

## **RISK MANAGEMENT COMMITTEE ATTRIBUTES AND PROFITABILITY OF LISTED DEPOSIT MONEY BANKS IN NIGERIA MODERATED BY OPERATIONAL RISK.**

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### **Abstract**

This study investigates the effect of risk management committee (RMC) attributes on the profitability of listed deposit money banks in Nigeria, with a specific focus on the moderating role of operational risk. The aim is to explore how the size and independence of RMCs influence banks' financial performance, and whether operational risk alters this relationship. The analysis draws on data from a sample of thirteen listed banks over a fifteen-year period (2009–2023), using firm-level financial indicators. The findings reveal that the size of the risk committee does not significantly influence profitability, indicating that simply increasing the number of committee members may not enhance financial outcomes. Conversely, risk committee independence, when moderated by operational risk, shows a significant negative effect on profitability, suggesting that excessive independence without sufficient industry expertise may hinder effective decision-making. Operational risk itself exerts a substantial negative impact on profitability, reinforcing the importance of robust internal control systems and proactive risk governance. Interestingly, while the interaction between committee size and operational risk negatively affects profitability, the interaction between committee independence and operational risk shows a positive influence, highlighting the value of balanced and expert oversight. These findings underscore the need for Nigerian banks to strengthen their risk governance structures and for regulators to implement policies that promote a combination of independence and financial expertise in risk committees. The study recommends that banks prioritize effective operational risk management frameworks to safeguard profitability in the face of growing financial and regulatory challenges.

**Keywords:** Operational risk, risk committee size, risk committee independence, deposit money banks in Nigeria

### **1.0 Introduction**

Profitability is an important factor in the survival of firms particularly as it pertains to earning profits, reduce cost and avoid risk (Said & Doll, 2021). Therefore, most firms especially the financial institutions, precisely deposit money banks in Nigeria which is the domain of this study have continued to reflect huge profits in their annual reports and accounts year on year. Consequently, decrease in the volume of financial transactions within the financial sector has the likelihood to cripple the economy of a country (Nasir & Afza, 2018). In view of these, it would be impossible to overestimate the significance of deposit money banks in society, which is why the laws and regulations governing these businesses are so stringent. Because financial services businesses are vulnerable to a wide range of problems, such as credit, market, and operational uncertainties, abuse of authority, fraud, and other illegal acts, the Nigerian banking sector implemented the reform plan in 2015.

The risk committee attributes as an internal corporate governance mechanism, has been argued to play a very crucial effect on the profitability or otherwise of the listed banks in Nigeria. This is with reference to the notion that a reasonable number of directors in the risk committee could create avenue for cross fertilization of ideas among members which will eventually reflect on the profitability of the listed banks in Nigeria. In contrast, this good result may not be obtainable in

a corporate entity with relatively smaller number of members in its risk management committee. This simply because of the fact that smaller-sized risk committee may not give room for exchange of ideas among members in the risk committee. Therefore, it is expected that risk committee size will significantly influence the profitability of the listed DMBs in Nigeria.

Banks in Nigeria have been battling to cope with various dimensions of financial risks such as capital risk, liquidity risk, operational or insolvency risks. Despite the legal and regulatory frameworks as well as the risk committee attributes (Size, independence and expertise) that have been instituted in almost all the licensed banks in Nigeria, the level of continuous decline in profitability have been alarming and lingering resulting to unexpected winding up, merger and acquisition of banks at large (Okoye & Eze, 2023; Yusuf & Bello, 2022). In 2021, statistical evidence have shown that approximately 1.5 per cent of the Nigerian citizens are estimated to owe banks the sum of over N5trillion and that it had been problematic to recoup the outstanding credits as a result of legal technicalities deployed by debtors' lawyers (Tumala et al., 2021). This has resulted to the capital, liquidity and operational/insolvency risks of prominent deposit money banks such as Oceanic Bank Plc, Inter-continental Bank Plc, Skye Bank Plc and Bank PHB among others.

In recent years, some corporate entities in Nigeria, particularly banks, have faced business disasters that have culminated into bankruptcy, mergers, and acquisitions. The notable one is Access bank acquired Diamond bank in year 2020. Ultimately, it is vital that banking institutions in Nigeria deploy policies to support them in coping up with the challenges encountered by adjusting monetary policy instruments. Strong internal corporate governance instruments, such as the risk committee attributes, should, in an ideal environment, have an effect on the performance of a bank and will be essential in monitoring systemic uncertainties (Ayodele & Alabi, 2014; Ogbuga et al., 2021). Consequently, the priority of this study is to explore the effect of risk committee attributes on profitability of listed deposit money banks in Nigeria using operational risk as the moderating variable.

This study addresses this gap by examining the extent to which RMC size and independence influence profitability, while accounting for the moderating effect of operational risk. By doing so, the study contributes to the growing discourse on bank governance effectiveness and risk resilience, particularly in emerging economies.

The main objective of this study is to examine the effect of risk committee attributes on profitability of listed Deposit Money Banks in Nigeria moderated by operational risk. The specific objectives are to:

- i. Examine the effect of risk committee size on profitability of listed DMBs in Nigeria;
- ii. Find out the effect of risk committee independence on profitability of listed DMBs in Nigeria;
- iii. Examine the moderating role of operational risk on the relationship between risk committee size and profitability of listed DMBs in Nigeria;
- iv. Investigate the moderating role of operational risk on the effect of risk committee size on profitability of listed DMBs in Nigeria;
- v. Find out the moderating role of operational risk on the relationship between risk committee independence and profitability of listed DMBs in Nigeria.

In line with the specific objectives of the study, the following hypotheses are stated in null form.

- H<sub>1</sub>:** Risk committee size has no significant effect on the profitability of listed deposit money banks in Nigeria.
- H<sub>2</sub>:** Risk committee independence has no significant effect on the profitability of listed deposit money banks in Nigeria.
- H<sub>3</sub>:** Operational risk does not significantly moderate the relationship between risk committee size and profitability.
- H<sub>4</sub>:** Operational risk does not significantly moderate the relationship between risk committee independence and profitability.

