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Risk Management of Selected Quoted Commercial Banks in Nigeria: Its Implications for Financial Performance

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ABSTRACT

Commercial banks and other profit making organizations want to sustain their profit. This made them improve on their financial management practices. However, risks are inevitable in business and to improve on the indices of organizations, financial risks are expected to be properly managed. Hence this study examined the effect of financial risk assets management on financial performance of quoted commercial banks in Nigeria using data from seven selected quoted commercial banks for the period between 2014 and 2023. This study examined in details the effect of liquidity risk, operational risk, capital risk, credit risk, and market risk on the profitability of quoted commercial banks in Nigeria. The study adopted a dynamic approach of using the Autoregressive Distributed Lag (ARDL) model. The lag length selection criteria revealed that it is appropriate to use lag one in our dynamic approach. The study revealed significant effect of liquidity risk, operational risk, capital risk and market risk on the profitability of quoted commercial banks in Nigeria, both at the short run as well as the long run. It was further revealed that credit risk management have no significant effect on the profitability of quoted banks in Nigeria. The study therefore recommend that proper review of the credit risk structure should be done for aggressive loan recovery by the banks. The banks should adopt various methods necessary in other to ensure massive recovery of their funds that has been a source of negative financial performance to their organizations. Such methods to adopt should include, but not limited to, meetings and dialogue with the debtors, moral suasion, and litigations.

Email: Risk Management, Commercial Banks, Nigeria and Financial Performance

INTRODUCTION

Effective implementation and dedication to financial management techniques improve an organization's performance on a global scale. Using financial risk assets management is one prominent method that makes this achievable. The significance of risk management cannot be overstated in the modern world, which is marked by a dynamic global environment. Banks are frequently seen as economic giants that take enormous risks and play important and crucial roles. As a result, they take on a lot of financial risk while offering financial services, hence further research is needed on their risk management practices. Furthermore, risk management is finally receiving more attention in the financial industry as a result of the development of computer technology, which has been utilized by dishonest people to carry out wicked deeds for a long time. For example, [1], point out that credit risk, which denotes the incapacity of lenders to repay the money granted to them, including interest, jeopardizes the credibility of commercial banks. Many institutions, particularly banks, are on high alert in an effort to prevent another financial catastrophe as a result of the global financial crisis that has lasted for more than ten years. As a result, many organizations place a high value on managing financial risk assets. As a result, nations and organizations all over the world have established institutions and put laws and regulations into place to remedy alleged flaws in their financial systems.

