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Moderating effect of risk management committee on the relationship between financial risk and profitability of listed insurance companies in Nigeria

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Abstract: This study investigates the moderating effect of the Risk Management Committee (RMC) on the relationship between financial risk and profitability of listed insurance companies in Nigeria, addressing previous mixed findings in the literature. The population comprises 23 listed insurance companies, with a sample of 15 firms selected. Secondary data from 2012 to 2021 were sourced from annual financial reports. Guided by the positivist paradigm, the study adopted a causal research design and employed panel data analysis using fixed effects regression estimation. Results show that the RMC significantly moderates the relationship between liquidity risk and profitability, as well as between technical provision risk and profitability. No significant moderating effects were observed for credit risk, reinsurance risk, solvency risk, or underwriting risk. The presence of the RMC reduces liquidity risk and enhances profitability, while its interaction with technical provision risk has a negative and significant influence on profitability. A competent RMC can mitigate liquidity risk and boost profitability but may also intensify the adverse effects of technical provision risk. Insurance firms should strengthen financial risk controls and ensure RMC members possess the technical expertise needed to manage diverse risks effectively.

Keywords: *Enterprises risk management Theory, Financial risk, Profitability, Risk management committee.*

1. Introduction

Investors, stakeholders, and researchers within and outside of the academic setting have consistently ranked the profitability of business organizations as one of the top concerns of organization managers. Given the sizeable investment required for the success of the majority of businesses, profitability is the primary goal of a business organization [1]. Insurance is essential for individuals, organisations, and governments as it offers compensation for losses and reinstates policyholders to their pre-loss status [2, 3]. Consequently, it is a fundamental risk management strategy for alleviating negative financial repercussions. Insurance firms, akin to other profit-driven entities, are founded not solely to offer indemnification to clients but also to yield profit and augment shareholder wealth. The dual mandate indicates that, in serving their clients, insurers face numerous financial risks that may negatively impact their financial performance [2]. Financial risk is especially pronounced for publicly traded companies, as their market valuation is substantially affected by current market conditions [4].

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In the insurance industry, these risks frequently arise from underwriting, pricing, claims processing, and reinsurance management operations [2, 5]. The interconnectedness of these risks indicates that insufficient risk management techniques can jeopardise an insurer's capacity to attain and maintain profitability Sisay [6]. Ogunsola [7] asserts that financial risk is a significant barrier to achieving corporate financial goals. Notwithstanding the regulatory supervision of the National Insurance Commission (NAICOM), issues endure, primarily due to deficiencies in regulatory enforcement and inadequate control mechanisms for alleviating financial risks.

Profit and profitability are concepts that are frequently used interchangeably. But there is a distinction between the two. Profitability is a relative idea, whereas profit is an absolute phrase. They do, however, play different roles in business and are tightly related and dependent on one another. Profit is the entire revenue generated by the company over a defined period, whereas profitability is the level of operational effectiveness.

Furthermore, the performance of a business sector and the economy as a whole is tied to that sector's ability to generate profits [8]. Profit maximization and enhanced stakeholder value creation are the primary objectives of any business Gitman [9]. According to Van Gijsel [10] chief executives and other top managers in organizations across the globe are evaluated based on the profitability attained over a short or long period using several profitability measures. A company's ability to produce profits and make strategic investments is measured by its profitability, which is crucial for security analysis, shareholders, and investors. The leading indicator of an enterprise's overall performance is profitability. For shareholders, creditors, potential investors, lenders, and the government alike, the measurement of profitability ratios is crucial [1]. Profitability increases are often high on the list of priorities for business owners, and efficient financial management should support that objective [8]. Performance, as defined by Iswatia and Anshoria [11] is a firm's capacity to manage and achieve control over its resources in several ways to create competitive advantages. However, most organizations are unable to achieve their goals due to internal and external obstacles, including risks.

Life is full of risks, and as a business owner, dealing with them is unavoidable. Risk refers to the potential for losses brought on by actions like price changes in the market and adjustments to the business environment. Actions with a low probability of occurring but the potential to cause substantial losses are particularly troublesome since they are frequently unanticipated. Moreover, risk also refers to the potential for fluctuations in income. It is typically associated with the potential for things to go wrong, for outcomes to be worse than anticipated, or for something dreadful to occur. Although risk has more than one meaning, it exists any time a future result or event cannot be foreseen with confidence, and a wide range of potential results or events could happen [12]. Moreover, Global concerns about financial risk are growing. The current business climate in Nigeria has necessitated the development of sophisticated financial risk management frameworks by businesses of all sizes to ensure compliance, aid in decision-making, and boost overall performance. According to Mudge [13] evaluating the benefits of proposed insurance company mergers requires a uniform framework for analyzing firm-wide risk and return across varied financial activities.