The finding of this study is expected to have significant contributions to multiple group of financial information users especially the management, regulators [Central Bank of Nigeria (CBN), the Nigerian Deposit Insurance Corporation (NDIC), the Asset Management Corporation of Nigeria (AMCON), the Securities and Exchange Commission (SEC), the Financial Reporting Council of Nigeria (FRCN)] among other interested parties. The remaining parts of the study cover the literature review, methodology, results and discussion, conclusion and recommendation.

## **2.0 Literature Review**

This section discusses concepts used in the study. It follows with the review of empirical studies as well as the theoretical framework of the study. The theoretical framework describes the theory that anchor the study.

Profitability can be defined as a parameter of measuring how efficient a firm utilizes its resources from its actual line of operations to gain profit (Liu et al., 2023). The concept is also applied as universal instrument of company's total financial well-being for a specific period of time. Kanowsky (2017) describes financial profitability as gauging outcomes of a company's decisions and activities in financial terms and these outcomes are found in company's return on investment, return on assets, value added amongst others.

In a simple term, Profitability means an ability to make profit from all the business activities of an organization, company, firm, or an enterprise. It shows how efficiently the management can make profit by using all the resources available in the market. A great number of scholars give their own definition of profitability.

According to Liu et al (2023), profitability is an ability of a given investment to earn a return from its use. As well as (Said & Doll, 2021) said that profitability is the organizations' ability to generate income and its inability to generate income is a loss. He further asserts that if the income generated is greater than the input cost, that is simply profitability, but if the income is less than the input cost, it can lead to poor performance. Therefore, they concluded that every business should earn sufficient profits in order to survive and grow over for a long period.

The term 'risk management' is currently being utilized very liberally within institutions. For example, safety, security, disaster management, business continuity, insurance and internal audit are often referred to as "risk management." It is certainly true that these functions form part of the wider subject of risk management. But the term 'risk management' means a deliberate focus

on all risks of an institution. Risk management is a management discipline with its own techniques and principles. It is a recognized management science and has been formalized by international and national codes of practice, standards, regulations and legislation. Risk management forms part of management's core responsibilities and is an integral part of the internal processes of an institution. Risk management is a systematic process to identify, evaluate and address risks on a continuous basis before such risks can impact negatively on the institution's service delivery capacity.

A Risk Management Committee Attributes is characterized by its composition of experienced senior executives and board members with diverse expertise in financial, operational, strategic, and compliance risks, ensuring informed oversight of the organization's risk framework (COSO, 2017). Key attributes include independence to mitigate conflicts of interest, authority to establish risk policies and tolerance levels, and responsibility for systematically identifying, assessing, and prioritizing risks through robust methodologies and data analysis. The committee fosters clear communication channels across departments, conducts regular reviews to adapt to evolving threats, and ensures compliance with regulations while maintaining transparency. It collaborates with internal and external auditors, reports strategically to the board, and promotes a culture of accountability through continuous monitoring, training, and timely updates to risk mitigation strategies, aligning with governance best practices (OECD, 2015).

Risk Management Committee (RMC) is responsible for Initiating, implementing, and overseeing risk policies on behalf of the board of directors. The committee is answerable to the board of directors and report to the board on a regular basis in tandem with the company's business and financial decisions (Sufi & Qaisar, 2015). A company's board of directors may create a risk committee in accordance with the Nigerian code of corporate governance, to help the board fulfill its duty to ensure efficient risk management for the company. Several studies have contended that having a vibrant management committee in place could enhance a firm's profitability and that business achievement is basically reliant upon the procedure of risk control (Edogbanya & Kamardin, 2015). It is contended that the RC is an essential committee on the board of directors (SEC Code of 2011).

Risk committee size existence may be related with board size. The existence of large board size gives more opportunities to discover directors with needed expertise to organize and be in charge in a subcommittee dedicated to risk management. The presence of board size provides more opportunities for managers with the necessary skills to coordinate and be in charge of a subcommittee on risk management (Abubakar et al., 2018). The boards of directors set up monitoring committees that mitigate the cost related with larger boards (Kolev et al., 2019). The capacity of a board to monitor effectively is dependent on the board's independence from its management. The participation of non-executive Independent directors is typically considered by Abubakar et al. (2018) as a good sign that management is duly supervised board. Hence they remarked that RMC independence is determined by the magnitude of non-executive, independent directors in the RMC.

Operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events. The definition includes legal risk, which is the risk of loss resulting from failure to comply with laws as well as prudent ethical standards and contractual obligations. It also includes the exposure to litigation from all aspects of an institution's activities. The definition does not include strategic or reputational risks (Basel committee on

banking Supervision, 2022). This is measured as the ratio of total operating costs (expenses) divided by the total operating income.

Agency Theory, this theory was first developed by Berle and Means (1932), and the concept was later formalized by Jensen and Meckling (1976) providing a framework to examine contractual relationships when one party, called the principal, engages another party, called the agent, for purposes of delegating responsibility to the latter. Therefore, this theory states the relationship among owner and managers. It involves a contract under which the principal (owners) engages another party (managers), called agent, to perform some duties on their behalf, where some powers of decision making are delegated to the agent (Jensen & Meckling, 1976). In the modern business world, the principle is the shareholders who are owners of the company while the management of the company represents the agent.

As a result, having an effective committee in a firm not only helps the board of directors, but it also helps to limit the number of agency problems that emerge in the organization. Committees that are regarded as effective are those that have a high level of independence, as well as size. Because it allows members to bring diverse traits to the table and provide ideas that are not seen or justified by internal directors. Risk committee in terms of its size and independence can convey a high degree of its professionalism to enhance financial performance by mitigating risks or losses which may result from inadequate or failure from internal process, people and systems, or from external events and which may in turn increase the company's profitability (Lamidi et al., 2022).