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In order to improve financial risk asset management, international organizations like the Bank for International Settlements (BIS), the Financial Stability Board (FSB), and the International Monetary Fund (IMF) have offered their services to gather and evaluate data as well as to coordinate efforts to implement cross-border policies [2]. It's interesting to note that commercial banks that hold a significant amount of the financial sector's total assets mostly depend on lending money [3]. Another name for these credits is financial risk assets. By doing this, banks can increase their profits, which is one of the main roles of commercial banks. Comprehensive corporate risk management is necessary for banks to continuously enhance their financial performance, especially in the dynamic and developing risk environment of today. In order to protect the interests of its shareholders and other stakeholders, financial risk asset management has emerged as a crucial component of corporate governance [4]. Risk management, according to [2], is the entirety of the process of identifying, evaluating, and prioritizing risks, followed by the efficient and coordinated use of resources to reduce, track, and regulate the likelihood and/or impact of unfavorable events. Every economic activity involves some level of risk, but the banking industry is particularly dangerous, hence risk management is crucial for all emerging nations [5]. Systematic and unsystematic risks are two categories into which risks can be divided. According to [6], the systematic risks—foreign exchange and interest rate risks—are imposed on banks by external forces such as Central Bank of Nigeria policy and foreign exchange regulations, while the unsystematic risks—credit, operational, and liquidity risks—are caused by internal operations and management decisions of the banks. Since business managers operating in the market have no influence over systematic risks, [7], characterizes them as irrelevant risks. He also adds that it is irrelevant from the perspective that it is practically challenging to protect firms from systematic risk. [6], agree with Muiruri's stance, arguing that unsystematic risk is the pertinent risk that a manager should be cautious of since it is up to the investor to choose which security to invest in and can be managed or eliminated through diversification. In general, improved financial performance has emerged as the primary focus in several African banking sectors during the past 20 years. The banking industry in Africa has discovered a way to boost performance through a major business transformation. All banks now face competition as a result of the transition, which forces the industry to adopt expansion plans to broaden its clientele and range of products. Since offering new loan options, increasing income strategies, and advancing technology to increase access to financing, Africa's banking industry has been expanding rapidly and performing well. However, as the banks have been creating intricate balance sheets with higher risks in assets and liabilities, the changes have also turned into a threat to the African banking industry. Particularly with regard to loans given to small and medium-sized enterprises, which account for a significant amount of loans in Africa, they have been providing innovative products, such as new lending to boost performance that results in the borrower defaulting on loan payments. Furthermore, the banking industry has been implementing Internet banking and microfinance, which is dangerous because the majority of the clients are impoverished, unfamiliar with the service, and do not have access to the Internet [8]. Many deposit money institutions in Nigeria are frequently exposed to hazards, which has led to a rise in nonperforming loans and a decline in earnings. Therefore, financial asset risks need to be appropriately identified and managed in order to guarantee profitability in the provision of banking services, particularly in Nigerian banks. Despite a number of reforms and regulations, the concerning percentage of non-performing loans, inadequate liquidity, forgeries, and fraud makes this study worthwhile. For example, the Central Bank of Nigeria's efforts to limit excessive borrowing and risky practices by raising the minimum capital requirements, introducing new policies for leverage and liquidity management, and developing additional strategies to cushion banks as their balance sheets were altered nearly failed. Furthermore, as risk management is crucial for increasing profits in emerging countries like Nigeria, further research is required to determine the effects of risk management strategies on banks. In view of the aforementioned, this study aims to use a selection of Nigerian commercial banks that are quoted to examine the impact of financial risk and asset management on financial performance. Nigeria's banking industry has performed poorly recently. The performance of Nigeria's banking sector concluded the year negatively, according to [9], as five banks had their value fall by 5.5% from N2.57 trillion in 2021 to N2.43 trillion by the conclusion of trade in 2022. According to the research, the share prices of all five of the banks that are popularly referred to as Tier-1 banks fell at the end of 2022 in comparison to their 2021 records. Inadequate management of financial risk assets could be the cause of the subpar performance. Furthermore, a large number of gaps in the examined literature are intended to be filled by the current study. Despite the fact that Nigeria has produced a large number of linked studies, it is noted that the majority of them used outdated data sets. [7], are the only ones who used data from some banks' financial statements up to 2022. Nonetheless, the vast majority of the chosen banks are not quoted banks. In addition to the worry about the paucity of new empirical data, we noticed a flaw in the approach employed in the earlier data. Nearly all of the earlier research on this topic in Nigeria, including The Ordinary Least Square (OLS) panel data was used by [10], [11], and [12], adopted the use of OLS panel data; however, since the policy impacts of many financial data manifest with a reasonable time lag, it is more appropriate to model a dynamic approach that will capture the effect of the time lags. This study is guided by the question: What is the impact of

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liquidity risk, operational risk, capital risk, credit risk, and market risk on the profitability of Nigerian commercial banks that are quoted? Evidently, the study's goal is to find out how the profitability of Nigerian listed commercial banks is impacted by liquidity risk, operational risk, capital risk, credit risk, and market risk. Seven Nigerian commercial banks that were quoted were the subject of the study. Access Bank, Fidelity Bank, First City Monument Bank (FCMB), First Bank, Guarantee Trust Bank (GTB), United Bank for Africa (UBA), and Zenith Bank are the commercial banks that were chosen and quoted. Due to their international authorization in Nigeria, these banks were chosen. The selection of these banks will provide our findings with a detailed understanding of the effects of financial risk assets management on the various selected performance indicators of commercial banks, as they are the only quoted commercial banks in Nigeria that the Central Bank of Nigeria (CBN) has authorized to conduct banking activities outside of Nigeria. The study's coverage of financial risk assets management is extensive and includes the liquidity risk, operational risk, capital risk, credit risk, and market risk, which covers the full spectrum of risks framework in the financial institution. Secondary data from the chosen banks for the years 2014–2023 were used in the study. These times are significant because they have permitted sufficient fallout from Nigeria's numerous banking reforms and consolidations. Additionally, it will generate a sufficient amount of data required for solid research results.

Literature Review

The related literature in the study covered the conceptual literature, theoretical literature as well as the empirical literature.

Conceptual Review

Concept of Financial Performance

A company's ability to generate money or profit is gauged by its financial performance. It is the state of the business's finances throughout a specific time period, including how money is collected and used, as determined by a number of metrics, including the capital adequacy ratio, liquidity, leverage, solvency, and profitability. The ability of the business to manage and control its resources is referred to as financial performance [13].
[14], state that a number of ratios, including the liquidity ratio, profitability ratio, solvency ratio, efficiency ratio, and leverage ratio, are used to assess a company's financial performance. ROI (Return on Investment), ROE (Return on Equity), ROA (Return on Assets), and EBIT (Earning Before Interest and Tax) are a few examples of profitability ratios. Fast, current, cash, net working capital, and DER (Debt to Equity Ratio) are the components of liquidity ratios.