Financial risk is the inability of the organization to generate enough liquid cash flows to meet both anticipated and unforeseen needs for liquid cash [14]. Financial risk, according to Arif and Showket [15] is the possibility that investors could lose money as a result of the company using debt when its cash flows are insufficient to cover its financial obligations. According to Mukino [16] financial risk is the possibility that corporate entities won't have enough cash on hand to cover their debts. Having little cash on hand makes it difficult for a business to make timely payments to suppliers, banks, and other stakeholders. The additional variability of net cash flows for equity owners that emerges from the fixed financial commitments connected with debt financing and cash leasing can also be used to assess financial risk [17]. Credit risk (CR), liquidity risk (LR), reinsurance risk (RIR), solvency risk (SR), technical provisions risk (TPR), and underwriting risk (UR) are among the crucial financial risks that primarily impede the profitability of most insurance companies [6, 15, 16].

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When businesses operate, they expose themselves to a variety of hazards, the most prominent of which is financial uncertainty. These businesses face an array of threats that threaten their bottom lines everywhere in the world; these dangers end up being a bigger hindrance to the company's capacity to expand its operations and increase its assets and profits. As a result, a more effective approach is required to understand these risks and create an active structure or framework to deal with them [15]. The Risk Management Committee (RMC) is charged with advising the Board on the development of a framework for identifying and responding to potential threats as soon as they emerge. The RMC can moderate the relationship between financial risk and profitability because the more the organization's risk is managed, the more the organization will improve its profitability. Having a solid enterprise risk management framework in place to deal with risk is one of the most pressing issues facing modern company management [18].

The majority of the research conducted in Nigeria, such as Apochi, et al. [19]; Ugah [20]; Achimugu, et al. [21]; Olufemi and Sunmisola [22] and Oluwaleye, et al. [23] focused on the banking industry. They all looked at the financial risk and profitability of Nigerian banks. Still, none of them employed the risk management committee score's moderation impact, even though Mohammed, et al. [24] included the risk management committee as a moderator, but proxies for their independent variable differ from the current study as well as the domain of the study. Furthermore, based on the existing literature, such as Kakanda, et al. [25]; Jimoh and Attah [26]; Abubakar, et al. [27]; Dabo, et al. [28]; Fali, et al. [29]; Fali, et al. [30]; Fali, et al. [31] and Jugu, et al. [32] a lot of controversies exist. The position of the literature on financial risk, risk management committees, and profitability is inconclusive. Although extensive research has been conducted on financial risk and profitability, a notable gap remains in Nigeria, where little research has been conducted on listed insurance firms. Divergent perspectives may be due to the varied industries, times, methodologies, and variables employed in the studies, as well as the makeup of the economies of the countries where the studies were done. Although numerous studies on the relationship between financial risk and profitability exist (such as [6, 15, 16, 33]), only a few of the studies investigated whether RMC moderates the association between financial risk and profitability, particularly in Nigeria. Consequently, this present study investigates whether RMC has a moderating influence on the relationship between financial risk and profitability of listed insurance companies in Nigeria. In line with the objectives of the study, the following hypotheses formulated in the null form were tested:

H_{01}: *Credit risk has no significant effect on the profitability of listed insurance companies in Nigeria.*

H_{02}: *Liquidity risk has no significant effect on the profitability of listed insurance companies in Nigeria.*

H_{03}: *Re-insurance risk has no significant influence on the profitability of listed insurance companies in Nigeria.*

H_{04}: *Solvency risk has no significant effect on the profitability of listed insurance companies in Nigeria.*

H_{05}: *Technical provisions risk has no significant effect on the profitability of listed insurance companies in Nigeria.*

H_{06}: *Underwriting risk has no significant effect on the profitability of listed insurance companies in Nigeria.*

H_{07}: *Risk Management Committee Moderates the relationship between financial risk and the profitability of listed insurance companies in Nigeria.*

2. Literature Review

2.1. Enterprise Risk Management (ERM) Theory

The ERM Theory, propounded by Mikes and Kaplan [34] suggests that an organization can deal with risks in one of three ways: by tackling each risk individually, dividing up the total into smaller pieces, or treating all of the risks as a whole and dealing with them in concert. It is argued that an effective ERM strategy provides a corporation with a long-term competitive advantage over competitors who pick and choose which risks to handle. The theory offers a comprehensive framework for the creation and measurement of investment risk by insurance organizations, and it also allows for

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the establishment of correlations between financial risks and profitability [35]. Risks are measured and controlled both procedurally and structurally. Key decision makers possess the knowledge and incentive to maximize returns, which are critical to this approach as they fortify the firm and enable it to fulfill its long-term strategic objectives. ERM that is correctly implemented can boost both an organization's competitive edge and shareholder value [16]. While the concept of ERM is simple, implementing it is challenging. Some of the financial risks that insurance businesses face are credit, liquidity, solvency, reinsurance, technological provision, and underwriting risks.

2.2. Conceptual Framework

Figure 1 below shows the independent variable (financial risk (FR) proxies by CR, LR, RIR, SR, TPR and UR) and its relationship with the dependent variable (Profitability). This relationship is moderated by risk management committee to either strengthen or weaken the relationship. This will confirm the role RMC plays in the connection between FR and profitability.