Agency theory, which addresses conflicts of interest between principals (shareholders) and agents (management), underpins the study by emphasizing how risk committee size and independence serve as governance mechanisms to align managerial actions with shareholder objectives. A larger risk committee may enhance collective oversight and expertise, reducing information asymmetry and opportunistic behaviour by management, thereby improving risk governance and profitability. Similarly, risk committee independence mitigates agency costs by ensuring objective scrutiny of risk strategies, curbing managerial self-interest, and fostering transparency in decision-making. Operational risk, as a moderator, amplifies the importance of these attributes, as higher operational risk environments demand robust committee structures to counteract potential mismanagement or negligence. In Nigerian deposit money banks, where operational risks (fraud, regulatory non-compliance) are prevalent, agency theory justifies the critical role of a well-structured, independent risk committee in safeguarding profitability by balancing risk-taking with accountability, ultimately aligning organizational outcomes with shareholder interests.

Agency Theory, as developed by Jensen and Meckling (1976), provides a robust foundation for examining the role of internal governance mechanisms such as risk management committees in financial institutions. The theory centers on the relationship between principals (shareholders) and agents (management), where the divergence in interests can lead to agency problems such as excessive risk-taking, information asymmetry, and managerial inefficiency. In the context of Nigerian deposit money banks, where corporate governance structures often vary in effectiveness, Agency Theory helps explain how oversight mechanisms like risk committees can align managerial behavior with shareholder interests through monitoring and control.

Alternative theories, such as Resource Dependence Theory and Stewardship Theory, offer complementary but less targeted insights for this study. Resource Dependence Theory emphasizes the role of board members in securing external resources, which is less applicable to internal control dynamics. Stewardship Theory, which assumes managers act in the best interests of shareholders, may not hold in environments with weak enforcement and high operational risk exposure. Given Nigeria's banking sector history of governance lapses, fraud, and regulatory breaches, Agency Theory provides a more realistic and applicable lens through which to investigate the effectiveness of risk committees.

The review of empirical studies was based on the specific objectives of this study. These reviews are discussed and presented as follows.

### **Review of Empirical Studies**

#### **Risk Committee Size and Bank Performance**

Adebayo et al. (2022) examined the characteristics of risk committees as well as their effects on the financial performance of deposit money banks (DMBs) in Nigeria. 13 deposit money banks were selected as a sample using the purposive sample method, and the study made use of secondary data obtained from the bank's annual reports. The panel regression method was used to evaluate the data. The study used a fixed effect model to find that, while the size of the committees is negligible, the size of the committees has a negative effect on the financial performance of deposit money banks in Nigeria. Despite the recency of the study, the findings of the study cannot reflect the true picture of the banks' financial performance especially in the present economic and monetary policy reforms in the country. The findings may be different if the study was conducted in a context or different sector other than deposit money banks (DMBs). Odubuasi et al. (2022) investigated the effect of risk management committee on the performance of banks in Nigeria. Ex-post facto research design was used. Nine banks were selected using purposive sampling technique whereas secondary data were extracted from the annual reports of the banks from 2010 to 2019. Descriptive statistics, correlation analysis and panel data regression analysis were employed in analyzing data. The results showed that risk committee accounting expertise has positive effect. However, the study is not specific about the size of the risk committee; a variable inclusion gap. The result might have been different if other variables are used as moderating variables such as managerial ownership and several other variables that can strengthen the results, and a longitudinal study which covers a longer period may improve the reliability of the result.

In another study conducted by Sumaila and Ofor (2022), the study focused on the investigation of risk management committee in the context of financial distress in Nigeria drawing samples from listed consumer goods firms on the floor of the Nigerian Exchange Group market. Data set employed in this study spans through the periods between 2011 and 2020. The test of hypotheses was done using the panel random effect regression. The empirical result of this study leads to the conclusion that while an increase in the number of risk committee members will significantly increase financial distress. Although, the data set employed in the study stopped at 2020 and thus, cannot be realistic in judging current economic and monetary policy phenomenon in the country. The findings may be different if the study was conducted in different sector other than listed consumer goods firms.

A recurring theme in governance literature is whether the size of a risk committee contributes positively to financial performance. Some studies argue that larger committees facilitate broader perspectives and more effective risk oversight (Adebayo et al., 2022), while others suggest that larger size may hinder decision-making efficiency and reduce accountability (Sumaila & Ofor, 2022). In the Nigerian context, the inconsistency in findings may stem from differences in committee functionality rather than sheer size. This study contributes by examining not only the direct effect of committee size on profitability but also how operational risk influences this relationship an area largely unexplored in existing research.

### **Committee Independence and Risk Oversight**

Ibrahim et al. (2020) evaluates the effect of risk management committee size, independence, expertise on financial performance of listed insurance companies in Nigeria from 2012 to 2018. From a population of 27 insurance firms, the study employed a sample size of (24) insurance companies. The study used secondary data obtained from annual report of the firms. The study employed Random Effect regression model and find that risk committee expertise has negative and significant effect on financial performance while risk management committee size and independence does not influence financial performance. Despite the regourosity of the study, the data set employed in the study stopped at 2018 which signifies lack of recency and generalizability of the study.

Independence in risk committees is often viewed as a hallmark of strong governance. Independent members are presumed to offer unbiased judgment, thereby enhancing oversight and reducing agency costs (Ibrahim et al., 2020). However, some scholars have argued that excessive independence, especially when unaccompanied by relevant expertise, can weaken committee effectiveness and slow strategic responsiveness (Brown & Hassan, 2023). This study builds on this debate by testing whether the influence of independence on profitability is conditioned by levels of operational risk a dimension often overlooked in prior research.

### **Operational Risk as a Moderating Variable**

Ogbuga et al. (2021) investigated the effect of risk management on financial performance of deposit money banks in Kaduna state. Primary data was used and questionnaires were administered. Data was analyzed using SmartPLS-SEM. Risk management was the independent variable and was proxied by credit risk, liquidity risk, operating risk and interest rate risk while using performance as dependent variable. The findings revealed that credit risk, liquidity risk and interest rate risk significantly and positively affected the performance of the studied banks, while the operating risk has a negative and insignificant effect on the performance of deposit money banks in Kaduna state. It was recommended that banks should encourage an increase in the loans and advances given to customers as this will enhance bank profitability and establish a mechanism to monitor market movement of interest rate, as any rise in interest rates pose challenges to the banks. The result might have been different if other variables are used as moderating variables such managerial ownership or other variables that can strengthen the results.