Profitability Concept

The ability of a particular investment to generate a return on its use is the standard definition of profitability. The terms "profit" and "ability" combine to form the term "profitability." The amount obtained by subtracting all costs from sales revenue is the definition of "profit," which has been defined in a variety of ways. The word "ability" refers to an organization's capacity to generate revenue. The ability is also known as the investment's operating performance, earning power, or earning capacity [15]. Evidently, most people consider profitability to be a crucial requirement for a company's long-term success and survival. Furthermore, the variable has a major impact on how well the company's other financial objectives execute. Additional elements that characterize the company's profitability include its impact on innovation, employment, technical advancement, and economic development. However, firms are having more trouble achieving the necessary profitability as a result of heightened competition, pricing pressures, and higher efficiency. Researchers and practitioners, including debt holders, managers, investors, and policy makers, place a high premium on the topic of what determinants influence profitability [16].

Theoretical Review

Finance Distress Theory

When a business is having financial problems, it is said to be in financial distress. Financial distress, according to [9], is the phase of deteriorating financial circumstances that precedes bankruptcy. Individuals who are simultaneously individuals use financial information. In order to cause harm, even individuals with significant roles may attempt to participate in a life that is extremely harmful. Investors and creditors will take the company's financial troubles into account when making investment decisions. Therefore, in order to draw in investors, the business must be able to demonstrate strong success [17]. "The likelihood of bankruptcy, which depends on the level of liquid assets as well as on credit availability" is the definition of financial distress given by [18]. The company's financial hardship has a negative impact on its performance and lowers its debt service ratio. One could argue that financial distress has a detrimental effect on debt service coverage, and that revenue decline may be a sign of financial distress in its early stages. Because of its high level of leverage, the company's profitability is declining along with its liquidity ratio. If financial turmoil results in a company becoming highly leveraged or substantially indebted, it may have a detrimental impact on its leverage. The dynamic nature of financial distress presupposes that a corporation goes through distinct stages as it enters and exits financial problems, each of which has unique

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characteristics and, as a result, contributes to corporate failure in a different way. Because financial distress leads to financial asset risks that have a substantial impact on the entity's financial performance, the study is firmly based on the finance distress theory. As a result, this theory is central to the discussion.

Empirical Review

Using 40 commercial banks chosen to represent all WB commercial banks collectively, [19], evaluated the effect of risk management on the financial performance of commercial banks in the Western Balkans (WB) prior to and following COVID-19 for the years 2016–2021. According to the report, risk management significantly affects WB commercial banks' financial performance as measured by return on equity (ROE) and return on assets (ROA). The study used panel regression with fixed and random effects, with ROE and ROA as dependent variables and COVID-19 as a dummy variable and solvency, liquidity, and credit risk as independent factors. The four independent factors significantly affect the dependent variable, according to the panel regression model. Based on the study's findings, we advise central banks to uphold stringent guidelines about the minimal equity needed or the necessary ratios for loans and deposits. Commercial banks' income is negatively impacted by credit risk, thus it's also critical to closely monitor lending activity and give non-performing loans extra consideration. The impact of credit risk management on the profitability of quoted deposit money banks in the Nigerian capital market was examined by [20]. Panel data representing 12 Nigerian banks from 2006 to 2018 was estimated using the panel regression technique. The bank non-performing loan ratio, bank loan to deposit ratio, and bank leverage were employed as independent variables, while the return on the asset served as a stand-in for bank performance (the dependent variable). The empirical tests' findings indicated a strong correlation between bank performance and credit management. There was an indirect (negative) correlation between the banks' performance and the non-performing loan ratio. However, the performance of Nigerian banks was directly impacted by the loan to deposit ratio. Nevertheless, the performance of Nigerian banks was unaffected by bank leverage. In order to improve bank performance, it is advised that bank loans be directed into self-liquidating projects and that it be effectively monitored and controlled.