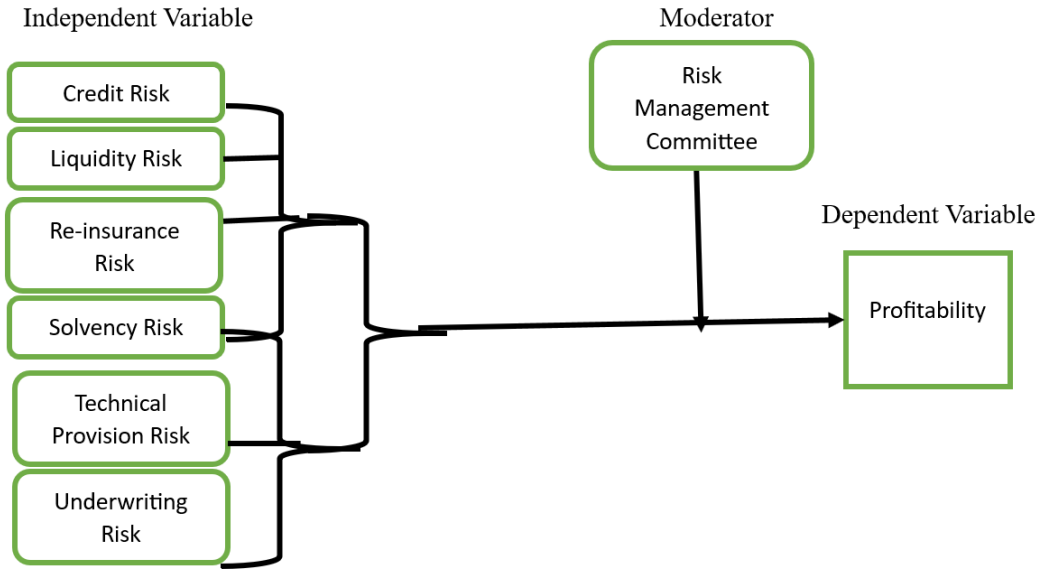

Figure 1.
Schematic representation of the conceptual framework.
Source: Adapted from Mukino [16].

2.3. The Concepts of Risk and Profitability

Financial risk, as defined by Arif and Showket [15] is the potential for loss of capital by shareholders due to the use of debt by an industry when the firm's cash flows are insufficient to pay its financial commitments. According to Panigrahi [14] a company faces FR when its cash flow is inadequate to cover both anticipated and unforeseen cash outflows. Corporations face financial danger when they don't have enough money to pay their bills on time [16]. Credit, solvency, liquidity, reinsurance, technical provision, and underwriting are some of the risks that may be at play. A profitable investment generates a positive return on investment [36]. The term "profitability" refers to a business's ability to make a profit from all of its commercial activities. Profitability is evidence that a company's management is effectively utilizing all of its resources to generate profit in the market. It is an index of efficiency and can be regarded as a measure of the efficiency of management and a guide to greater efficiency [37, 38]. To attract and retain investment money, the business must be able to generate a surplus of revenue over expenses [39, 40]. Accordingly, profitability can be gauged in four ways: asset turnover, equity turnover, gross profit margin, and net profit margin.

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2.4. Financial Risks and Profitability

To better understand the connection between financial risk and financial success, Adrian [33] studied insurance firms in Kenya. The research aimed to answer the question, "What is the relationship between financial risk and the financial performance of insurance enterprises in Kenya?" The study used multiple regression and correlation to analyse secondary data that were sourced from insurance firms' financial reports. The findings indicate that solvency risk is negatively impacting the bottom lines of insurance companies in Kenya. Liquidity risk was found to be detrimental to the bottom lines of insurance companies operating in Kenya. The results show that insurance firms in Kenya suffer economically due to capital management risk. It was shown that insurance businesses in Kenya benefited monetarily from growing in size. The researchers suggest that insurance companies in Kenya should take steps to manage their liquidity and solvency risks better. Researchers concluded that Kenyan insurers could benefit from growing their business by diversifying their asset base. Insurance firm management must increase their firms' capital adequacy.

Sisay [6] investigated a topic widely acknowledged as crucial to the success of insurance firms: the impact of financial risk. This research uses an empirical approach to analyze the effect of FR on the performance of insurance industries in Ethiopia. Data from eight different insurance providers were collected over 16 years (2000–2015) using a balanced panel model regression analysis. The study finds that CR, LR, SR, UR, RIR, and TPR risk all have adverse and statistically significant effects on the profitability of insurance firms in Ethiopia. In contrast, reinsurance risk has no effect at all. The study also found that FR significantly impacted the success of Ethiopian insurance firms. The study concludes that Ethiopian insurance firms would benefit from focusing more heavily on financial risk as a means of considerably improving their performance.