Ayodele and Alabi (2014) examined the risk management in the Nigerian banking industry. A case study of first bank of Nigeria Plc. Primary data was used. Simple percentages were used to analyze the respondents' responses to each of the question while Chi- square and the Analysis of Variance statistic were used to test the stated hypothesis. The analysis revealed that risk in the

likelihood of fraud and forgery, operational risk is abounded in the Nigeria banking operations which needed to be managed appropriately in order to improve performances and profitability of the banks. Based on the research findings, it was discovered that Nigeria banking operations are affected more by credit risk and operational risk than market risk. It was recommended among others that Nigeria government should strengthen the legal framework for the enforcement of loans repayment from borrowers to banks upon loan maturity. And that financial regulator must adopt risk management approach that is in complete compliance with international standards focusing on the financial and operational risks faced by banks so as to guide against any risks associated with the banking operations and existence. The outcome might be different if the approach of the study was quantitative or the study carried out in other sectors or different context.

### 3.0 Methodology

This study adopts an ex-post facto research design, which is appropriate for investigating the relationship between corporate governance attributes and financial performance using historical data. The positivist philosophical approach guides the research, as it emphasizes objective measurement and hypothesis testing using quantitative data. The *Expo-facto* approach was used for this study because it allows for the description of the variables through the gathering of factual historical secondary data that describes an existing phenomenon. *Ex-post facto* research design was employed based on the research philosophy and approach of the study being positivism and quantitative respectively. Specifically, the choice of the philosophy was based on the quantitative approach that deals with the collection of panel data. The population consists of all 14 deposit money banks (DMBs) listed on the Nigerian Exchange Group (NGX) as of December 31, 2023. A purposive sampling technique is employed based on defined inclusion and exclusion criteria. The primary reason for adopting purposive sampling is to ensure the selection of banks with complete, consistent, and comparable financial data across the 15-year study period (2009–2023). This period allows for robust longitudinal analysis and reflects both pre- and post-reform periods in the Nigerian banking sector. Jaiz Bank Plc was excluded from the sample for two main reasons. First, it was listed in 2017 and lacks the full panel of data required from 2009. Second, Jaiz operates as a non-interest (Islamic) bank, whose financial reporting standards and operational models differ significantly from conventional DMBs. Including it would compromise the homogeneity of the sample and introduce bias into the analysis. Thus, the final sample comprises 13 banks with complete and consistent financial records, creating a balanced panel data set suitable for robust econometric analysis.

The population of this study includes all fourteen listed deposit money banks on the Nigerian Exchange Group as of December 31, 2023. However, based on specific criteria such as being listed before 2009, remaining listed through 2023, having complete annual reports, and engaging strictly in conventional banking, only thirteen banks were selected for the study. Jaiz Bank Plc was excluded because it operates under a non-conventional banking model and was listed after the cut-off year. The final sample was determined using a census approach guided by these defined selection filters.

The source of data collection was secondary as the data set was extracted from the sampled DMBs audited annual reports and accounts for the period 2009 to 2023. This generated a panel data set that was analyzed using the multiple regression technique. This technique was used to estimate the Fixed Effect and Random Effect models.

**Model Specification**

Based on the specific objectives of the study and the various hypothesis of the study, the variables are combined into a functional relation in order to examine the impact of risk committee attributes on profitability of listed DMBs in Nigeria: moderated by operational risk. The study adopted the model of Okoye & Eze, 2023: Profitability<sub>it</sub> = β<sub>0</sub>+β<sub>1</sub>RMCS<sub>it</sub>+β<sub>2</sub>RMCI<sub>it</sub>+β<sub>3</sub>RMCE<sub>it</sub>+β<sub>4</sub>RMCM<sub>it</sub>+β<sub>5</sub>BSZ<sub>it</sub>+β<sub>6</sub>CAR<sub>it</sub>+β<sub>7</sub>LEV<sub>it</sub>+ε<sub>it</sub>. Therefore, the model is empirically stated as follows;

**Direct Relationship:**

$$ROA_{it} = \alpha + \beta_1RCS_{it} + \beta_2RCI_{it} + \beta_3OPR_{it} + \beta_4FS_{it} + \beta_5LEV_{it} + e_{it}..... (1)$$

**Indirect Relationship:**

$$ROA_{it} = \alpha + \beta_1RCS_{it} + \beta_2RCI_{it} + \beta_3OPR_{it} + \beta_4RCS*OPR_{it} + \beta_5RCI*OPR_{it} + \beta_6RCE* OPR_{it} + \beta_7FS_{it} + \beta_8LEV_{it} + e_{it}..... (2)$$

Where:

ROA = Return on Assets, α = intercept or Constant term, β<sub>1</sub> – β<sub>8</sub> = Coefficients of the independent variables, OPR = Operational Risk of firm “i” at time “t”, RCS = Risk Committee Size of firm “i” at time “t”, RCI = Risk Committee Independence of firm “i” at time “t”, FS = Firm size of firm “I” at time “t”, LEV = Leverage of firm “I” at time “t” and ε<sub>it</sub> = Stochastic error term (disturbance error term)

**Variable Measurement**

This section deals with the presentation of the variables employed in the study. It follows with the highlight on the nature, measurements and sources of such variables. This is depicted in Table 3 as follows:

**Table 3**  
*Variables Measurement*

Variables	Acronym	Nature of variable	Measurement	Source(s)
Profitability [Return on Assets]	(ROA)	Criterion or Dependent Variable (DV)	Measured as the ratio of Profit After Tax (PAT) to Total Assets.	Fali et al (2020).
Risk Committee Size	(RCS)	Explanatory Variable	Measured as the number of directors in the risk management committee.	Adebayo et al. (2022), Erkens et al. (2012).
Risk Committee Independence (RCI)	(RCI)	Explanatory Variable	The total proportion of non-executive directors in the risk committee over the total members in the risk committee.	Ibrahim et al (2020).

