Original Research Article

Impact of Specific Risk on Financial Performance of Listed Deposit Money Banks in Nigeria

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Abstract

The study examines the impact of specific risk on financial performance of listed deposit money banks in Nigeria for the period of 2007 - 2019 using the sample size of 13 banks. Risk as an independent variable of the study is proxied by interest risk, capital adequacy risk and credit risk; while financial performance as dependent variable of the study is proxied by return on assets. Secondary data is collected from the financial statement of the selected banks which is analysed using random effect regression statistical tool of analysis. The result of the analysis reveals that interest risk has negative insignificant relationship with financial performance of banks, capital adequacy risk has negative significant relationship with banks financial performance and credit risk has negative significant impact on financial performance of Nigerian banks. The study recommended that management of listed deposit money banks in Nigeria should continue to increase their capital adequacy ratio properly based on regulatory requirements in order to reduce their capital adequacy risk as well as avoiding using their capital in a business that will not bring good returns. Also, management of listed deposit money banks in Nigeria should intensify more effort in recovering their non-performing loan and interest attached to it for better financial performance.

Keywords*: Interest Risk, Capital Adequacy Risk, Credit Risk and Financial Performance*

JEL Classification Code: G32

1. INTRODUCTION

Bank's financial performance is the estimation of results of bank's strategies, policies and operations in monetary terms. Financial performance gives deductive estimate of how well bank use assets from business operations to generate revenue. Financial performance is measured using return on assets and return on equity among others. Risk is a probability or chances of something unwanted to happen or occur that is capable of destroying financial assets of a bank (Pandey, 2005). In other words, risk is the possibility of negative occurrence that is caused by external or internal factors which may affect the operations of banks as financial institutions negatively (Jorion, 2007). Also, risk is the probability that an event may or may not happen with regards to the activities of banks within the period of their operations. There are various types of risks facing banks, notable amongst which are interest risk, capital adequacy risk, and credit risk.

Similarly, interest risk is the inability of bank to get back the amount charge on principal amount loaned out to the customers by banks which is expressed in percentage as at when due (Haque & Wani, 2015). Capital adequacy risk is the inability of banks to get the required amount of capital that the bank must be able to maintain throughout their business life to meet up with the customers daily withdrawal requirements (Kirui, 2015). Credit risk is the inability of banks that lend out funds to their customers cannot get back the owed principal and interest attached to it which results in an interruption of cash flow and increased costs of collections in banking industry in Nigeria.

Furthermore, financial performances are measured in different ways. Some studies measure financial performance using return on assets which is the ratio of banks' profit before interest and tax to its total assets, while other studies use return on equity which measured banks' financial performance by dividing the banks' profit after tax by its total equity. In addition, some studies measure banks' financial performance using earnings per share which is measured by dividing the banks net income with its outstanding ordinary shares.

Moreover, previous studies from existing literature such as the work of Nyambere (2013), Moteti (2014), Alshatti (2015), Rundassa and Batra (2016) and Chaudhary and Abbas (2017) among others did not carry out factor analysis to select the most appropriate proxies of their dependent variable which is financial performance. In order to address this methodological gap, this study conduct a factor analysis test between return on assets, return on equity and earnings per share as measures of financial performance in order to select the best measurement of financial performance among these three most commonly used measures of financial performance to be adopted for this research. Also, to address theoretical gap expectancy value theory employed from psychology is adopted in this study which has not been used by previous study to support the relationship

between risk and financial performance of banks.

2. EMPIRICAL REVIEW AND THEORETICAL FRAMEWORK

Several literatures were reviewed on the relationship between interest risk, capital adequacy risk, credit crisis risk and financial performance of banks.

Interest Risk and Financial Performance

Okuthe, Muturi and Munene (2014) study effect of interest risk on financial performance of banks in Kenya using multiple regression as tool for analysis and found positive significant relationship between interest risk and financial performance of bank. Also, Odeke and Odongo (2014) examine impact of interest risk on financial performance of banks of Uganda for period of 2009 to 2011 using multiple regression and found evidence of positive significant relationship between interest risk and bank's financial performance. Furthermore, Isaac (2015) explores impact of interest risk on financial performance of listed banks in Nigeria for period of 1997 to 2013 using multiple regressions tools of analysis and the findings reveal negative significant relationship between interest risk and financial performance of bank. Lin and Chang (2010) investigated effect of interest risk on financial performance of banks in Taiwan using multiple regression as tool of analysis of data and found evidence of positive significant relationship between interest risk and financial performance of banks.