According to Mukino [16] financial risk has been seen as a significant factor in insurance companies' bottom lines. This research analyzed the effect of FR on the performance of insurance firms traded on the Nairobi Securities Exchange and then drew conclusions about those firms' compliance with the relevant rules and regulations. Data was collected from six different insurance providers for a span of six (6) years, from 2012 to 2017, and analyzed using a descriptive research approach. A correlation study showed that, except for reinsurance risk, all financial risks exhibited a negative correlation to ROA that was statistically insignificant. Therefore, the study suggests that NSE-listed insurance businesses check each variable to improve their performance considerably. While that research included all publicly traded companies in Kenya, this one will concentrate on insurance firms in Nigeria's stock market. According to a global study by Arif and Showket [15] financial performance was positively correlated with solvency risk and liquidity risk but not with underwriting risk.

Jugu, et al. [32] analyze financial risk (FR) variables that affect the profitability of NGX-listed non-life insurance firms. The study used a panel regression technique to estimate the specified model. This helped study similar non-life insurance companies. The study found that financial risks harm Nigerian non-life insurance companies' profitability. Between 2008 and 2018, SR and RIR impacted Nigerian non-life insurance businesses' ROA. The findings had implications for insurers and regulators. Insurance companies mitigate all kinds of risks for individuals and organizations, so their owners should pay special attention to FR variables that may affect their corporate profitability. Nigerian insurance authorities should create profitable policies. The current study covers listed insurance businesses, whereas the former research covered listed non-life insurance companies in Nigeria. Moreover, the COVID-19 pandemic has affected insurance company profitability in the last three years.

Fali, et al. [29] examined the effect of FR on the FP of listed insurance companies in Nigeria between 2009 and 2018. The study's population consists of publicly traded insurance providers, and the sample size is nineteen enterprises. The research employed a correlational design and relied on secondary data gathered from the companies' annual reports. The regression results showed that CR significantly and negatively affected financial performance, while LR had no discernible impact and SR had a positive effect. The paper suggests that Nigerian insurers implement new measures to better manage their accounts receivable by offering suitable payment options to their debtors. The study

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posited that if not handled properly, financial risk can lead to a company's demise, and insurance companies are particularly vulnerable because their core business is the day-to-day management of risk.

Fali, et al. [30] evaluated listed insurance companies in Nigeria for their profitability and exposure to insurance-specific risk. Insurance companies take on a wide variety of monetary risks inherent to their industry. This study uses a sample size of 19 enterprises throughout Nigeria to examine the impact of insurance-specific risks on profitability over 10 years (2009–2018). Insurance-specific risks were measured with three independent variables: reinsurance, technical provisions, and underwriting risks. The net profit margin measured the profitability of the business. The study finds that profitability was negatively impacted by the technical provision and the underwriting risks, but not by the reinsurance risk. The research indicates that Nigerian insurance firms' profitability will suffer if they invest more in technical provision and risk underwriting.

Data from 45 publicly traded Nigerian financial organizations listed on the Nigerian Exchange Group between 2012 and 2016 served as the statistical population for the study conducted by Kakanda, et al. [25]. The purpose of the research was to examine the association between RMC features and market performance by employing a descriptive statistics strategy and a panel-corrected standard errors (PCSEs) regression model. A greater risk management size was found to have an adverse significant effect on firm performance, whereas a positive significant effect was found for RMC composition and RMC meetings. Also, Jimoh and Attah [26] investigated the characteristics of RMC and bank performance in Nigeria. Fifteen banks trading on the floor of the NGX make up the study's sample. The results of the study show a positive correlation between risk governance and ROA, except for risk committee size. While this investigation focuses on the insurance industry, the prior research utilized the banking sector. In addition, Abubakar, et al. [27] examine how the knowledge and experience of the RMC and the data from the financial board affect the bottom line of Nigerian banks traded on the stock market over three years (2014–2016). Secondary data was employed, and random-effect analysis was implemented. The study found that a larger RMC had a significant influence on ROA, whereas a smaller committee's independence had a substantial adverse effect. The current research uses the RMC as a moderator, whereas the former study focused on the RMC as an independent variable in the investigation.

Financial risk and performance were studied by Mohammed, et al. [24] and they found that RMC played a moderating role. Default risk, liquidity risk, capital risk, and market risk all contribute to the financial risk category, whereas net interest income represents performance. The population as of the end of 2020 includes all fifteen of the deposit money institutions that will be traded on the Nigerian Stock Exchange. The study found that the RMC significantly moderated the relationship between CR, LR, and performance, although other variables suggested the moderator had a negligible effect. The new study is more concerned with the insurance industry than the previous one was, and the proxies used for the independent variables are different. It would be wrong to extrapolate the banking sector's performance to the insurance sector.