Between 2007 and 2020, [5], used correlation analysis, pooled ordinary least square estimate, and fixed and random effect estimations to investigate the impact of risk management on bank profitability in Nigeria. The annual audited accounts of six deposit money banks listed on the NSE provide secondary data on return on asset (the dependent variable), liquidity risk, credit risk, operational risk, market risk, capital risk, and bank size. The findings show that while marketing risk had a considerable and positive impact on return on asset, operational risk and credit risk had a negligible and positive relationship. Liquidity risk, capital risk, and bank size had a negative impact on return on asset. According to the study's findings, there is a minor tendency for capital and liquidity risk to decline the return on asset. [21], looked at risk management in deposit money institutions, corporate governance, and how operational issues in commercial banks and data about them in Nigeria have been heavily hoarded. The outcome demonstrates a detrimental yet noteworthy effect on the bank's financial performance. On the other hand, a good corporate-governance framework improves bank stability and lending profitability. Additionally, the study discovers that while the number of board committees has a positive coefficient on Tobin Q, board size, independence, directors' shareholdings, and board meetings have negative coefficients. Thus, it indicates that there is a substantial correlation between financial performance and corporate governance. Performance is negatively correlated with shareholders, board meetings, and board members. On the other hand, ROE (Return on Equity) is positively correlated with the number of board sizes, board independence, and board committees. This demonstrates that a rise in the number of directors, directors of the board, and directors themselves will lead to a decline in the return on equity (ROE) of deposit money banks (DMB) in the Nigerian economy. In order to assure compliance, this research suggests that financial institutions conduct regular quality control checks and promote appropriate corporate risk management policies. The impact of risk management on the financial performance of quoted deposit money banks in Nigeria between 2009 and 2018 was examined by [11]. Non-Performing Loan Risk and Foreign Exchange Risk measure the independent variable (risk management), whereas Return on Assets measures the dependent variable (financial performance). The financial statements of the selected Deposit Money Banks for the ten (10) years under investigation served as the source of the data. Pre-estimation tests included the Shapiro-Wilk normality test, descriptive statistics, variance inflation factor (VIF), and pairwise correlation. The Panel Least Squares multiple regression technique was used to evaluate the hypotheses. The findings indicate that the risk of non-performing loans significantly reduces return on assets. The findings also indicate that, from 2009 to 2018, Nigerian Deposit Money Banks' Return on Assets was marginally positively impacted by Foreign Exchange Risk. In order to reduce defaults and increase profit and shareholder interest, the study suggests, among other things, that bank management make sure that the characteristics and business potentials of their clients are thoroughly examined before offering loan facilities.

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METHODOLOGY

Research Design

Clearly, the study adopts a research design where relevant data pertaining to financial risks assets management and financial performance of quoted banks in Nigeria were collected over time and across many banks. The banks are Access Bank, Fidelity Bank, First City Monument Bank (FCMB), First Bank, Guarantee Trust Bank (GTB), United Bank for Africa (UBA) and Zenith Bank. The data for this study covers ten year period between 2014 and 2023. This means that the sample size of this study has about seventy (70) sample size. That is, seven (7) banks across ten (10) years. The study adopted a panel regression analytical method. Since financial variables are dynamic, the study utilized the Autoregressive Distributed Lag (ARDL) model. To estimate the ARDL model, the ARDL procedure is applied regardless of the series being integrated at level (that is, I(0)), integrated of order one (that is, I(1)) or integration of both order. Ensuring this condition holds, can help reduce the stress of trying to classify the variables of the model into I(0) and I(1) as the case is with other cointegration testing approaches. However, it should be noted that the ARDL approach fails under any order of integration such as I (2).

Model Specification

To examine the effect of liquidity risk, operational risk, capital risk, credit risk and market risk on financial performance of quoted commercial banks in Nigeria, the study hypothesized that financial performance in banks depends on financial risks. To capture this, the study specifies that:

FINPERF = f (FINRISK) (1)

Where

FINPERF = Financial Performance

FINRISK = Financial risk assets variables

To examine the effect of liquidity risk, operational risk, capital risk, credit risk and market risk on profitability of selected quoted commercial banks in Nigeria. To do so, we adapt the specification of equation one and maintain that one aspect of financial performance is profitability. Hence profitability is a function of financial risk.

PROFIT = f (FINRISK) (2)

Where

PROFIT = Profitability measure, proxied with Return on Asset (ROA)

FINRISK = Financial risk assets variables such as Liquidity risk (LIR), Operational risk (OPR), Capital risk (CAR), Credit risk (CRR) and Market risk (MRR). We can write equation (2) with the variables identified as:

ROA = f (LIR, OPR, CAR, CRR, MAR) (3)

To put equation (3) in a form suitable for regression, we have:

$$ROA = \alpha + ß_1LIR + ß_2OPR + ß_3CAR + ß_4CRR + ß_5MAR + \acute{\varepsilon} \quad (4)$$

Where α = intercept of the equation

ßs = the slope or parameters of the equation

$\acute{\varepsilon}$ = error term.

Specifying equation (4) in a panel form:

$$ROA_{i,t} = \alpha + ß_1LIR_{i,t} + ß_2OPR_{i,t} + ß_3CAR_{i,t} + ß_4CRR_{i,t} + ß_5MAR_{i,t} + \acute{\varepsilon}_{i,t} \quad (5)$$

Where

i = the selected banks dimension

t = the time dimension

To specify equation (5) to the desired ARDL technique, we have:

$$\Delta ROA_{it} = \beta_o + \sum_{i=1}^{p} \beta i \Delta ROAt - 1 + \sum_{i=0}^{q} \partial i \Delta LIRt - i + \sum_{i=0}^{q} \emptyset i \Delta OPRt - i + \sum_{i=0}^{q} \gamma i \Delta CARt - i + \sum_{i=0}^{q} \delta i \Delta CRRt - i + \sum_{i=0}^{q} \vartheta i \Delta MARt - i + \varphi 0 ROAt - 1 + \varphi 1 LIRt - 1 + \varphi 2 OPRt - 1 + \varphi 3 CARt - 1 + \varphi 4 CRRt - 1 + \varphi 5 MARt - 1 + \varepsilon t \quad (6)$$

Equation (6) is the ARDL dynamic model for the panel study, investigating the effect of financial risk assets management on commercial banks profitability (ROA).