Ahmed (2015) explores effect of interest risk on financial performance of banks in Kenya using multiple regression and reported positive insignificant correlation between interest risk and financial performance of banks. Li, Feng, Zhao and Carter (2021) study relationship of interest risk and financial performance of banks using multiple regression as tool of analysis and discovers evidence of negative significant relationship between interest risk and financial performance of banks. In addition, Fadun and Oye (2020) examine impact of interest risk on financial performance of 6 banks in Nigeria for period of 2008 to 2017 using panel regression and found evidence of positive significant relationship between interest risk financial performances of the banks.

In addition, Mwangi (2014) studies the effect of interest risk on financial performance of microfinance banks in Kenya for the period of 2009 to 2013 using multiple regression as tool of analysis of the data and found positive significant relationship between interest risk and financial performance of the banks. Ndichu (2014) examines the effect of interest risk on financial performance of deposit taking microfinance banks in Kenya for the period of 2010 to 2013 using multiple regressions and found evidence of negative significant relationship between interest risk and financial performance of the selected banks. Also, Bizuayehu (2015) investigates the impact of interest risk on financial performance of banks in Ethiopia for the period of 2003 to 2013 using random effect multiple regression and the finding reveals negative insignificant association between interest risk and financial performance of the banks. Khan and Sattar (2014) explore the impact of interest risk on profitability of commercial banks in Pakistan for the period of 2008 to 2012 using multiple regression as tool of analysis and found evidence of positive significant correlation between interest risk and profitability of the banks.

Kweh, Lu, Nourani and Ghazali (2018) study the relationship between interest risk and financial performance of banks in Malaysia for the period of 2008 to 2012 using multiple regressions as tool of analysis. The result of the analysis reveals positive significant relationship between interest risk and financial performance of banks. Aruwa and Musa (2014) study the effects of interest risk on financial performance of deposit money banks in Nigeria for the period of 1997 to 2011 using multiple regression, the result shows a negative relationship between interest risk and financial performance of banks. Wood and McConney (2018) study the influence of interest risk on financial performance of commercial banks in Barbados using secondary data for period 2000 to 2015. Multiple regression is used in analysing the data, the results shows that interest risk is significantly impacting on financial performance of banks. Tassew and Hailu (2019) examines the effect of interest risk on financial performance of 17 Ethiopian banks using secondary data which is analysed using panel regression and found evidence of significant negative relationship between interest risk and financial performance of banks. However, most of these previous studies reviewed selected dependent variable in their studies arbitrarily without employing any scientific method of selecting dependent variable. Also, some of these previous studies failed to provide theories that can underpin their findings.

Capital Adequacy Risk and Financial Performance

Kirui (2015) studies the effect of risk on financial performance of savings and credit cooperative society in Kenya using multiple regressions and found positive significant relationship between capital adequacy risk and financial performance. Soyemi, Ogunleye and Ashogbon (2014) examine the effect of risk on financial performance of listed deposit money banks in Nigeria for 2012 financial year only using multiple regressions and found positive significant relationship between capital adequacy risk and financial performance.

In addition, Haque and Wani (2015) evaluate the relevance of financial risk and financial performance of 10 banks in India for the period of 2008 to 2013 using multiple regressions and the finding of the study reveals positive significant relationship between capital adequacy risk and financial performance. Imane (2014) examines the impact of risk on financial performance of Islamic banks in Jordan for the period of 15 years from 1998 to 2012. Multiple regressions were used as statistical tools of analysis and the results reveals evidence of negative significant relationship between capital adequacy risk and financial performance of banks.

