *Jurnal Bisnis and Ekonomi (JBE)*, 19 (2), 110-125.
- Nwude, E.C. & Okeke, C. (2018). Impact of credit risk management on the performance of selected Nigerian banks. *International Journal of Economics and Financial Issues*, 8(2), 287-297.
- Ofosu-Hene, D. & Amoh, P. (2016). Risk management and performance of listed banks in Ghana. *European Journal of Business Science and Technology*, 2(2), 107–121. Retrieved from <http://citifmonline.com/wp-content/uploads/2017/08/Risky-banks-onGSE-study.pdf>.



- Ogboi, C., & Unuafefe, O. K. (2013). Impact of credit risk management and capital adequacy on the firm value of commercial banks in Nigeria. *Journal of Emerging Issues in Economics, Finance and Banking*, 2(3), 703-717.
- Okafor, C., Ikechukwu, K. & Adebimpe, U. (2010) Effect of capital adequacy on bank earnings and profitability in Nigeria, *Journal of Business Research*, 4(20), 231-249.
- Okoye, A.S.N., Ikechukwu, E., Nweze, C.L., Obi, J.C. & Okika, L.C. (2017). Effect of capital adequacy on firm value of quoted deposit money banks in Nigeria. *The International Conference on African Entrepreneurship and Innovation for Sustainable Development (AEISD)*, 841-862.
- Olalekan, A. & Adeyinka, S. (2013). Capital adequacy and banks' profitability: an empirical evidence from Nigeria. *American International Journal of Contemporary Research*, 3(10), 87-93.
- Olarewaju, O.M. & Adeyemi, O.M. (2015). Causal relationship between liquidity and firm value of Nigerian deposit money banks. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 5(2), 165-171.
- Olem (2006). Bad loans and entry in local credit markets, Bank of Italy research department, Rome.
- Osundina, C.K., Osundina, J.O., Jayeoba, O.O. & Olayinka, I.M. (2016). Exchange rate volatility and banks performance: evidence from Nigeria. *IIARD International Journal of Economics and Business Management*, 2(4), 1-11.
- Pradhan, R.S. & Parajuli, P. (2017). Impact of capital adequacy and cost income ratio on performance of Nepalese commercial banks. *International Journal of Management Research*, 8(1), 6-18.
- Quiry, P., Le Fur, Y., Salvi, A., Dallochio, M. & Vernimmen, P. (2011). *Corporate finance: theory and practice*, 3rd edition. London: John Wiley & Sons, Ltd.
- Rose, V. (2009). Interest rate and their role in the economy during transition. The problem of high Interest Rates: Case of Ukraine. NaUKMA.
- Sanusi, A. (2012). Banking reform and its impact on the Nigerian economy. *CBN Journal of Applied Statistics*, 2(2), 115-122.
- Sanusi, L.S. (2010). "The Nigerian banking industry in the aftermath of the recent Global Financial crisis" Dinner speech delivered at the chartered Institute of Bankers of Nigeria (CIBN) 44th Annual Bankers' dinner, held at Expos centre Eko hotel and suites, Victoria Island, Lagos 5 November, 2010.
59. Sarma, L. & Rao, K. (2009). Leverage and the value of the firm, *Journal of Finance*, 24(4), 673–677. <http://dx.doi.org/10.1111/j.1540-6261.1969.tb00391.x>.
- Silveira, A. D. M. & Barros, L. A (2007). "Corporate governance quality and firm value in Brazil. Oxford Business & Economics Conference", June 24-26.
- Soludo, C.C. (2015). Consolidating the Nigerian banking Industry to meet the development challenges of the 21st Century" an address by the CBN governor at the special meeting of the Bankers committee on July 6th, 2004, CBN Headquarters Abuja.



- Soyemi, K., Ogunleye, J. & Ashogbon, F. (2014). Risk management practices and financial performance: evidence from the Nigerian deposit money banks (DMBs). *The Business & Management Review*, 4(4), 345–354. Retrieved from <http://www.abrmr>.
- Tajalli, F. & Adnan, B. (2014) Oil price and stock market fluctuations: emerging markets (A comparative study of Pakistan and China). *International Review of Management and Business Research*, (3)5,342-345.
- Udom, I.S. & Eze, O.R. (2018). Effect of capital adequacy requirement on firm value of commercial banks in Nigeria. *International Journal of Finance and Economics*, 16(5), 81-89.
- Umoru, D. & Osemwegie, J.O. (2016). Capital adequacy and firm value of banks in Nigeria: empirical evidence based on FGLS estimator. *European Scientific Journal*,12(25), 27-32.