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Table 1: Data Description

Variable	Description	Proxy	Measurement
Dependent Variables			
ROA	Return on Asset	Profitability (Performance Indicator)	Net profit divided by total assets
Independent Variables			
LIR	Liquidity Risk	Loan Deposit Ratio	Total loans and advances divided by total customer's deposit
OPR	Operational Risk	Operating income Ratio	Operating income divided by operating expenses
CAR	Capital Risk	Capital Adequacy Ratio	Total capital divided by total assets
CRR	Credit Risk	Non-Performing Loans	Defaulting (Non performing) loans divided by total loans
MAR	Market Risk	Interest Rates	Consumer price index (CPI)

RESULTS AND DISCUSSION

The data analysed in this study are presented accordingly in the sub-sections below. The study covered a time period of ten years (2014-2023) on seven selected quoted commercial banks in Nigeria. The time series component of the panel data is more than the cross section (T>N) hence we have a macro panel. Since we have a macro model, it necessitates testing for unit roots and cointegration. Again, we have a balanced panel since there is no missing data for the sample size under study. The analysis of the data is presented in the sub-section below, starting from the descriptive of statistics.

Descriptive Statistics

This study describes the variables used in the analysis, in terms of their measures of central tendencies, dispersion, kurtosis and skewness. Theses aspects of describing the variables helps to understand the behaviour of the variables and its ability in providing robust insight into the models of the study. Table 2 shows the summary of the descriptive statistics.

Table 2: Summary of Descriptive Statistics

	ROA	LIR	OPR	CAR	CRR	MAR
Mean	0.021133	0.669726	1.971033	0.122769	0.230506	5.680000
Median	0.017128	0.663475	1.756127	0.120268	0.175000	5.600000
Maximum	0.057093	1.003540	4.333290	0.206853	0.770000	13.60000
Minimum	0.002585	0.334679	0.358275	0.051348	0.021000	0.900000
Std. Dev.	0.013188	0.167520	0.843793	0.030879	0.206017	4.043158
Skewness	1.204115	-0.077957	0.535277	0.246622	1.101913	0.609696
Kurtosis	3.772424	2.182194	3.056400	2.771328	3.226999	2.440166
Jarque-Bera	18.65562	2.021591	3.352034	0.862110	14.31610	5.250959
Probability	0.000089	0.363929	0.187118	0.649823	0.000779	0.072405
Sum	1.479292	46.88081	137.9723	8.593863	16.13544	397.6000
Sum Sq. Dev.	0.012000	1.936339	49.12711	0.065792	2.928561	1127.952
Observations	70	70	70	70	70	70

Source: Authors' Computation (from E-Views 10 Output)

As shown in Table 2, the table described the measures of tendencies as well as measures of dispersion for each of the variables under study. The table reveals that the average value of return on asset (ROA) of the selected quoted commercial banks in Nigeria is about 0.02%. The average value for LIR, OPR, CAR, CRR and MAR, respectively are 0.70%, 1.97%, 0.12%, 0. 23% and 5.68%. The minimum value of ROA is 0.002% while its maximum value is 0.057%. The minimum values of LIR, OPR, CAR and MAR are respectively 0.334%, 0.356%, 0.051%, 0.021% and 0.90% while their maximum values are 1.003%, 4.333%, 0.206%, 0.770% and 13.6%. The table further reveals that ROA is about 0.013% deviation from their mean. All the variables does not show significant deviation from their means. This implies that the variables maintains good fit to the model. The Jarque-Bera (J-B) Statistic reveals a

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normal distribution of the entire data set since almost all the values of variables show J-B values that is greater than zero.

Correlation Matrix

Correlation matrix is used to show the extent of correlation of the variables of the study. We present the result of the correlation matrix of the study in table 3.

Table 3: Correlation Matrix of the Variables of the Study

	ROA	LIR	OPR	CAR	CRR	MAR
ROA	1	-0.2495	0.6182	0.6270	0.1514	0.0067
LIR	-0.2495	1	0.0520	0.2710	-0.3209	0.3726
OPR	0.6182	0.0520	1	0.6093	0.1604	0.2574
CAR	0.6270	0.2710	0.6093	1	-0.1398	0.4417
CRR	0.1514	-0.3209	0.1604	-0.1398	1	-0.2466
MAR	0.0067	0.3726	0.2574	0.4417	-0.2466	1

Source: Authors' Computation (from E-Views 10 Output)

The correlation matrix determines the degree of relationships between the proxies of an independent variable and the dependent variable. It also shows whether there is an association among the proxies of independent variables themselves, to detect if a multicollinearity problem exists in the model. As shown in Table 3 none of the independent variables are strongly correlated upon each other. Clearly, none of the independent variables shows very strong correlation with another since there is no correlation among the independent variables that is up to 80%. This is an indication that the independent variables are free from multicollinearity. Hence implies that the variables are well behaved for the analysis and the results good for policy purposes.