Astawa and Rahayu (2019) examine the effect of capital adequacy risk on financial performance of 31 banks listed on Indonesia Stock Exchange for the period of 2012 to 2016. Secondary data are used and analysed using panel regression and found evidence of positive significant relationship between capital adequacy risk and financial performance of banks. Akani (2019) studies the impact of capital adequacy risk on financial performance of listed banks in Nigeria using multiple regression and the result reveals positive significant relationship between capital adequacy risk and financial performance of banks in Nigeria. Isanzu (2017) examines the impact of capital adequacy risk on financial performance of Chinese banks using

multiple regression, and result reveals that capital adequacy risk have significant positive impact on financial performance of banks.

Poudel (2012) studies the impact of risk on financial performance of banks in Nepal for the period of 2001 to 2011 using multiple regressions and finding of the study reveals negative significant relationship between capital adequacy risk and financial performance. Agbeja, Adelakun and Olufemi (2015) study the effect of capital adequacy risk on profitability of listed deposit money banks in Nigeria for the period of 2010 to 2014 using multiple regressions and the result reveals positive significant relationship between capital adequacy risk and financial performance of the banks.

Moreover, Ochei (2013), examines the impact of capital adequacy risk on financial performance of deposit money banks in Nigeria for the period of 1986 to 2006 using ordinary least square multiple regressions and found evidence of negative significant relationship between capital adequacy risk and financial performance. Ezike and Oke (2013) explore the influence of capital adequacy risk on financial performance of banks in Nigeria using ordinary least square multiple regressions and found evidence of negative significant relationship between capital adequacy risk and financial performance.

Another study is conducted by Almazari (2013) and investigates the impact of capital adequacy risk on financial performance of listed banks in Saudi Arabia using multiple regressions and the result of the analysis exhibited negative significant relationship between capital adequacy risk and financial performance of banks. Rundassa and Batra (2016) study the impact of risk on financial

performance of Ethiopian banks using generalised least square fixed effect multiple regressions and found evidence of significant relationship between capital adequacy risk and financial performance of the banks. The study of Ejoh and Iwara (2014) on the relationship between capital adequacy risk and financial performance of banks in Nigeria using Engle and Granger two steps for co-integration as tool of analysis and found evidence of positive significant relationship between capital adequacy risk and financial performance of banks. Odunga (2016) studies the effect of risk on financial performance of banks in Kenya using multiple regressions and found evidence of positive significant relationship between capital adequacy risk and financial performance of the banks. However, most of these previous studies reviewed selected dependent variable in their studies arbitrarily without employing any scientific method of selecting dependent variable. Also, some of these previous studies failed to provide theories that can underpin their findings.

Credit Risk and Financial Performance

Nair, Purohit and Choudhary (2014) investigated influence of risk on performance of Islamic bank in Qatar and found negative insignificant relationship between credit risk and financial performance. Ndyagyenda (2020) studies the influence of credit risk on financial performance of bank of Africa limited in Uganda using regression and found positive significant relationship between credit risk and financial performance of the bank. Also, Orichom and Omeke (2021) examine the relationship between credit risk and financial performance of 64 banks in Uganda using multiple regression as technique of analyzing the data and reported

positive significant relationship between credit risk and financial performance of banks.

Maxwell and Peter (2016) examine the impact of credit risk on performance of deposit money banks in Nigeria for the period of 1989 to 2013 using multiple regression and the result reveals negative significant association between credit risk and financial performance. Ekinci (2016) studied the effect of credit risk on bank performance using multiple regressions and discovers positive significant relationship between credit risk and financial performance. Soyemi, Ogunleye and Ashogbon (2014) examine the effect of risk on financial performance of banks in Nigeria using multiple regressions and found positive significant relationship between credit risk and financial performance. Taiwo, Ucheaga, Achugamonu, Adetiloye, Okoye and Agwu (2017) empirical investigate effect of credit risk on performance of Nigerian banks using multiple regression techniques and result shows that credit risk has an insignificant impact on financial performance of banks.

Funso, Kolade and Ojo (2012) investigate the effect of credit risk on financial performance of banks in Nigeria for the period of 2000-2010 using multiple regression as technique of analysis and the results shows effect of credit risk on bank financial performance is negatively significant. Muriithi, Waweru and Muturi (2016) assess effect of credit risk on financial performance of banks in Kenya for 2005 to 2014. Panel regression is used to analyse the data and results shows credit risk has negative and significant relationship with bank financial performance.

