
Empirical examination of the impact of risk management on financial performance of listed deposit money banks in Nigeria

Saidu Adamu & Thani, Ibrahim Mohammed

Department of Accounting, Federal University of Kashere, Nigeria.

Corresponding E-mail: saidugembu@gmail.com

Abstract

This study examined the impact of risk management on financial profitability of listed banks in Nigeria covering a scope of five (5) years from 2018 to 2022. Risks asset management in banks has over the years affected their financial profitability; to an extent that it has threatens their going concern. Risks management was proxied by credit risk, liquidity risk and operational risk whereas, financial profitability was proxied by return on assets (ROA) of the Deposit Money Banks (DMBs). Ex-post factor was used as the research design for the study while quantitative data was collected from the secondary sources through the audited financial reports and accounts of the listed banks. Three different tools were employed in the analysis of data. Thus; descriptive statistics which tests the quality, nature and magnitude of the variables employed in the study. Correlation matrix was employed to determine the level of association between the outcome and the explanatory variables individually and cumulatively and multiple regression was utilized in testing the impact of risk management on financial profitability of listed banks in Nigeria. The findings from the study revealed that credit risk and liquidity risk jointly have positive significant impact on financial profitability of banks in Nigeria. Operational risk on the other hand, was found to be statistically, positively but insignificantly impacting on financial profitability of DMBs in Nigeria. Based on the findings, it was concluded that credit risk and liquidity risk have significant influence on financial profitability of listed DMBs in Nigeria. Therefore, it is necessary and desirable for the management of the listed DMBs in Nigeria to deploy cost-benefit strategies designed at for relevant and efficient management of risks with a view to ensuring that their financial profitability is not adversely affected.

Keywords: Risk management, financial profitability, return on assets, liquidity risk, operational risk.

1. Introduction

Management of risk is perceived to be one of the key drivers of financial performance. Risk management is an activity of logically choosing cost-benefit methods for reducing the impact of threat identification to the corporate firm. Every uncertainty cannot be completely eradicated just because of monetary and practical constraints (Alhassan & Anwarul-Islam, 2021). On the other hand, management of risks deals with the

recognition, evaluation prioritization of risks coupled with strategic and prudent utilization of resources to reduce, supervise and monitor the profitability as well as the unforeseen effect or to optimize business prospects. Risks element could take various form ranging from projects collapse, financial market risk, accidents, litigation liabilities, natural epidemics and catastrophes amongst others (Okeke *et al.*, 2018).

Financial performance is an elusive term from the perspective of description and measurement. This study seeks to buttress corporate profitability as the outcome of business operation and the suitable parameter used to gauge financial performance which may be perceived to rely upon the nature of the company to be appraised and the goals to be accomplished from the appraisal.

The key factor in the occurrence of the international economic melt-down is risk management among the financial services companies. Risk management deals with the recognition, evaluation prioritization of risks coupled with strategic and prudent utilization of resources to reduce, supervise and monitor profitability as well as the unforeseen effect or to optimize business prospects (Bishnu, 2019). The basic roles of risk management are to recognize and supervise risks profile of banks. Financial instability across the globe has confirmed that management of risks is inevitable for corporate entities that seek to sustain customers and owners' expectations. The global financial melt-down has influenced various economies and banking institutions worldwide (Anthony *et al.*, 2021). Thus, it is highly imperative to examine the nexus linking risk management with financial profitability of listed DMBs in Nigeria.

1.1 Statement of the Problem

The challenges encountered in the management of risk in the banking institutions have not only affected their financial profitability but the country's economic growth and overall business expansion. The banks inspiration for management of uncertainties emerges from those uncertainties which could bring about poor financial profitability (Alia & Oudatb, 2020).

Financial performance is always dependent on risk management. Whereas; credit uncertainty is also a strong challenge and difficult activity in the banking sector albeit the contingent pattern of the macroeconomic attributes which are attributed to the financial sector or peculiar to a specific bank (Bashnu, 2019). The issue of risk management is also essential to financial performance of every corporate entity particularly the banking institution. Although, illiquidity of companies particularly the banking sector can bring about massive decline of commercial activities which ultimately result into declining profitability and/or financial performance.

Several studies like the work of turfaili (2021), Chukwunulu *et al.* (2019), Gadzo *et al.* (2019), Etale and Ujuju (2018), Okere *et al.* (2018), Idowu *et al.* (2017) as well as the work of Olaleye and Wan (2016) have jointly carried out similar research on the relationship linking risk management and corporate profitability, using a more current time-frame.