RMC size, independence, financial expertise, and financial performance of listed insurance companies in Nigeria are the subject of a study by Fali, et al. [31]. As more and more businesses go under, there is a growing need for a dedicated RMC to establish and enforce the board's risk policy, appetite, and limits. This research analyses the size of the RMC, the independence of the committee members, the competency of the committee members, and the financial performance of listed insurance companies in Nigeria from 2012 to 2018. Twenty-four insurance providers were chosen at random from a pool of twenty-seven. In the random effects regression model, the researchers found that while the size and independence of RMC did not affect financial success, the expertise of their members did. Researchers found that when RMC put the brakes on management taking unnecessary risks, insurance companies' bottom lines suffer. The research suggests that more people versed in finance and actuarial science should be included in risk management committee structures to increase their efficiency.

Agboola and Obalola [2] used an ex-post facto design and panel data from 10 Nigerian insurers from 2012 to 2023 to examine how financial risks affect financial performance. They used descriptive

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and inferential analysis in EViews 9 to evaluate liquidity, credit, and underwriting risks on return on assets using a fixed-effect regression model. The authors concluded that Nigerian insurance businesses' financial risks do not significantly affect profitability because none of the risk factors had a statistically significant effect. The research recommended portfolio diversification to boost returns and advised NAICOM to follow the Insurance Act of 2003's premium payment deadlines and insurance money management requirements.

Singh [41] investigated how social performance moderates the relationship between financial risk and performance in MFIs. Moderated hierarchical regression was used to measure economic success by return on assets and operational self-sufficiency in an imbalanced panel of 2,694 MFIs from 2009 to 2019. Financial risk negatively impacts financial performance, whereas social performance has a slightly positive effect. However, borrower retention rate and female representation favourably attenuated the risk–performance link, suggesting that socially responsive practices may mitigate financial risks and improve long-term sustainability. Singh's wide, cross-national evidence integrates stakeholder theory and risk-mitigation viewpoints to improve the literature. However, the moderating influence was "mixed and significant," indicating diversity among situations that the article did not fully explain, such as institutional systems or governance frameworks. Using only two financial success indicators may limit the generalisability of the findings, as other comprehensive performance measurements (e.g., social return on investment or customer happiness) may provide a more integrated perspective. The study's global scope boosts external validity. However, it may obfuscate region-specific dynamics, limiting its usefulness to Nigeria without contextual research.

3. Materials and Method

Since the positivist paradigm suggests that the study is quantitative and its variables are amenable to numerical measurement, the study adopts a quantitative methodology. Because it is one of the most effective methods for determining the connection between variables and the effect of one variable on another, the Ex-Post Factor research design is being employed in this study. The population of the study consists of 23 insurance firms, and the sample for this research consisted of 15 insurance firms trading on the Nigerian Exchange Group (NGX) as of 31 December 2021. The sample size was determined after applying several filters. These filters included the requirement that companies must have complete data for the period under review and must have been listed before 2012 and remain listed up to 2021. Data were collected from annual reports and accounts of companies listed on the NGX in Nigeria as of 31 December 2021. The data was analyzed using the panel multiple regression method.

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Table 1.
Variables Definition, Measurement and Sources.

Variables	Definition	Type	Measurement	Sources
ROA	Return on Asset	Dependent	Net income to Total assets.	Elamer and Benyazid [42]
CR	Credit Risk	Independent	Premium debtors + Due from reinsurer+ other receivable/Net Asset	Sisay [6] and Arif and Showket [15]
LR	Liquidity Risk	Independent	Current Assets/Current Liabilities	Sisay [6] and Arif and Showket [15]
RIR	Re- Insurance Risk	Independent	Premium Income/Ceded /Total Asset	Sisay [6] and Arif and Showket [15]
SR	Solvency Risk	Independent	Net Income/ Total Liabilities	Mukino [16]
TPR	Technical Provisions Risk	Independent	Claim outstanding /Total Equity	Mukino [16]; Sisay [6] and Arif and Showket [15]
UR	Underwriting Risk	Independent	Loss or Claim incurred/ Premium Earned	Sisay [6] and Arif and Showket [15]
RMCINDEX	Risk Management Committee Index	Moderating	Measured as the Unweighted Index of Risk management committee size, independent, financial expertise and meeting.	

3.1. Model Specification

The model which is specified below was adapted from the work of Arif and Showket [15]; Sisay [6]; Mukino [16]; Fali, et al. [29] and Fali, et al. [30]:

$$ROA_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 LR_{it} + \beta_3 RIR_{it} + \beta_4 SR_{it} + \beta_5 TPR_{it} + \beta_6 UR_{it} + \beta_7 RMC_{it} + \beta_8 CRit * RMCit + \beta_9 LRit * RMCit + \beta_{10} RIRit * RMCit + \beta_{11} SRit * RMCit + \beta_{12} TPRit * RMCit + \beta_{10} URit * RMCit + e_{it}$$

Where:

PROF = measured by Return on Assets (ROA)
CR = Credit Risk
LR = Liquidity Risk
RIR = Re- Insurance Risk
SR = Solvency Risk
TPR = Technical Provisions Risk
UR = Underwriting Risk
RMC = Risk Management Committee
ε = Error term
i = represent firm observation across time (i=15)
t = year (t=10)
β_0 = is the intercept
$\beta_1 - \beta_7$ = are the parameters to be estimated in the equation

4. Discussion

The descriptive statistics for the variables are shown in Table 2, which includes the average and standard deviation for each variable's range of values.