Alshatti (2015) examines effect of credit risk on financial performance of Jordanian banks using multiple regression and found that credit risk has significant positive effect on financial performance of Jordanian banks. Kagoyire and Shukla (2016) examine effect of credit risk on financial performance of banks in Rwanda. The study found that credit risk had significant effect on financial performance of equity bank. Mutua (2015) investigates the effect of credit risk on financial performance of banks in Kenya and found positive significant relationship between bank financial performance and credit risk. Harelimana (2017) assessed impact of risk on financial performance in Rwanda banks from 2012-2016. Multiple regression is used in analysis of data and found that credit risk is significantly impacting on financial performance of banks. However, most of these previous studies reviewed selected dependent variable in their studies arbitrarily without employing any scientific method of selecting dependent variable. Also, some of these previous studies failed to provide theories that can underpin their findings.

Expectancy Value Theory

The Theory was developed by Eccles and Wigfield (1983). The Theory postulates that reasons for a given behaviour or action is determined by two factors that is expectancy (how probable it is that a wanted outcome is achieved through the behaviour or action) and value (i.e how much the individual values the desire outcome). Also, the Theory provides framework for considering how individuals make decision based upon risk and returns. The expectancy from the perspectives of this theory represents risk taking, that is, decision making under uncertainty of the outcome of the decision,

but with the hope of achieving positive outcome. The values from this theory perspective represent the possible gain that can be obtained from the risky decision. The normal banking business in Nigeria is totally risky which involves a lot of decision making under risk with the hope of making profit by banks. Sometimes, the banks make decisions that could leads to loss or gain due to risk associated with such decision, but loss can be reduced through effective risk management measures. Since, the theory explained the relationship between decisions making under risk and returns or gains that can be obtain from such risky decision. Therefore, the expectancy value theory was adopted for this study to underpin the relationship between risk proxied by interest risk, capital adequacy risk and credit risk and financial performance of banks in Nigeria.

3. METHODOLOGY

The study adopted correlational research design to measure the relationship between risk and financial performance of listed banks in Nigeria for the period of 2007 - 2019. The adjusted population of this study consists of 13 banks listed on the Nigerian Stock Exchange as at 31st December, 2019. Secondary data is collected from the annual financial statements of the banks which is analysed using panel multiple regression. Panel regression was considered appropriate

in view of the fact that it helps in not only establishing relationship between dependent and independent variables, but also depicts causes and effect of their relationship.

Model Specification

Factor analysis test is conducted in order to select the best measurement of financial performance among the most commonly used financial performance measurement of return on assets, return on equity and earnings per share. The result of factor analysis test shows that return on assets is the most appropriate measurement of financial performance in this study. Also, return on assets was considered appropriate measurement of banks financial performance due to its capability to measure returns generated by each unit of assets owned by banks. The models are given below:

$$ROA_{it} = \beta_{0it} + \beta_1 ITR_{it} + \beta_2 CAR_{it} + \beta_3 CRR_{it} + \varepsilon_{it}\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where:
      ROA = Return on Assets
      ITR = Interest Risk
      CAR = Capital Adequacy Risk
      CRR = Credit Risk
      β = Intercept
      β_1 - β_3 = Parameter
      it = Bank i at Time t
      ε = Error Term

Variables Measurement

Table 3.1 Variables Definition and Measurement

Variables	Variables Measurement and Sources	A priori Expectation
Return on Assets	Measured as profit before tax divided by the bank's total assets (Ekinci, 2016).	
Interest Risk	Measured as the ratio of banks' interest income to total loans and advances (Alshatti, 2015 & Kweh, *et al*, 2018).	-
Capital Adequacy Risk	Measured as the ratio of banks' total equity to its risk weighted assets (Mohammed, 2017 & Li, *et al*, 2021).	-
Credit Risk	Measured as banks' total non-performing loan divided by the total loans and advances (Aruwa & Musa, 2014, Maxwell & Peter, 2016).	-