Unit Root Results

In other to ascertain the level of stationarity of the time series variables used in this study, we performed a unit root test so that our regression will not be spurious. The aim is to be sure that the time series variables employed for estimations are stationary and time invariant. Again, we want to be sure that all variables are either integrated of order zero I(0) or integrated of order one I(1) as expected for ARDL estimations. Panel unit root tests were performed on the variables of the study. This becomes necessary since the time series dimension of the data structure is more than the cross-section dimension. Hence, unit root tests were conducted using the summary approach that have different unit root technique such as the Levin, Lin & Chu; Im, Peraran and Shin statistic; ADF-Fisher Chi-square; and PP-Fisher Chi-square approach. The summary of the panel unit root test is presented in Table 4.

Table 4: Summary of the Panel Unit Root Test

P-values of Test Result at Level					
Variable	Levin, Lin & Chu	Im Pesaran & Shin	ADF-Fisher	PP-Fisher	Remark
ROA	0.8071	0.3206	0.2999	0.0642	Not Stationary
LIR	0.0000	0.0364	0.0002	0.0000	Stationary
OPR	0.0000	0.3403	0.1660	0.0100	Not Stationary
CAR	0.0000	N/A	0.0017	0.0455	Stationary
CRR	0.0000	0.0134	0.0076	0.0000	Stationary
MAR	0.0000	0.0283	0.0003	0.0002	Stationary
P-values of Test Result at First Difference					
ROA	0.0000	N/A	0.0036	0.0000	Stationary
LIR	NR	NR	NR	NR	NR
OPR	0.0000	0.0052	0.0023	0.0000	Stationary
CAR	NR	NR	NR	NR	NR
CRR	NR	NR	NR	NR	NR
MAR	NR	NR	NR	NR	NR

Source: Authors' Compilation from E-Views 10 Output; NA = Not Available; NR = Not Required

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The null hypothesis for the stationarity test is that the variable has unit root. Therefore the decision is to reject the null hypothesis when the probability is small. That is, if $p > 0.05$; accept null hypothesis (H_0) and if $p < 0.05$; reject null hypothesis (H_0). The panel unit root has many unit root test statistic. Hence the decision as to the stationarity or non-stationarity of the variable depends on majority of what the test statistic reveals. As shown in Table 4, four variables are stationary at level while the other two variables become stationary at first difference. Clearly, the variables: Return on Asset (ROA), and Operational Risk (OPR) were not stationary at level. They become stationary at first difference and they are said to be I (1) while the other variables Liquidity Risk (LIR), Capital Risk (CAR), Credit Risk (CRR) and Market Risk (MRR) were stationary at level, that is they are said to be I (0).

Analyses of Results

In this section we apply the appropriate analytical technique in finding answer to our research question and objective. There are many options for panel data problem. We used the pooled regression model of the panel data analysis because there is no heterogeneity or individuality, in practical sense, which exists in the domain of our study. All the banks we are studying are all domiciled in Nigeria and are all having same regulation and reporting format. With this, it is expected that the model of the panel data have common intercept and coefficient. Hence the appropriateness of panel pooled regression model. We start by presenting the result of the Model.

Analysis of Results Relating to Effect of Liquidity Risk, Operational Risk, Capital Risk, Credit Risk and Market Risk on Profitability of Quoted Commercial Banks in Nigeria

To perform our analysis, it is expedient to determine the appropriate lag length, since our model is a dynamic one. The lag order selection criteria as shown in Table 5 reveals that lag one is suitable for the dynamic analysis of the effects of liquidity risk, operational risk, capital risk, credit risk and market risk on profitability of quoted commercial banks in Nigeria.

Table 5 Lag Length Selection for Model I

Lag	LogL	LR	FPE	AIC	SC	HQ
0	162.4758	NA	6.78e-11	-6.386766	-6.155114	-6.298878
1	305.8287	245.7479	8.58e-13*	-10.76852*	-9.146959*	-10.15330*
2	328.2459	32.93957	1.60e-12	-10.21412	-7.202650	-9.071572
3	370.3063	51.50250*	1.49e-12	-10.46148	-6.060104	-8.791605
* indicates lag order selected by the criterion						
LR: sequential modified LR test statistic (each test at 5% level)						
FPE: Final prediction error						
AIC: Akaike information criterion						
SC: Schwarz information criterion						
HQ: Hannan-Quinn information criterion						