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Table 2.
Descriptive Statistics of the Variables.

Variables	Obs.	Mean	Std dev.	Min.	Max.
ROA	150	0.02	0.06	-0.22	0.22
CR	150	0.12	0.20	-0.38	1.86
LR	150	2.78	2.84	0.13	18.75
RIR	150	0.31	0.18	0.04	1.17
SR	150	0.51	0.22	0.03	1.28
TPR	150	0.15	0.14	-0.19	0.70
UR	150	0.34	0.21	0.01	1.17
RMCINDEX	150	9.14	1.76	5.42	14.78

Source: Descriptive Statistics STATA Output Version 15.0.

Table 2 shows that the sampled firms' ROA substantially varies from the mean, with a mean of 2% and a standard deviation of 6%. The sample of insurance companies has positive values for the profitability indicator ROA, with a mean of 2%. The table also shows that ROA can range from a minimum loss of -22% to a maximum gain of 22%. A mean score of 2% indicates that, on average, businesses were profitable during the period under consideration. Therefore, businesses make the most of their resources to maximize revenues. The score is 6% over the mean, which indicates that it does not follow a comparable pattern across the firms, as suggested by the standard. CR, LR, RIR, SR, TPR and UR have average values ranging from 0.12 to 2.78 implying that the majority of the insurance companies have CRs that are significantly higher than average. The RMC index, a moderating variable, has a mean of 9.14 and a standard deviation of 1.76, as shown in Table 2. The data also shows that the smallest value is 5.42 and the greatest value is 14.78.

4.1. Diagnostic Test

Table 3.
Multicollinearity Test.

Variables	VIF	Tolerance Value
CR	1.29	0.77
LR	1.18	0.85
RIR	1.13	0.88
SR	1.12	0.89
TPR	1.07	0.94
UR	1.05	0.95
RMCINDEX	1.03	0.97
Mean VIF	1.12	

Source: VIF result from Stata output version 15.0.

Given that the minimum tolerance value (TV) and maximum variance inflation factor (VIF) are 0.77 and 1.29, respectively, the results from Table 6 above demonstrate that there is not an excessive correlation among the independent variables.

4.2. Normality of Data

The normality of the error terms is a tenet of the traditional OLS regression model. The Jacque Bera test for normality of the residual was performed at the 5% significance level.

Table 4.
Normality test.

Model	Obs.	Chi2	Prob>z
Moderated Model	130	39.99	0.000

Source: Jacque Bera normality test.

A substantial p-value for the model may be seen in the residual (0.000), which is less than the 5% level of significance. This indicates that the residue is not distributed normally.

4.3. Heteroscedasticity Test

Table 5.
Heteroscedasticity Test.

Test	Chi2	P-value
Moderated model	1.05	0.3050

Heteroscedasticity Test: The Breusch-Pagan or Cook-Weisberg heteroscedasticity test was used to verify this hypothesis. The homoscedastic null hypothesis, 5% level of significance, Breusch-Pagan or Cook-Weisberg test Table 5 results shows that the residue is not significant at any level, given the prob > chi 2 of 1.05 and p-value of 0.305. The absence of heteroscedasticity in the models is thus confirmed.

4.4. Panel Analysis Diagnostic Test

Table 6.
Hausman Specification Test Effects.

Model	Chi2	P-Value
Moderated model	29.82	0.005

Source: Stata output (2023).

After running a fixed and random effect model to see if the effect is random or fixed, the Hausman specification test was performed. The outcome indicates that the prob > chi2 for the moderated regression is 0.005 at the 1% level of significance, which is less than the 5% level of significance. The Hausman test favours the fixed effect model, as evidenced by the significant P-value. As a result, the study's robust fixed effect model was interpreted. A fixed-effect regression model with Driscoll-Kraay standard errors was nevertheless used in the study to account for the non-normality of the data as well as any other potential model that had flaws.

Table 7.
Fixed Effect Regression Model Standard Errors.

Variables	Coefficients	Robust Standard error	t-statistic	P>|t|
CR	-0.002	0.251	-0.01	0.994
LR	-0.033	0.012	-2.65	0.019*
RIR	-0.139	0.035	-3.96	0.001***
SR	-0.088	0.018	-4.88	0.000***
TPR	0.691	0.306	2.25	0.041*
UR	-0.454	0.194	-2.34	0.035*
RMCINDEX	-0.023	0.009	-2.68	0.018*
CRRMC	-0.003	0.031	-0.10	0.922
LRRMC	0.003	0.001	2.64	0.019*
RIRMC	0.0178	0.012	1.48	0.160
SRRMC	0.011	0.009	1.40	0.183
TPRRMC	-0.070	0.032	-2.22	0.043*
URRMC	0.035	0.019	1.94	0.073
C	0.279	0.081	3.43	0.004***
F-STAT	173.99			0.000***
R^2 Within	0.291			
R^2 Change	0.264			
F Change	3.762			0.000***

Note: *, **, ***denotes statistical significance at 5%, 1% and < 1% respectively.
Source: Robust Fixed effect model Result.