1.2 Objective of the Study

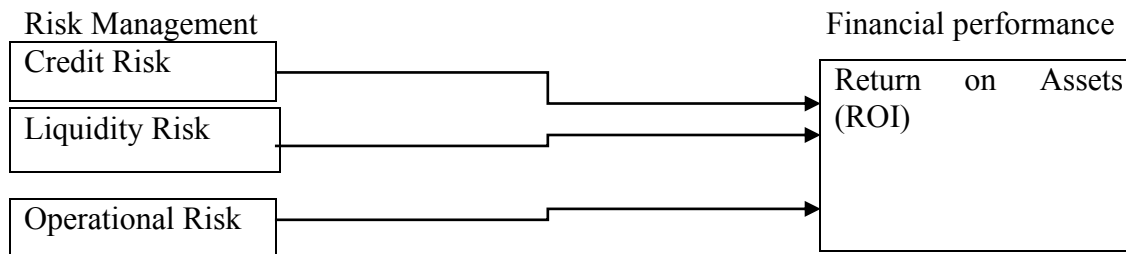
It is therefore, in view of the relationship between risk management and profitability of banks that this attempts to examine the impact of risk management on profitability of DMBs in Nigeria.

2. Literature Review

2.1 Conceptual Framework and Review

A conceptual framework was developed, capturing the relevant variables of the study. And relevant concepts directly connected to the variables, proxies and constructs of the study were also examined. These included concepts like risk monitoring, credit risk, liquidity risk, financial performance and Return on Assets (ROA). Figure 1 showing conceptual framework below:

Figure 1: Conceptual Framework



Source: Developed by the Researcher (2023)

2.2 Concept of risk management

Risk management can be defined as the process of strategically choosing cost-benefit techniques for reducing the impact of uncertainty recognition to the corporate entity. All uncertainties cannot be effectively eliminated or prevented albeit financial and practical constraints (Anthony *et al.*, 2021). The concept is also conceived as the recognition, evaluation and prediction of uncertainties coupled with the organization and prudent utilization of scarce resources with a view to reduce, supervise and predict the likelihood and/or effect of unforeseen eventualities or to enhance the accomplishment of objectives.

2.2.1 Credit risk

This is a term which is also regarded as failure uncertainty and is among the ancient risk factor. It is thus, one of the major types of uncertainties encountered by DMBs as financial institutions that mediate between the borrowers and suppliers of funds (Alhassan & Anwarul-Islam, 2021). Credit risk is a future loss emanating through the inability of a borrowing customer to satisfy his responsibilities in tandem with the prescribed rules and guidelines. The financial intermediation function of DMBs helps promote significant economic development of a country. Financial sustainability is critical for every country

and thus, the DMBs needs to be efficiently monitored. The volume of money creation in the country is largely affected by the economic activities in the country (Afriyie & Akotey, 2011).

2.2.2 Liquidity risk

The concept of liquidity risk is a vital segment entire uncertainty management architecture of the banking sector, especially the deposit money banks (Farai, 2020). Specifically, a good monitored bank should possess a strategic instrument for the recognition, analysis, supervision and prevention of liquidity uncertainties. An effective instrument assists the DMBs in periodic or regular identification of the channels of liquidity risk to prevent damages. Effective liquidity administration requires medium-range implementation and quick feedbacks from unexpected changes in the prevailing business environment. Management of liquidity therefore, requires effective strategies for the administration of current assets and obligations as well as the holistic approach for enhancing liquid resources potential (Saifullah *et al.*, 2019).

2.2.3 Operational risk

The relevance of operational or working capital risk cannot be underestimated. Operational uncertainties in various societies have currently captured the goals to investigate and assess the potential

drivers that could affect the function of risk management in contemporary banking transactions. The ever-resultant types of financial uncertainty deal with analysis of internal regulations and collaborative management (Onsongo *et al.*, 2020).

2.3 Financial performance

Financial performance refers to the degree to which financial objectives has been accomplished. It is the process of measuring the results/outcomes of a firm's policies, activities and operations in monetary terms (Yusuf *et al.*, 2022). It was also contended by Saidu (2015) that financial performance refers to an index employed to ascertain company's general financial condition for a specific time period and can serve as a veritable instrument for comparing companies in the same sector or even to compare sectors or sub-sectors in general. Financial profitability therefore, reveals the profitability capacity and loopholes of a company. According to Owolabi and Obida (2012), the profitability of a company reveals how efficient the company has been utilizing its scarce resources. The efficiency of a company can thus, be gauged in respect of its profit.