Sources: Compiled by the Author from the various literature, 2021

4. ESTIMATION RESULTS AND DISCUSSION

Diagnostic Test

Table 3.2 Diagnostic Test

Variables	Coefficient	VIF	Tolerance Values
ITR		1.13	0.881
CAR		1.01	0.994
CRR		1.14	0.877
Hettest	234.64(0.000)		
Hausman Test	6.14(0.105)		
LM Test	9.29(0.001)		

From Table 4.2 above, multicolinearity test shows variance inflation factor and tolerance value of less than 10 and 1 respectively, this implies the absences of multicolinearity problem in the data of the study. The heteroskedasticity test of the study reveals a Chi square value of 234.64 with p-value of 0.000 which is significant at 1% level of significant. This signifies the existence of heteroskedasticity problem associated with the data of this study. To correct this heteroskedasticity problem in the data of the study, both fixed and random effects regression models were estimated, and then hausman test is conducted in order to select the most appropriate estimator between fixed and random effects regression models. The result of hausman test shows a Chi square coefficient of 6.14 with p-value of 0.105 which is insignificant. This signifies that random effect model is most appropriate estimator for this study. Also, in order to decide the most suitable model for this study between ordinary least square and random effect regression models, langrangian multiplier test is conducted. The

result of langrangian multiplier test reveals Chi square coefficient of 9.29 with p-value of 0.001 which is significant at 1%. This implies that random effect model is most appropriate estimator for this study. Therefore, the study adopted random effect regression model as tool of analysis in the study.

Descriptive Statistics

Table 4.1: Descriptive Statistics

Variables	Min.	Max.	Mean	Std. Dev.
ROA	-0.364	0.073	0.014	0.037
ITR	0.074	0.435	0.213	0.065
CAR	0.005	0.423	0.149	0.074
CRR	0.001	0.690	0.080	0.098

From Table 4.1 above, the financial performance of Nigerian listed banks has minimum and maximum values of return of assets of -0.364 and 0.073 respectively. This implies that within the period of the study some banks made loss while others generated profit. The average return on assets of the banks is 0.014 with standard deviation of 0.037, which signifies low level of dispersion in the data of the study. This implies low tendency of having abnormality in the distribution of the data of the study. Moreover, interest risk has minimum and maximum values of 0.074 and 0.435 respectively. The mean value of interest risk of the banks is 0.213 with standard deviation of 0.065; this signifies that the data of the study deviated from the mean by 0.065. This implies less chances of having non-normality distribution problem in the data of the study. Similarly, capital adequacy risk has minimum and maximum values of 0.005 and 0.423 respectively. The average capital risk is 0.149 and standard deviation of 0.074, which signifies low level of dispersion in the data of the study. This implies that likelihood of normality distribution problems in the data of this study is low. Finally, credit risk has minimum and maximum values of 0.001 and 0.690 respectively. The mean value of credit risk is 0.080 with standard deviation of 0.098; this signifies that the data of the study deviate from the mean by 0.098. The chance of having abnormality distribution problem in the data of the study is minimal.

Correlation Matrix

Table 4.2: Correlation Matrix

Variables	ROA	ITR	CAR	CRR
ROA	1			
ITR	-0.120	1		
CAR	-0.077	-0.031	1	
CRR	-0.215	0.344	-0.074	1

From Table 4.2 above, correlation coefficient of the relationship between return on assets and interest risk, return on assets and capital adequacy risk, return on assets and credit risk is -0.120, -0.077 and -0.215 respectively. This signifies negative association between independents and dependent variables of the study. The association of the independent variables among themselves shows that capital adequacy risk and financial performance, and credit risk and capital adequacy risk of banks in Nigeria are negatively associated among themselves. This can be confirmed from the correlation coefficient of -0.031 and -0.074. Also, credit risk and interest risk are positively associated among themselves, this can be observed from correlation coefficient of 0.344.

Factor Analysis Test

The study conducts factor analysis test in order to select the most appropriate

measurement of financial performance between return on assets, return on equity and earnings per share used in this study. The test was done using principal factor method, the result is presented in Table 4.3 below:

Table 4.3: Factor Analysis Test Result

Variables	Eigenvalue	Cumulative
ROA	0.758	1.691
ROE	-0.094	1.481
EPS	-0.215	1.000

Sources: Stata Output, 2020.