4.5. Analysis with Moderator Variable

In this section, the analyses include the moderator variable, and the regression results are used to test the hypotheses.

The results in Table 7 indicate that the outcome of the regression analysis demonstrates that the fixed effect regression result selected for the study based on the Hausman test was implemented. Based on the value of the internal correlation coefficient of determination (R2), it can be concluded that the financial risk proxies (CR, LR, RIR, SR, TPR, and UR) and the interaction of the risk management committee can account for 29% of the variance in ROA among the publicly traded insurance companies. The remaining 71% can be attributed to elements outside the scope of the model. There is a shared effect between the explanatory variables and the moderator on the return on assets, as shown by the F-statistic chi-square of the robust fixed effect model being 173.99 with a P-value of 0.000, revealing and confirming the fitness of the model at the 1% significant level.

Also, Table 7 shows that there is no statistically significant relationship between CR and ROA since the P value is 0.994, which is not significant. In addition, as shown in Table 7, liquidity risk is statistically significant at a level of less than 5%, with a p-value of 0.019. As a result, the study concludes that liquidity risk does affect the profitability of listed insurance companies in Nigeria, thereby contradicting the study's null hypothesis (H02). In addition, as can be seen in Table 7, the p-value for reinsurance risk is 0.001, making it statistically significant at the 5% level. Because of this, the study rejects the null hypothesis (H03) that RIR does not influence the profitability of listed insurance companies in Nigeria. Similarly, Table 7 shows that SR has a statistically significant impact on profitability, with a P value of 0.000. this contradicts the study's null hypothesis (H04), which posited that solvency risk has no substantial effect on profitability. In addition, as shown in Table 7, Technical Provision Risk has a p-value of 0.041, which is significant at the 5% level, demonstrating that TPR has a considerable impact on ROA. Thus, the study rejects the null hypothesis (H05), that technical provision risk does not significantly affect the profitability of listed insurance companies in Nigeria.

Furthermore, Table 7 shows that UR is significantly different from the null hypothesis. This demonstrates that underwriting risk has a major influence on the return on assets. Lastly, Table 7, shows that the relationship between RMCINDEX and profitability is statistically significant (P = 0.018). This demonstrates that RMCINDEX significantly impacts ROA. Thus, the null hypothesis which states that RMCINDEX does not affect the profitability of Nigeria's publicly traded insurance firms is rejected. This result may imply that the risk management committee index is a moderator, which influences insurance profitability regardless of other variables.

5. Results

5.1. Financial Risk and Profitability

Table 7 shows that the coefficient of credit risk on ROA is -0.002 and that this effect is not statistically significant at any level of significance. It demonstrates that the listed insurance firm in Nigeria experiences no change in return on assets as a result of CR. That means a 1% rise in the companies' credit risk would result in a 2% drop in profits. If debtors can't pay their insurance premiums on time, the insurance company will have to come up with the money to pay for the claim out of its funds. The study's conclusion of a negative association, as was anticipated beforehand, lends credence to the principles of ERM. The results are consistent with those of previous studies by Olumide, et al. [43]; Kioko, et al. [44]; Sisay [6] and Muriithi [45] and others who discovered a negative correlation between a company's credit risk and its profitability.

The LR coefficient is -0.003 (negative) and the p-value is 0.019, as shown in Table 7. This result means that for listed insurance firms in Nigeria, a one-point rise in liquidity risk diminishes the return on assets by -0.003. This result contradicts previous studies by Ezeabasili and Igbodika [46] and Olalekan, et al. [47] which found that firms' return on assets would increase in the presence of liquidity risk, but is supported by those of Sisay [6] and Mukino [16] which concluded that liquidity risk hurts ROA.

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Table 7 shows that RIR's negative coefficient of -0.140 and P-value of 0.001 are significant. This result demonstrates that the ROA of publicly traded insurance companies is sensitive to changes in the level of risk associated with reinsurance. This finding is consistent with earlier research and enterprise risk management theory, both of which hypothesize an inverse connection between RIR and profitability. The result is consistent with previous research by Sisay [6] but at odds with findings by Mukino [16] and Fali, et al. [29] who concluded that reinsurance risk does not improve insurance companies' return on assets.

This research indicates that the listed insurance industry in Nigeria experiences a negative and statistically significant effect of solvency risk on ROA. The p-value of 0.000 and coefficient of -0.88 make this very clear. This means that the ROA will decrease by 0.88 percentage points for every point added to the solvency risk. This research shows that less solvency risk leads to a higher return on investment. The result agrees with the pessimistic a priori forecast and business risk management philosophy. Nonetheless, it is consistent with the results reported by Dabo, et al. [28] and Adrian [33]. The findings contradict those of Sisay [6] who found evidence of the opposite effect of solvency risk on profitability.