2.4 Review of Empirical Studies

Several prior researches related to the study were examined. These included the studies of Anetoh *et al.* (2021), Toufaili (2021), Chukwunulu *et al.* (2019), Gadzo *et al.* (2019), Etale and Ujuju (2018), Okere *et al.* (2018), Idowu *et al.* (2017) and Olaleye and Wan (2016) to mention just a few.

Anetoh *et al.* (2021) examined the impact of credit and operational risks on financial performance of quoted banks in Nigeria. Expost facto was used as the research design for the study while regression model was used as the technique for data analysis in the study. The outcomes from the study revealed that credit risk had negative but significant impact on

financial performance of quoted banks in Nigeria. On the other hand, operational risk had positive significant impact on financial performance of quoted banks in Nigeria. Toufaili (2021) investigated the influence of risk factors on corporate profitability in Nigeria. Survey method was used as the research design of the study. The findings revealed that managing credit risk, market, liquidity and solvency uncertainties are likely to influence the profitability of deposit money banks in a favorable approach.

In their own empirical findings, Chukwunulu *et al.* (2019) investigated the impact of risk management on financial profitability of listed banks in Nigeria. Results from the least square regression analysis showed that credit risk negative significant effect on return on equity but was found to have negative and insignificant influence on the financial profitability of listed banks in Nigeria. On the other perspective, liquidity and operational risks have insignificant impact on financial profitability of listed banks in Nigeria as proxied by both ROE and ROA. Whereas, capital adequacy was found to have positive and significant impact on return on equity of the listed banks but insignificantly affecting the return on assets of the listed banks in Nigeria. Gadzo *et al.* (2019) investigated the impact of risk management practices on corporate profitability of universal banks in Ghana. The findings from the Structural Equation Modeling (SEM) technique indicates that credit risk have negative but significant impact on profitability of banks in Ghana. Again, operational risk has negative but significant impact on profitability of universal banks in Ghana.

From the empirical work of Etale and Ujuju (2018), they examined the impact of risk management and prioritization on profitability of licensed banks in Nigeria. The parameters employed in the study comprise of capital adequacy ratio, credit and liquidity risks. Hence, return on assets

was used as the proxy for profitability in the study. The findings from the regression analysis show that credit and liquidity risks have positive significant impact on banks profitability in Nigeria. In their research work, Okere *et al.* (2018) studied the effect of risk management on corporate profitability of listed banks in Nigeria. The findings from the panel data analysis revealed that risk management practices have significant impact on corporate profitability of listed banks in Nigeria. Idowu *et al.* (2017) conducted their study on liquidity risk management and corporate profitability in Nigeria. The study was conducted for the period of ten (10) years spanning from 2007 to 2016. The results from the study show that liquidity risk management has significant positive association with corporate profitability of banks in Nigeria proxied by return on assets and return on equity.

2.5 Theoretical Framework

Quite a number of theories relate to the study. These comprise the agency cost, institutional and credit market theories.

2.5.1 Agency theory

The agency prescription was advocated in 1976 by Jensen and Meckling. The theory took into consideration of the interaction linking principal and agent as a key factor in determining firm performance. Contemporary businesses have multifarious number of shareholders. The shareholders are considered as the principals as they engaged the services of chief executives and management members to monitor the activities of their company for a consideration. The management members (Agents) appointed are normally expected to work effectively towards greater profitability for the providers of capital.

2.5.2 Institutional theory

This is another theory which is connected to this study. The argument of this theory is also grounded on the institutional theory

as Chariri (2011) argued that financial reporting is an institutional practice. The institutional theory holds that organizational structures and procedures are influenced by the social environment (Chariri, 2011). Construed within the concept of risk monitoring and corporate profitability which is the concern of this study. The institutional theory could be stated to hold that financial performance is an outcome of risk management especially the Deposit Money Banks (DMBs).

2.5.3 Credit market theory

The ancient theory of banking is the credit market prescription. The theory advocates that banks should only lend on the basis of short-period, self-liquidating and commercial paper. The credit market theory is designed to support the lending institutions as well as the overall productive activities (Hosna & Manzura, 2009). In a nut shell, the credit market theory reveals that commercial loans are required to operate as a source of money creation to adjustments in the entire level of productive activities. The universality of this rule amongst Nigerian banks is a clear evidence for the selection of this theory to underpin this study.