Operational Risk	(OPR)	Moderating Variable	Measured as the ratio of total operating costs (expenses) divided by the total operating income.	Basel and Mohammad, (2020), Elamer and Benyazid (2018).
Firm Size	(FS)	Control	Natural logarithm of total assets	Abubakar et al. (2020)
Leverage	(LEV)	Control	Percentage of total debts to total assets	Ebraheem (2016)

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**Source:** Field Work, 2024.

The multiple regression is employed as technique of analysis for the proposed study. This technique is appropriate where there is one dependent variable and several independent variables. The analysis was carried out in two stages, that is, the descriptive analysis and regression analysis. The first stage which is the descriptive analysis show the nature of the data used while the regression analysis provides evidence of cause-and-effect relationship between risk management committee on the profitability of listed deposit money banks in Nigeria. The statistical tool of analysis is STATA 16 which show the fixed and random effect models generated using the sampled data of the study. This statistical tool provides quantitative relationships between variables.

### **Diagnostic Checks and Post Estimation Tests**

This section describes the robustness tests that were undertaken to ensure the validity of the statistical inferences made during the investigation. The tests include, normality test, Multicollinearity, Heteroskedasticity, Hausman specification tests and Lagrange Multiplier test for autocorrelation (Panel effect). These tests are important to ensure that the linear regression assumptions are satisfied, hence ensuring the model's resilience.

### **Normality Test**

One of the assumptions of linear regression is that, the residuals of sampled data are normally distributed. This assumption allows for the inclusion and use of appropriate technique of analysis that will eliminate unbiased analysis and interpretation. There are several ways in which the normality of data can be determined. Some of these ways include the use of Shapiro wilk test of normality, skewness and kurtosis, and the q-q plot. This study will employ the Shapiro Wilk test of normality in assessing the normality of the data residuals. An estimate of Shapiro wilk test will produce a chi-value and p-value. A p-value greater than 5% signifies that, the data are normally distributed while a p-value less than 5% would mean the data is not normally distributed. Hence, if the test is significant, the data is not normally distributed. This test will be executed using a chosen statistical tool of analysis.

### **Multicollinearity Test**

Multicollinearity in regression is a condition that occurs when some predictor variables in the model are correlated with other predictor variables. Severe multicollinearity is problematic because it can increase the variance of the regression coefficients, making them unstable and unreliable for estimation. This could result in coefficients becoming insignificant or having the wrong sign. Multicollinearity can be measured by examining the correlation coefficients of a predictor against other predictors. According to Gujarati (2013) a correlation coefficient greater than 0.8 may signifies evidence of severe multicollinearity between the correlated variables. High Variance inflation Factor (VIF) can also be used in detecting multicollinearity among predictor variables. VIF measures the extent to which multicollinearity has increased the variance of an estimated coefficient. It looks at the extent to which an explanatory variable can be explained by all the other explanatory variables in the equation. A VIF value between 1 and 10 in addition to tolerance value consistently less than 1 indicates little or no Multicollinearity (Gujarati, 2013). This study will examine Multicollinearity using these approaches. Although Multicollinearity can be viewed as an act of God (Gujarati, 2013), in the event that variables show evidence of Multicollinearity, such variables will be drop from further analysis in the study.

### **Heteroskedasticity Test**

Heteroskedasticity refers to non-constant variation in the residuals of a model. This variability will result in unreliable constant coefficients due to the variation in the residuals. The most widely used test for Heteroskedasticity is the Breusch-Pagan test. This test uses multiple regression, where the outcome variable is the squared residuals. If the p-value of the test is greater than 5% it suggests absence of Heteroskedasticity in the model. Hence, an insignificant p-value is desirable in validating the absence of Heteroskedasticity. The predictors are the same predictor variable as used in the original model. When Heteroskedasticity is detected in the residuals from a model, it suggests that the model is mis-specified. In other to address Heteroskedasticity problem, a robust model is employed to produce a corrected standard error that are unbiased and reliable in estimating and predicting the outcome variable.

### **Model Specification Error Test**

In other to ensure that misspecification is avoided in the proposed model of the study, a model specification error test will be required. Hence, the linktest and Ramsey (ovtest) tests of misspecification and omission of variables will be conducted. A statistically insignificant value of  $\_hatsq$  in the linktest is desirable as it will mean that the model is free from misspecification error. Similarly, the p-value of the Ramsey test is expected to be statistically insignificant to support the claim that, all variables used were well selected and presented in the model.

### **Hausman Specification Test**

Multiple regression analysis is only possible with panel data. This analysis is frequently performed in phases, with the one that best fits the regression assumptions being chosen for interpretation. The ordinary least square regression is first performed without regard for the firm's heterogeneity. This is not an optimal regression for panel data. The Hausman specification test will be used to determine which model to use, Fixed or Random effect. A p-value less than 5% would mean, that the fixed effect model is appropriate while a p-value above 5% would mean

that the random effect model is appropriate. Unlike standard least square regression, both models take into account the heterogeneity of each firm in the analysis.

**Lagrange Multiplier (LM) Test for Autocorrelation**

Lagrange Multiplier (LM) Test (Breusch-Godfrey) is an alternative test to test autocorrelation in data. Autocorrelation means that the data has a correlation with the value that is left behind. Having decided on the appropriate model using the Hausman Specification test (between the Fixed Effect Model and the Random Effect Model), the LM test for autocorrelation is estimated to further examine the presence of autocorrelation. It is assumed based on linear regression that; the presence of autocorrelation also confirms the presence of serial correlation. The LM test might be used in the study to detect the presence or otherwise of autocorrelation which will help in deciding on an appropriated model.

**4.0 Results and Discussion**

An analysis of the secondary panel data using the multiple regression technique was carried out and the results presented and discussed as follows.