Source: Author's Compilation from E-Views 10 Output; NA = Not Available

As shown in the table above, the appropriate lag length is lag one. This is the lag length with the asterisk (*) notation. This means that lag one is the lag with the minimum value given the different statistics such as the LR sequential modified test statistic, Final Predictor Error (FPE), Akaike Information Criteria (AIC), Schwarz Information Criteria (SC) and the Hannan-Quinn Information Criteria (HQ). Hence our optimum lag in the ARDL is lag one. To be sure we will proceed to having a long relationship of the variables, we perform the Wald hypothesis test for the Model. For the long run relationship, the null hypothesis is that there is no long run relationship existing between the variables. If this hypothesis is rejected, we conclude that there is a long run relationship existing between the variables. The result of the Wald test long run relationship is shown below.

Table 6 Wald Test Result

Test Statistic	Value	df	Probability
F-statistic	3.321139	(6, 38)	0.0100
Chi-square	19.92683	6	0.0029
Null Hypothesis: C(13)=C(14)=C(15)=C(16)=C(17)=C(18)=0			
Null Hypothesis Summary:			
Normalized Restriction (= 0)		Value	Std. Err.
C(13)		-0.585801	0.156581
C(14)		-0.011250	0.008016
C(15)		0.004048	0.001760
C(16)		0.182092	0.076092
C(17)		-0.001419	0.005839
C(18)		-0.001353	0.000507

Source: Author's Compilation from E-Views 10 Output

In the table above, the null hypothesis is that there is no long run relationship between the variables (represented by the coefficients C13 to C18). Since the probability of the test statistic (F-statistic) is less than 5% critical value, we cannot accept the null hypothesis. We reject the null hypothesis and therefore conclude that there is long run relationship between the variables in the model. Hence the result of the model which shows both the short run and long run components of the analysis is presented in the table below.

Table 7: Estimates of the Effect of Liquidity Risk, Operational Risk, Capital Risk, Credit Risk and Market Risk on Profitability of Quoted Commercial Banks in Nigeria

SHORT RUN ESTIMATES			
Variable	**Coefficient**	**t-Statistic**	**P-Value**
D(ROA(-1))	0.162053	0.844823	0.4035
D(LIR)	-0.023925	-1.560598	0.1269
D(LIR(-1))	0.027828	2.314602	0.0261**
D(OPR)	0.005453	3.453266	0.0014***
D(OPR(-1))	-0.000262	-0.153507	0.8788
D(CAR)	0.129541	2.128803	0.0398**
D(CAR(-1))	-0.071593	-1.233204	0.2251
D(CRR)	0.000333	-0.055585	0.9560
D(CRR(-1))	0.004696	0.697424	0.4898
D(MAR)	-0.000277	-0.387373	0.7006
D(MAR(-1))	0.001129	2.470117	0.0181**
LONG RUN ESTIMATES			
ROA(-1)	-0.585801	-3.741187	0.0006***
LIR(-1)	-0.011250	-1.403444	0.1686
OPR(-1)	0.004048	2.300198	0.0270**
CAR(-1)	0.182092	2.393061	0.0218**
CRR(-1)	-0.001419	-0.242922	0.8094
MAR(-1)	-0.001353	-2.666537	0.0112**
Variable			**Coefficient**

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R-squared	0.502765
F-statistic	2.260151
Prob(F-statistic)	0.018340
Durbin-Watson stat	2.261551

*Source: Author's Compilation from E-Views 10 Output; ***1%, **5% and *10% level of significance*

In Table 7, the result reveals both the short run and long run effect of liquidity risk, operational risk, capital risk, credit risk and market risk on profitability of quoted commercial banks in Nigeria. The result also shows the one period lag effect of the risk measures on the level of profitability of the selected quoted commercial banks in Nigeria. The result shows the model one has a relatively good fit of the variables judging by the R-squared. We have an R-squared of 0.5027, implying that about 50% of the variations on the profitability of the selected quoted commercial banks in Nigeria is caused by the variations in liquidity risk, operational risk, capital risk, credit risk and market risk. What this means is that only about 50% of the total variations in the profitability of the selected quoted commercial banks in Nigeria that is not explained by the variables in the model. This simply means that risk management in banks is crucial but cannot alone account for profitability of banks. Again, since the probability of the F-statistic is statistically significant, it shows the stability of the model in explaining the variation of the profitability of the selected quoted commercial banks as caused by the risk measures. Further, the value of the Durbin-Watson stat, which is about 2 shows absence of autocorrelation.