Table 4.3 above shows that return on assets has the highest eigenvalue and cumulative result of 0.758 and 1.691 respectively. This implies that return on assets is the most appropriate measurement of financial performance in this study. Therefore, the study adopted return on assets as the measurement of financial performance of listed deposit money banks in this study.

Regression Result

Table 4.4: Random Effect Regression Result

Variables	Coefficient	P-Values
Constant	0.035	0.005
ITR	-0.020	0.675
CAR	-0.077**	0.049
CRR	-0.057*	0.065
R^2	0.249	
F-Statistics	7.71	0.005

*** $p<0.01$, ** $p<0.05$, * $p<0.1$, Denotes Significance at 1%, 5% & 10%

From Table 4.3 above, the coefficient of determination R square is 0.249; this implies that 25% of the total variation in financial performance of listed deposit money banks in Nigeria is caused by the combined effect of interest risk, capital adequacy risk and credit risk. The remaining

75% of changes in financial performance of Nigerian banks is caused by other factors outside the model of this study. The F-Statistics of the study stood at 7.71 with p-value of 0.005 which is significant at 1% level of significant. This means the model of

the study is well fitted with the variables of the study.

Interest Risk and Financial Performance

The regression result on the relationship between interest risk and financial performance of Nigerian banks shows a beta coefficient of -0.020 with corresponding p-value of 0.675 which is insignificant. This implies that there is negative insignificant relationship between interest risk and financial performance of banks Nigeria. This signifies that interest risk is reducing financial performance of banks in Nigeria. This result is in consistent with the a priori expectation of the study and is supported by expectancy value theory. The finding is in line with the work of Bizuayehu (2015) and Tassew and Hailu (2019). However, this result contradicted the work of Mwangi (2014) and Lu *et al* (2018).

Capital Adequacy Risk and Financial Performance

The result of the regression analysis from the model of the study on relationship of capital adequacy risk and financial performance of listed banks in Nigeria shows a beta coefficient of -0.077 and p-value of 0.049 which is significant at 5%. This means there is negative significant relationship between capital adequacy risk and financial performance of banks in Nigeria. This result implies that capital adequacy risk is reducing the financial performance of listed banks in Nigeria. In addition, this signifies that for every unit of naira increase in capital adequacy risk of the banks, their financial performance will decrease by 7.7 percent other things remain constant. This finding is in line with the a priori expectation of the researcher and is underpinned by expectancy value theory. This result is consistent with findings of

Poudel (2012), Ochei (2013) and Ezike and Oke (2013), but contradicted the result of Soyemi, Ogunleye and Ashogbon (2014), Kirui (2015) and Astawa and Rahayu (2019).

Credit Risk and Financial Performance

The regression result from the model of the study shows that credit risk and financial performance of deposit money banks in Nigeria has beta coefficient of -0.057 with p-value of 0.065 which is significant at 10%. This result implies that there is negative significant relationship between credit risk and financial performance of banks in Nigeria. In addition, this finding signifies that credit risk is reducing the financial performance of Nigerian listed banks. The finding of this study is in consistent with the a priori expectation of the study and is underpinned by expectancy value theory. The result of this study is in the same direction with the findings of Funso, Kolade and Ojo (2012), Muriithi, Waweru and Muturi (2016), but this result is not in the same direction with the findings of Soyemi, Ogunleye and Ashogbon (2014), Abiola and Olausi (2014) and Ndyagyenda (2020).

5. CONCLUSION AND RECOMMENDATIONS

The study examines the impact of risk on financial performance of listed deposit money banks in Nigeria. From the findings, the study concluded that interest risk, capital adequacy risk and credit risk are reducing financial performance of banks in Nigeria. The study recommended that the management of listed banks in Nigeria should put more efforts and strategies to collect back the interest on loan from their customers in order control interest risk in their banks. Also, management of listed

banks in Nigeria should maintain capital adequacy ratio based on regulatory requirements in order to reduce their capital adequacy risk as well as avoiding using their capital in a business that will not bring good returns. Finally, deposit money banks in Nigeria should intensify more effort in recovering their non-performing loan and interest attached to it for better financial performance.

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