**Table 4**  
*Summary of Descriptive Statistics*

Variable	Obs	Mean	Std. Dev.	Minimum	Maximum
ROA	195	.033	.081	-.311	.65
RCS	195	5.897	1.609	4	12
RCI	195	.631	.113	.375	.833
OPR	195	4.917	58.679	.016	820
FS	195	27.55	1.246	25.007	30.659
LEV	195	.681	.332	.001	.995

**Source:** STATA 16 output file, 2024.

The mean ROA is 0.033, indicating that, on average, the listed deposit money banks in Nigeria generate a return of 3.3% on their total assets. The standard deviation of 0.081 suggests considerable variation in profitability among the banks. The minimum ROA value of -0.311 indicates that some banks experienced financial losses, while the maximum value of 0.65 suggests that some banks achieved significant profitability. This wide range highlights differences in financial performance across the sampled banks.

The Risk Management Committee Size (RCS) has a mean of 5.897, implying that, on average, banks have approximately six members on their risk management committee. The standard deviation of 1.609 suggests some variability in the size of the committees across the banks. The minimum RCS is 4, while the maximum is 12, indicating that the smallest committee has four members, whereas the largest has twelve members. This variation may reflect differences in corporate governance structures and regulatory compliance levels among banks.

The Risk Management Committee Independence (RCI) has a mean of 0.631, meaning that, on average, 63.1% of the members of the risk management committee are independent. The standard deviation of 0.113 indicates moderate dispersion around the mean. The minimum value of 0.375 and the maximum value of 0.833 suggest that some banks have as low as 37.5% independent members, while others have up to 83.3% independent members on their risk management

committees. This variation may influence the effectiveness of the committee in overseeing risk-related matters.

The Operational Risk (OPR) variable shows significant dispersion, with a mean of 4.917 and a high standard deviation of 58.679. The minimum operational risk value is 0.016, while the maximum is 820, indicating extreme variations in operational risk levels across the sampled banks. The high standard deviation suggests that some banks experience significantly higher operational risks, which could be due to fraud, regulatory penalties, or internal control weaknesses.

The Firm Size (FS) variable has a mean value of 27.55, with a standard deviation of 1.246. The minimum value of 25.007 and the maximum value of 30.659 indicate that while there is some variation in firm size, most of the banks in the sample are relatively large. Firm size is an important control variable, as larger banks may have better risk management practices and more resources to manage operational risks effectively.

The Leverage (LEV) variable has a mean of 0.681, implying that, on average, 68.1% of the banks' assets are financed through debt. The standard deviation of 0.332 suggests substantial variation in leverage levels among the banks. The minimum leverage value is 0.001, indicating that some banks have almost no debt, while the maximum value of 0.995 suggests that some banks rely heavily on debt financing. This variation in leverage may have implications for profitability and risk exposure.

**Table 5**  
*Pairwise Correlations*

Variables	ROA	RCS	RCI	OPR	FS	LEV
ROA	1.000					
RCS	-0.100 (0.164)	1.000				
RCI	-0.049 (0.497)	-0.256* (0.000)	1.000			
OPR	-0.036 (0.618)	-0.085 (0.239)	0.077 (0.285)	1.000		
FS	-0.310* (0.000)	0.362* (0.000)	-0.188* (0.008)	-0.071 (0.327)	1.000	
LEV	-0.389* (0.000)	0.283* (0.000)	-0.297* (0.000)	-0.144* (0.045)	0.709* (0.000)	1.000

**Source:** STATA 16 output file, 2024.

The descriptive statistics reveal key relationships among the variables in the study. Profitability (ROA) is negatively correlated with Risk Management Committee Size (RCS) (-0.100), Risk Management Committee Independence (RCI) (-0.049), Operational Risk (OPR) (-0.036), Firm Size (FS) (-0.310,  $p < 0.01$ ), and Leverage (LEV) (-0.389,  $p < 0.01$ ), indicating that higher firm size and leverage are significantly associated with lower profitability. RCS has a significant negative correlation with RCI (-0.256,  $p < 0.01$ ), suggesting that larger risk management committees tend to have lower independence. FS shows a significant positive correlation with RCS (0.362,  $p < 0.01$ ) and LEV (0.709,  $p < 0.01$ ), implying that larger banks tend to have bigger risk committees and higher leverage. Operational Risk (OPR) does not exhibit strong correlations

with the other variables, though it has a weak negative association with FS (-0.071) and LEV (-0.144,  $p < 0.1$ ). The significant correlations indicate that firm characteristics, particularly size and leverage, play a crucial role in influencing profitability and risk management attributes.

**Table 6**  
*Shapiro-Wilk W test for Normal Data*

Variable	Obs	W	V	Z	Prob>z
ROA	195	0.506	72.129	9.831	0.000
RCS	195	0.917	12.160	5.741	0.000
RCI	195	0.983	2.482	2.089	0.018
OPR	195	0.049	138.815	11.336	0.000
FS	195	0.984	2.387	1.999	0.023
LEV	195	0.683	46.196	8.808	0.000

**Source:** STATA 16 output file, 2024.

The normality test results, based on the Shapiro-Wilk test, indicate that most variables in the study deviate significantly from a normal distribution. ROA ( $W = 0.506$ ,  $p = 0.000$ ), RCS ( $W = 0.917$ ,  $p = 0.000$ ), OPR ( $W = 0.049$ ,  $p = 0.000$ ), and LEV ( $W = 0.683$ ,  $p = 0.000$ ) have very low W-values and highly significant p-values ( $p < 0.01$ ), suggesting strong departures from normality. RCI ( $W = 0.983$ ,  $p = 0.018$ ) and FS ( $W = 0.984$ ,  $p = 0.023$ ) also show significant deviations from normality, though to a lesser extent. The high V and Z-values further confirm the non-normality of the data. Given these results, the study may need to apply data transformations or use non-parametric statistical techniques in subsequent analyses to account for the non-normality of the variables.

### Multicollinearity Test

**Table 7**  
*Variance Inflation Factor*

Variable	VIF	1/VIF
LEV	2.16	.463
FS	2.151	.465
RCS	1.205	.83
RCI	1.146	.873
OPR	1.027	.974
Mean VIF	1.538	.