From the estimates, credit risk does not significantly affect profitability of the selected quoted commercial banks in Nigeria both in the short and long run. However, while liquidity risk significantly affects profitability in the short run, it does not in the long run. Our finding on the effects of credit risks on profitability of banks agrees with the findings of [22], who found that credit risk management has insignificant impacts on the financial performance of commercial banks in Nigeria. For liquidity risk, previously, [23], had found that there is a significant relationship between liquidity risk and profitability of both domestic and foreign banks in Nigeria. Further, [24], observed that some variables of liquidity risks have significant and positive relationship with profitability of Nigerian deposit money banks, but some have shown to have insignificant relationship with profitability of banks in Nigeria. Our findings in this study shares the conflicting views but clearly defines the time period in which liquidity risk significantly affects profitability of banks in Nigeria. This result further reveals that the measures of risk significantly affects the financial performance of the selected quoted commercial banks in Nigeria during the period under consideration. From the estimates in Table 7, in the short run, the current period of liquidity risk is negative but insignificant towards profitability. However, the one period lag of liquidity risk significantly and positively affects the profitability of quoted commercial banks in Nigeria. Precisely, in the short run, a percent increase in liquidity risk after a period lag caused the profitability of quoted commercial banks to increase by about 3%. Again, operational risk shows positive and significant effect on profitability of quoted commercial banks in the short run at the current period but could not be sustained to a lag period. An increase in operational risk at the current period caused the profitability of quoted commercial banks to increase by about 0.5%. The capital risk of the commercial banks showed to have highest risk factor contribution to profitability of commercial banks in Nigeria. Clearly, an increase in the capital risk by a percent, in the short run, caused about 13% increase in the profitability of quoted commercial banks in Nigeria. Marker risk on the other hand contributed the least to profitability of the quoted commercial banks in Nigeria. Precisely, for any one percent increase in the market risk of the quoted commercial, it affects positively the profitability of quoted commercial banks by about 0.1%. Nevertheless, in the long run, while liquidity risk and credit risk are not statistically significant in affecting the profitability of quoted commercial banks in Nigeria, operational risk and capital risk sustains their positive effect whereas market risk, in the long run showed significant but negative effect on the profitability of quoted commercial banks in Nigeria. It is also interesting to reveal that in the long run, capital risk also contributes more to the profitability of the quoted commercial banks in Nigeria. For a percentage increase in the capital risk, the profitability increased to about 18% in the long run. In the long run, market risk reveals that there is a decrease in profitability by about 0.1% for a one percent increase in the market risk.

Summary, Recommendations and Conclusion

Summary

The study found that there exist significant effect of liquidity risk, operational risk, capital risk and market risk management on profitability of quoted commercial banks in Nigeria, both at the short run as well as the long run.

Only credit risk management is revealed to have no significant effect on the profitability of quoted commercial banks in Nigeria. The implication of this is that the credit risk portfolio of quoted commercial banks in Nigeria is still heavy with non-performing loans. Clearly the study found that the risk management factors contributes significantly to the profitability of quoted commercial banks in Nigeria in the short run. In the long run, the operational risk management and capital risk management sustains their positive significant contribution to profitability on quoted commercial banks in Nigeria. On the long run, the study further reveals that market risk management dwindled profitability of quoted commercial bank marginally. The findings of this study agrees with [25], found on the profitability of banks listed on the Indonesia Stock Exchange in 2010-2014. Their results showed that credit risk does not significantly affect profitability. Market risk, operational risk, and liquidity risk significantly have positive effect on profitability.

RECOMMENDATIONS

Based on the findings of this study, the following recommendations are proffered

1. Proper review of the credit risk structure should be done for aggressive loan recovery by the banks. The banks should adopt various methods necessary in other to ensure massive recovery of their funds that has been a source of negative financial performance to their organizations. Such methods to adopt should include, but not limited to, meetings and dialogue with the debtors, moral suasion, and litigations.
2. Further, the credit ratings of potential borrowers should be tightened to ensure that only creditors with proven track record of integrity will be advanced funds. Detailed monitoring of the use of funds should be regularly done to avoid diversion of funds that will result in difficulty in repaying the loans.
3. The risk management structure of quoted commercial banks in Nigeria is good, judging by the effect of liquidity, operational, capital and market risks. This should be sustained and improved upon to enable their impact to be increased. To do this, the risk management of the banks should be on regular training to ensure they do not lose track of current models of evaluating and sustain proper risk management approaches.

CONCLUSION

In this study, proper attempt has been made to investigate the effect of financial risk management on financial performance of quoted commercial banks in Nigeria. The study focused on selected quoted commercial banks in Nigeria covering the period between 2014 and 2023 and adopted a dynamic approach using the panel Autoregressive Distributed Lag (ARDL) model. The appropriate lag length for the study is lag one. The study revealed that the quoted commercial banks in Nigeria has good risk management structure. This is the reason why almost all the risk factor elements under consideration in the study to significantly and positively influence the various financial performance indicators for the period under review. The implication of this revelation is that the risk management framework of quoted commercial banks in Nigeria should be sustained and improvement made on credit risk management which shows inefficiency in enhancing the financial performance of quoted commercial banks in Nigeria.

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