3. Methodology

For the purpose of this study, ex-post facto was used as the research design for the study. The twenty four (24) listed banks in the Nigerian Exchange Group (NXG) were used as the population of the study. As a result, twelve (12) banks were used as the sample size of the study using filter as the sampling technique of the study. The study was conducted for the duration of five (5) years spanning from 2018 to 2022. The quantitative data was collected from the financial statements of the listed banks and the statistical bulletins of the Central Bank of Nigeria (CBN). Most importantly, multiple regression was used as the technique for data analysis in the study.

3.1 Variables of the Study

This study is made up of two components; risk management (explanatory variables) proxied by credit risk (CDR), liquidity risk (LQR) and operational risk (OPR). Whereas, the outcome variable (financial profitability) was proxied by return on assets (ROA).

3.2 Model Specification

In order to test the hypotheses of the study, the following econometric model was specified and adapted from the previous works of Anetoh *et al.* (2021) and Chukwunulu *et al.* (2019) with slight modifications. Thus;

$$ROA = f(CDR, LQR, OPR) \dots \dots \dots (i)$$
$$ROA_{it} = \beta_0 + \beta_1 CDR_{it} + \beta_2 LQR_{it} + \beta_3 OPR_{it} + \mu_{it} \dots \dots \dots (ii)$$

Thus;

ROA = Return on Assets

CDR = Credit Risk Management

LQR = Liquidity Risk Management

OPR = Operational Risk Management

β_0 = Intercept or constant term

$\beta_1 - \beta_3$ = Coefficient of the explanatory variables

μ = Stochastic error term

3.3 Techniques for Data Analysis

A triangulation approach was used in the choice of techniques, as such, three (3) different parametric tools were utilized for data analysis. Thus; descriptive statistics, Pearson's correlation and regression analysis.

3.3.1 Descriptive statistics

Descriptive statistics was utilized to determine the summary of extracted data that described the Mean, Maximum, Minimum and Standard Deviation of

constructs of the variables. This was tabulated and discussed.

3.3.2 Pearson's correlation model

Pearson's Correlation Model was employed to evaluate the degree of relationships between the constructs of the dependent and independent variables. The correlation tool was applied to examine if a statistically significant correlation exists between the variables.

3.3.3 Multiple regression

The multiple regression method was employed to examine the impact of risk management on profitability of DMBs in Nigeria. This was done by regressing the data on the constructs of the explanatory variable (CDR, LQR, OPR) against the construct of the dependent variable (ROI). This will show the extent to which the explanatory variable (risk management) influences the dependent variable (financial performance).

4. Results and Discussion

In this section, the results of the study were tested or analyzed through the aids of descriptive information, matrix of correlation and the regression results. These are presented and analyzed as follows:

4.1 Descriptive Information

This covers the statistical information which tests the quality, nature and magnitude of the variables employed in the study. It comprises the average, the deviation from the average, the lowest and the highest values in respect of the variables.

Table 1: Descriptive Information

Variable	Obs	Mean	Std. Dev.	Minimum	Maximum
ROA	60	.1235421	.1082273	-.0012948	.4489344
CDRM	60	.1374404	.0967641	.012637	.3638377
LQRM	60	.1873711	.1202385	.0013345	.4031548
OPRM	60	.1902808	.108818	.0237104	.4498875

Source: Generated from Descriptive Statistics Result (using STATA)

Table 1 present the detail account of the outcome and the independent variable. It reveals the lowest and the highest figures in respect of ROA as -0.0012948 and 0.4489344 respectively. This is followed by the corresponding average and standard deviation values of 0.1235421 and 0.1082273 respectively. Credit risk management has the average and standard deviation values of 0.1374404 and 0.09676 respectively. This is followed with the corresponding lowest and highest values of 0.12637 and 0.3638377 respectively. Liquidity risk management shows the lowest and highest figures of 0.0013345 and 0.4031548 respectively and the average value of 0.1873711 with 0.1202385 as the standard deviation. The table also shows the lowest and highest figures for operational risk management are 0.0237104 and 0.4498875 respectively. The mean and standard deviation values are 0.1902808 and 0.108818 respectively.