TPR's positive coefficient of 0.69 and P-value of 0.041 in Table 7 are statistically significant at the 5% level. The result indicates that a 0.69 percentage point drop in ROA for the sampled firms is the result of an increase in technical provision risk. This result indicates that increased technical provision risk leads to lower profitability as assessed by ROA. According to the results of the ROA analysis, insurance companies' profitability suffers when they have insufficient technical provisions on hand to cover a pending claim. As a result, if an insurance firm understates its liabilities, it may not have enough money to pay its claims. This result agrees with the study's hypothesized detrimental effect and the notion of enterprise risk management. This is in contrast to the findings of Fali, et al. [29] who showed that TPR increased profitability, and confirms the findings of Sisay [6] and Suheyli [48], who also found that technical provision risk has an inverse influence on profitability.

In addition, the -0.45 coefficient and 0.035 p-value in Table 7 demonstrate that UR significantly and negatively affects ROA at the 5% level of significance. According to the results, the underwriting risk this insurance businesses incur increases their ROA by 0.45 percentage points. This result is in tandem with enterprise risk management theory, as well as the work of Sisay [6] and Fali, et al. [30] and represents the study's a priori expectation. They discovered that lowering the underwriting risk led to a higher return on assets. This contradicts the findings of Mukino [16] who concluded that underwriting risk had no bearing on ROA.

5.2. Financial Risk and Profitability: Moderating Effect of Risk Management Committee (RMC)

The result in Table 7, shows that RMCINDEX plays a negative and insignificant moderating role in the relationship between credit risk and profitability among Nigeria's publicly traded insurance businesses. This suggests that the relationship between financial risk and profitability is not tempered by the RMC. Table 7 further shows that RMCINDEX moderated the relationship between reinsurance, solvency, underwriting risks, and profitability for listed insurance companies in Nigeria. Coefficient values of 0.02, 0.01, and 0.04 are insignificant at 16% (0.160), 18% (0.183), and 7.3% (0.073), respectively, and can be used to correct this situation. Since the association between credit, re-insurance, solvency, and underwriting risks and profitability does not need to be filtered through the RMC before an effective goal of minimizing risk can be achieved, this finding has important implications for the efficiency of RMC. This result, however, is unexpected because it runs counter to the a priori expectations of the research, which state that the presence of highly skilled, experienced, and knowledgeable board members, with the effect of their monitoring power channeled through the RMC of an organization, will greatly aid in lowering the level of financial risk, particularly in insurance companies quoted in Nigeria.

On the other hand, RMCINDEX possessed a positive and significant moderating effect on the association between liquidity risk and profitability of listed insurance companies in Nigeria with a

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coefficient figure of 0.01 and p- p-value of 0.019 significant at a 5% level. This implies that RMC moderates positively the connection between liquidity risk and profitability of listed insurance companies in Nigeria. Increasing the RMC by one (1) will lead to the improvement of the liquidity risk and profitability of listed insurance companies in Nigeria by 1%. In addition, RMCINDEX possessed a negative and significant moderating effect on the association between technical provision risk and profitability of listed insurance companies in Nigeria with a coefficient figure of -0.07 and p- p-value of 0.043 significant at 5% level. This implies that RMC moderates the connection between technical provision risk and the profitability of listed insurance companies in Nigeria. Increasing the RMC by one (1) will lead to a reduction in the liquidity risk and profitability of listed insurance companies in Nigeria by 7% (-0.07).

6. Conclusion and Recommendations

This study examines the moderating effect of the risk management committee on the relationship between financial risk and profitability of listed insurance companies in Nigeria for the period 2012–2021. The results from the model reveal that financial risk has a negative and significant effect on the profitability of listed insurance companies in Nigeria. Also, RMC enhances the relationship between liquidity risk and profitability. Furthermore, the RMC moderated the association between technical provision risk and profitability. The study recommends that insurance providers in Nigeria should firm-up control over financial risks to mitigate the negative effect on profitability and ensure members of the board of director appointed into the RMC have the requisite competence and experience in insurance risk management.

6.1. Policy Implications

The findings of the current study have some distinctive practical implications for management and the regulatory body (the National Insurance Commission (NAICOM). The study has established that financial risk hurts the profitability of Nigerian insurance companies. Also, the study discovered that RMCs moderate the association between liquidity risk and a company's profitability. The implication of this is that the firm's profit will increase with the effectiveness of the RMC. Furthermore, this finding implies that the management needs to support and strengthen the RMC to improve risk management. The results of this study important for theory building. The interaction of RMC and FR proxies support the ERM theory which provides a comprehensive framework for the creation and measurement of investment risk. The a priori expectation of the study was that the moderation effect of the RMC on FR of the insurance sectors should improve profitability and enhance value. However, the findings on the moderating effect of technical provision risk and profitability did not support the theoretical expectation, as they provided evidence that the RMC negatively moderated the relationship.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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