**Source:** STATA 16 output file, 2024.

The Multicollinearity test, assessed using the Variance Inflation Factor (VIF), indicates that Multicollinearity is not a significant concern in this study. All VIF values are well below the commonly used threshold of 10, suggesting that the independent variables are not highly correlated. Leverage (LEV) ( $VIF = 2.16$ ) and Firm Size (FS) ( $VIF = 2.151$ ) have the highest VIF values, but they remain within an acceptable range, implying only a moderate correlation with other predictors. Risk Management Committee Size (RCS) ( $VIF = 1.205$ ), Risk Management Committee Independence (RCI) ( $VIF = 1.146$ ), and Operational Risk (OPR) ( $VIF = 1.027$ ) all have low VIF values, indicating minimal Multicollinearity. The mean VIF of 1.538 further confirms the absence of severe Multicollinearity, ensuring the reliability of regression estimates in the study.

**Table 8**  
*Cameron & Trivedi's decomposition of IM-test*

Source	chi2	df	p
Heteroskedasticity	79.100	20	0.000
Skewness	13.820	5	0.017
Kurtosis	2.650	1	0.104
Total	95.560	26	0.000

**Source:** STATA 16 output file, 2024.

The IM (Information Matrix) test results reveal key insights into the assumptions of Heteroskedasticity and normality in the study. The test for Heteroskedasticity ( $\chi^2 = 79.100$ ,  $p = 0.000$ ) is highly significant, indicating the presence of Heteroskedasticity, meaning that the variance of errors is not constant across observations. The skewness test ( $\chi^2 = 13.820$ ,  $p = 0.017$ ) is also significant, suggesting that the data distribution is asymmetric, deviating from normality. However, the kurtosis test ( $\chi^2 = 2.650$ ,  $p = 0.104$ ) is not significant, implying that the data does not exhibit extreme outliers or heavy-tailed distributions. The overall IM-test statistic ( $\chi^2 = 95.560$ ,  $p = 0.000$ ) confirms that the combined effects of Heteroskedasticity and skewness significantly impact the model. Given these findings, robust standard errors or generalized least squares (GLS) estimation techniques may be necessary to correct for Heteroskedasticity and improve the reliability of the regression results.

**Table 9**  
*Hausman (1978) Specification Test*

	Direct Model	Indirect Model
Coef.	1.634	1.551
P-value	0.897	0.907
Remark	REM	REM

**Source:** STATA 16 output file, 2024.

The Hausman Specification Test was conducted to determine the appropriate panel regression model for both the direct and indirect models of the study. The test compares the Random Effects Model (REM) and the Fixed Effects Model (FEM) by examining whether the individual-specific effects are correlated with the independent variables. A significant p-value (typically below 0.05) would indicate that the Fixed Effects Model (FEM) is preferable, while an insignificant p-value suggests that the Random Effects Model (REM) is more appropriate.

For the direct model, the Hausman test statistic yielded a chi-square value of 1.634 with a p-value of 0.897. Since the p-value is greater than 0.05, we fail to reject the null hypothesis, which assumes that the individual effects are not correlated with the regressors. This result indicates that the Random Effects Model (REM) is the most suitable estimation technique for analyzing the relationship between risk management committee attributes and profitability. The choice of REM suggests that variations across firms are considered random and uncorrelated with the

independent variables, making the model more efficient in handling time-invariant characteristics.

Similarly, for the indirect model, the Hausman test statistic produced a chi-square value of 1.551 with a p-value of 0.907, which is also insignificant ( $p > 0.05$ ). This confirms that the Random Effects Model (REM) remains the appropriate model even when incorporating the interaction terms, indicating that the unobserved heterogeneity among firms does not significantly influence the relationship between risk committee characteristics, operational risk, and profitability. The consistency of the REM selection across both models implies that firm-specific factors do not systematically bias the estimates, reinforcing the reliability of the random effects approach for panel data analysis.

**Table 10**  
*Summary of Regression Results*

	Direct Model (REM)			Indirect Model (REM)		
	Coef.	Z-Value	P-value	Coef.	Z-Value	P-value
ROA						
RCS	-0.0013	-0.22	0.829	0.0016	0.32	0.750
RCI	-0.0935	-1.18	0.236	-0.2214	-3.33	0.001
OPR	-0.0001	-4.43	0.000	-0.1066	-3.14	0.002
RCS*OPR				-0.0051	-1.73	0.084
RCI*OPR				0.1693	3.33	0.001
FS	-0.0094	-0.97	0.334	-0.1388	-1.76	0.078
LEV	-0.0808	-1.22	0.224	-0.0645	-2.27	0.023
_cons	0.4144	1.37	0.171	0.6095	2.98	0.003
R-sq	0.1833			0.2528		
Prob>chi2	0.0000			0.0000		
Wald chi2	549.42			43.26		
LM Test(chi2)	36.12			15.97		
Prob>chibar2	0.0000			0.0000		

**Source:** STATA 16 output file, 2024.

The R-squared values (0.1833 for the direct model and 0.2528 for the indirect model) suggest that the independent variables explain a moderate proportion of the variations in ROA. The Wald chi-square statistics (549.42 and 43.26, both  $p = 0.000$ ) indicate that the models are statistically significant, confirming the robustness of the regression results. The LM test results ( $\text{chi}^2 = 36.12$  and 15.97, both  $p = 0.000$ ) further validate the appropriateness of the random effects model. Overall, the findings emphasize the critical role of operational risk in moderating the impact of risk management committee attributes on profitability, highlighting the need for effective risk governance frameworks in Nigerian deposit money banks.

### **Discussion of Findings**

The regression results reveal that Risk Management Committee Size (RCS) has an insignificant relationship with Return on Assets (ROA) in both the direct and indirect models. In the direct model, RCS has a coefficient of -0.0013, a Z-value of -0.22, and a p-value of 0.829, suggesting no meaningful impact on profitability. Similarly, in the indirect model, RCS remains insignificant ( $p = 0.750$ ), indicating that operational risk does not significantly moderate its effect on ROA. This finding aligns with Ali and Nasir (2023), who found no significant relationship between board committee size and firm profitability in financial institutions. However, it contradicts Okoye et al. (2022), who reported that larger risk management committees enhance financial performance by improving oversight and risk control mechanisms in Nigerian banks. The inconsistency may be due to differences in regulatory environments or sample selection criteria. The direct effect of risk committee size (RCS) on profitability is statistically insignificant. This aligns with Agency Theory, which emphasizes the quality of oversight over the quantity of directors. Larger committees may dilute accountability or slow decision-making, especially in Nigeria, where board activism can be symbolic rather than functional. This finding is consistent with Adebayo et al. (2022), who reported that committee size alone does not improve performance in Nigerian banks.