4.2 Correlation Analysis

The summary of the correlation analysis was presented in table 2 as follows

Table 2: Correlations Matrix of the Dependent and Independent Variables

Variables	ROA	CDRM	LQRM	OPRM
ROA	1.0000			
CDRM	0.5786	1.0000		
LQRM	0.5101	0.3664	1.0000	
OPRM	0.4174	0.4934	0.3770	1.0000

Source: Generated from Correlation Matrix Result (using STATA)

The table above shows the relationship that exists among variables. Correlation matrix is employed to determine the level of association between the outcome and the explanatory variables individually and cumulatively. Based on the correlation coefficients of the explanatory variables, credit risk, liquidity risk and operational risk have coefficient values of 0.5786, 0.5101 and 0.4174 respectively. According to Gujarati's correlation criteria, none of the value is greater than or equals to 0.75 (i.e. $X \geq 0.75$). By implication, there is absence of high correlation amongst the variables of the study. Thus, there is no problem of redundancy amongst the variables of the study.

4.3 Diagnostic Analysis

The diagnostic analysis in this study was conducted using variance inflation factor (VIF) as well as the corresponding tolerance values. The diagnostic test was conducted to ensure greater reliability and validity of statistical inferences of the study.

4.3.1 Variance Inflation Factor

The test for variance inflation factor was carried out to ascertain the level of multicollinearity amongst the variables of the study. It is to find out whether or not there is presence of serial correlation amongst the variables of the study. This is depicted under table 3 as follows:

Table 3: VIF/Tolerance Values

Variable	VIF	1/VIF
OPRM	1.40	0.712110
CDRM	1.39	0.718667
LQRM	1.23	0.814851

Mean VIF 1.34

Source: Generated from Diagnostic Test Result.

Based on the result in table 3, it shows the VIF values in respect of the explanatory variables as well as their respective tolerance values. Obviously, the VIF values in respect of all the explanatory variables are greater than 1 but less than 10. Similarly, none of the explanatory variables have tolerance values that is up to or greater than 1. This simply signifies that there is absence of multicollinearity or serial correlation problems amongst the variables of the study. By implication,

serial correlation may not cause strong problems to the variables of the study.

4.4 Summary of Regression Results

Regression is a tool that does not only show the direction and strength of a relationship, but determines the causal effect of this relationship. The table 4 below presents the results of multiple regressions used in testing the impact of risk management on financial profitability of listed banks in Nigeria.

Table 4: Regression Result

ROA	Coefficient	Std. Err.	T	P> t	[95% Conf. Interval]
CDRM	.4645768	.1315478	3.53	0.001	.2010549 .7280987
LQRM	.2914962	.0994212	2.93	0.005	.0923315 .4906608
OPRM	.0899102	.1175134	0.77	0.447	-.1454974 .3253179
Cons	-.0120356	.0245417	-0.49	0.626	-.0611986 .0371273
Number of obs					60
F(3, 56)					14.86
Prob > F					0.0000
R-squared					0.4433
Adj R-squared					0.4135
Root MSE					.08289

Source: Generated from Regression Results (Using STATA)

Based on the results in table 4, it shows the adjusted R^2 value of 0.4135 signifying that the multiple coefficients of determination have an explanatory power of about 41.35%. This simply implies that risk management as proxied by credit risk, liquidity risk and operational risk explains approximately 41% of the total impact on financial profitability of listed DMBs in Nigeria. and that risk management is statistically and significantly affecting the financial profitability of listed DMBs in Nigeria. Thus, approximately 59% of the total impact of risk management on financial profitability of banks was explained by other factors which have not been captured in the econometric model of

the study. From the perspective of model fitness test, the F- Statistics shows a value of 14.86 signifying that the model is good, adequate and well-fitted for the study. By implication, the explanatory variables as proxied by credit risk, liquidity risk and operational risk are properly selected, combined and used as they are jointly beyond the normal thresholds of 2.0. Hence, confirming the model fitness of the study.

4.4.1 Credit risk and Financial Profitability

From table 4, it shows a beta coefficient value of 0.4645768 with a corresponding t and p values of 3.53 and 0.001 respectively. It signifies that credit risk is

statistically, positively and significantly affecting the financial profitability of listed DMBs in Nigeria at 1% level of significance. By implication, a proportional increase in credit risk management by 0.4645768 will bring about an increase in profitability (ROA) of listed DMBs in Nigeria by N3.53. This is not strange issue as management usually prefers to generate high revenue from such activities or transactions in which they have put in their best. this provides the basis for rejecting the hypothesis one of the studies which states that credit risk has no significant effect on financial profitability of listed banks in Nigeria. Therefore, for hypothesis one, H_{01} is rejected. Interestingly, the findings are in tandem with the empirical work of Toufaily (2021) but contradicted the findings documented in the work of Anetoh *et al.* (2021).