Risk Management Committee Independence (RCI) shows an insignificant effect on ROA in the direct model ( $\beta = -0.0935$ ,  $Z = -1.18$ ,  $p = 0.236$ ) but becomes significant and negative in the indirect model ( $\beta = -0.2214$ ,  $Z = -3.33$ ,  $p = 0.001$ ). This suggests that when operational risk is considered, a more independent risk committee might struggle to enhance profitability, possibly due to excessive risk aversion that limits revenue-generating activities. This result is consistent with Brown and Hassan (2023), who found that excessive independence in governance structures may reduce profitability by discouraging risk-taking. However, it contradicts Adegbite et al. (2021), who argued that independent risk committees enhance financial performance by ensuring objective risk assessment and regulatory compliance. The discrepancy might stem from differences in governance practices and risk appetite across financial institutions. Risk committee independence (RCI) also shows no significant direct effect, but when moderated by operational risk (OPR), the interaction becomes positively significant. This suggests that independence becomes valuable in high-risk environments. Agency Theory supports this by positing that independent oversight can curtail managerial opportunism, especially during operational disruptions (fraud, system failures). In Nigeria, where regulatory compliance is often reactive, independent risk committees may provide essential external control to enforce discipline and transparency under pressure.

Operational Risk (OPR) has a strong negative effect on ROA in both models. In the direct model, OPR has a coefficient of -0.0001, a Z-value of -4.43, and a p-value of 0.000, indicating that increased operational risk significantly reduces profitability. In the indirect model, the effect becomes more pronounced ( $\beta = -0.1066$ ,  $Z = -3.14$ ,  $p = 0.002$ ), confirming that operational inefficiencies and risk exposures are detrimental to financial performance. This result aligns with Njoku and Eze (2022), who found that higher operational risk leads to increased costs and reduced profitability in Nigerian deposit money banks. However, Williams and Smith (2023) reported a weak or insignificant effect of operational risk on profitability in European banks, likely due to better risk management frameworks and stronger regulatory oversight in developed economies.

The interaction term RCI\*OPR is positive and significant ( $\beta = 0.1693$ ,  $Z = 3.33$ ,  $p = 0.001$ ), suggesting that risk committee independence mitigates the adverse impact of operational risk on profitability. This implies that when operational risk is high, an independent risk committee plays a crucial role in ensuring effective risk management, thereby improving financial performance. This finding is supported by Olawale et al. (2023), who found that independent oversight helps banks navigate operational risks more effectively, leading to better profitability. However, it contrasts with Musa and Adams (2022), who argued that excessive independence may slow decision-making and hinder proactive risk management, thereby reducing profitability. The variation in findings may be attributed to differences in risk governance structures across institutions.

The significant negative effect of operational risk on ROA reflects the operational fragility in the Nigerian banking sector. Operational inefficiencies, cybersecurity issues, and regulatory penalties are common, reinforcing the Basel Committee's concerns on the consequences of failed internal processes. Thus, banks with inadequate operational controls see their profitability eroded. The negative interaction between RCS and OPR suggests that large risk committees may be ineffective in crisis scenarios. In the Nigerian context, bloated committees might be politicized or lack cohesion, making them inefficient in responding to operational threats. This supports Ogbuga et al. (2021), who noted that risk governance in Nigerian banks is often undermined by structural and human inefficiencies. The positive interaction between RCI and OPR indicates that independent committees become more effective when operational risk is high. This underscores the need for professional independence during crises to reduce bias and facilitate proactive risk mitigation a finding that resonates with the recommendations of the OECD and CBN governance codes.

### **Policy Implication of Findings**

The findings of this study have several critical policy implications for regulators, banking institutions, and corporate governance practitioners in Nigeria. The study underscores the importance of context-sensitive risk governance frameworks, particularly in high-risk environments characterized by regulatory uncertainty and operational vulnerabilities.

The significant negative impact of operational risk on bank profitability highlights the urgent need for Nigerian banks to invest in advanced risk mitigation infrastructure. Regulators such as the Central Bank of Nigeria (CBN) and the Financial Reporting Council of Nigeria (FRCN) should Mandate annual operational risk audits in all deposit money banks, focusing on IT security, internal fraud detection systems, and business continuity planning.

The positive moderating effect of risk committee independence on profitability in high-risk settings indicates that independent oversight is essential during periods of heightened operational risk. However, independence alone is not enough; it must be paired with technical competence. Regulators should require that at least 50% of RMC members possess core financial or risk management qualifications (e.g., ICAN, CFA, FRM).

Given that risk committee size showed no direct effect and may even exacerbate inefficiencies under operational stress banks should prioritize effectiveness over numerical strength. A cap of 5-7 members is recommended to maintain decision-making agility while ensuring diversity.

## 5.0 Conclusion and Recommendations

This study investigated the effect of risk management committee (RMC) attributes specifically, size and independence on the profitability of listed deposit money banks in Nigeria, with operational risk serving as a moderating variable. The findings reveal that risk committee size does not significantly influence profitability, either directly or through interaction with operational risk. Conversely, risk committee independence, when moderated by operational risk, has a positive and significant impact on profitability, suggesting that in high-risk environments, independent oversight enhances financial resilience. Operational risk itself was found to have a strong negative influence on bank performance, reinforcing its central role in shaping governance outcomes.

These results underscore the importance of not only establishing formal governance structures but ensuring they are composed of qualified and strategically engaged members. In particular, the findings highlight the need for risk committees that balance independence with financial and risk management expertise, especially in volatile and high-risk operational contexts.

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