4.4.2 Liquidity risk and financial profitability

Additionally, the table 4 shows a beta coefficient value of 0.2914962 with a corresponding t and p values of 2.93 and 0.005 respectively. It signifies that liquidity risk is statistically, positively and significantly influencing the financial profitability of listed DMBs in Nigeria at 1% level of significance. By implication, a proportional increase in credit risk management by 0.2914962 will bring about an increase in profitability (ROA) of listed DMBs in Nigeria by 2.93. This is not surprising at all since efficient management of liquidity usually serve as a signal for sound revenue generation. this provides the basis for rejecting the hypothesis two of the study which states that liquidity risk has no significant impact on financial profitability of listed banks in Nigeria. Therefore, for hypothesis two, H_{02} is rejected. However, the finding is in contrast with the study of Etale and Ujuju (2018).

4.4.3 Operational risk and financial profitability

Finally, the table also reveals a beta coefficient value of 0.0899102 with a corresponding t and p values of 0.77 and 0.447 respectively. It signifies that operational risk is statistically, positively but insignificantly influencing the financial profitability of listed DMBs in Nigeria. By implication, a proportional increase in operation risk by 0.0899102 will bring about a slight increase in profitability (ROA) of listed DMBs in Nigeria by N0.77k. This is confirming the fact that a little change in operational risk is tantamount to cause a very scanty increase in profitability of the listed DMBs in Nigeria. This provides the basis for not rejecting the hypothesis three of the study which states that operational risk has no significant influence on financial profitability of listed banks in Nigeria. Therefore, for hypothesis three, H_{03} failed to be rejected. Interestingly, the findings is in support of the empirical work of Chukwunulu *et al.* (2019) but contradicted the findings documented in the work of Gadzo *et al.* (2019). in the former, it was documented that operational risk has no significant impact on ROA of listed DMBs in Nigeria while in the latter, it was found that operational risk has positive and significant relationship with ROA of listed DMBs in Nigeria.

5. Conclusion and Recommendations

5.1 Conclusion

With reference to the findings and discussion, it is obvious that credit risk is statistically, positively and significantly affecting the financial profitability of listed banks in Nigeria. Indeed, liquidity risk is also found to have positive significant impact on financial profitability of listed banks in Nigeria. Although, operational risk has positive but insignificant influence on financial profitability of listed banks in Nigeria. Therefore, it is concluded that credit and liquidity risks are good

determinants of financial profitability of listed DMBs in Nigeria. It is finally concluded that operational risk is not good driver of financial profitability of listed DMBs in Nigeria.

5.2 Recommendations

Based on the conclusion drawn on findings of the study, the following recommendations are made:

- (i) That the management of listed DMBs in Nigeria should deploy cost-efficient strategies for regular and efficient credit risk management with a view to prevent the adverse effect on financial profitability of banks in Nigeria;
- (ii) That risk management committee of the listed banks should constantly evaluate their risk management architectures in order to confirm their application amidst era of frequent transformation in business environment such as Basel regulatory frameworks and fresh regulatory frameworks for solvency;
- (iii) That the managements of the listed DMBs should deploy information technology resources in the management of their risk. This can be attained through introducing information technologies that could perform risk evaluation and appraisal more efficiently and for administering their risk management strategies for greater efficiency. This should be strengthened by special training of personnel on risk monitoring strategies of the bank. It is also necessary for the listed deposit money banks in Nigeria to tackle corporate governance challenges in their risk management strategies.

5.3. Policy Implications

The Central Bank of Nigeria as the apex regulatory agency of DMBs should provide a deliberate regulation on risk management for DMBs, an aspect of disclosure on credit risk assessment,

liquidity risk assessment, and operational risk assessment reports as part of the annual reports and accounts of the banks.

Secondly, the risk management committee of the board of directors of DMBs should be empowered to review such risk assessment reports (credit, liquidity and operational) and also provide their independent opinion on whether or not, the risk assessment reports give a true reflection of the bank's risk profile and its implications for present and potential financial performance.

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