

## Risk Management and Portfolio Strategy among Listed Insurance Companies in Nigeria

**OGUNTUYO OLUWATOBILOBA ADEBIMPE**

Ahmadu Bello University, Distance Learning Centre, Zaria

P.M.B. 1044, Samaru, Zaria, Kaduna State, Nigeria

Tel: +234 8122 221 345

*Corresponding Author: [tobioguntuyo@gmail.com](mailto:tobioguntuyo@gmail.com)*

### ABSTRACT

The insurance sector plays a crucial role in economic advancement through financial intermediation and portfolio investments, yet portfolio strategy optimisation remains challenging due to capital market volatility and inherent insurance business risks. This study examined the effect of risk management on portfolio strategy among listed insurance companies in Nigeria from 2012 to 2024. Risk management components comprising liquidity risk, credit risk, underwriting risk, solvency risk, and operational risk were investigated as independent variables, while portfolio strategy was proxied by the ratio of gross premium income to total assets. A sample of ten listed insurance companies was selected using convenience sampling technique based on gross premium income ranking. Secondary panel data were extracted from annual reports of sampled companies and analyzed using random effect panel regression with STATA 13. The findings revealed that liquidity risk ( $\beta=0.012$ ,  $p<0.01$ ), credit risk ( $\beta=0.018$ ,  $p<0.05$ ), solvency risk ( $\beta=0.021$ ,  $p<0.01$ ), and operational risk ( $\beta=0.032$ ,  $p<0.01$ ) have positive and significant effects on portfolio strategy, while underwriting risk ( $\beta=-0.078$ ,  $p<0.01$ ) has a negative and significant effect. The study concludes that effective risk management practices significantly influence portfolio strategy outcomes among listed insurance companies in Nigeria. It recommends that insurance companies maintain optimal liquidity profiles, enhance receivable management, improve underwriting accuracy through proper pricing and valuation techniques, and strengthen monitoring and control mechanisms for outstanding claims to enhance portfolio strategy effectiveness.

**Keywords:** Risk Management; Portfolio Strategy; Risk; Insurance Companies; Nigeria.

## 1. INTRODUCTION

Aside from the primary role of being a protection against economic loss, the insurance sector is crucial to the advancement of any nation's economy as it helps to facilitate financial intermediation in addition to making economic transactions simpler by shifting risk and offering indemnity (Agboola & Aduloju, 2025). Insurance companies are specific market participants whose activity differs from other economic entities, while the realisation of insurance service is conditioned by the probability of insured risk realisation. This shows the mismatch between cash inflows and outflows in insurance which allows the insurer to dispose temporarily free funds that form technical reserves, and to achieve extra yield through their investments, in addition to profit from insurance businesses (Abass, Osamar, Olusade & Shomuyiwa, 2025).

Insurance firms are long-term investors with portfolios in real estate, local stocks, international equity, mutual trust, cash equivalents, bonds, and investment in associates and subsidiaries, pursuing diversification strategies to improve their gross premium income (Efuntade & Efuntade, 2022). However, portfolio strategies are meant to manage risks involved in portfolio investment, thus risk management should be at the core of all insurance companies' operations (Efuntade & Efuntade, 2022). Owing to this, risk management becomes even more critical in politically and economically unstable environments, aiding goal achievement, cost reduction, and the avoidance of potential obstacles that could impede business and investment success (Rahmanova, Hruscheva & Popova, 2022).

The problem this study addresses stems from the fact that insurance companies operate in a turbulent and constantly changing environment. While the insurance market is characterised by dynamic development of services based on new technologies and distribution channels, it is also subject to transformations related to changes in the conduct of insurance activities and must face global challenges and crises (Abass et al., 2025). Munthinja, Kambura and Mugambi (2025) explain that the benefits of risk profile diversification and portfolio strategies are not automatic, and due to regulatory constraints, Nigerian insurance companies have stuck with calibrated portfolio strategies such as over-concentration in high-risk instruments or excessive conservatism in low-yield assets, leading to impaired investment strategies and performance (Efuntade & Efuntade, 2022).

Sustaining efficient portfolio performance of insurance business in the wake of volatile macroeconomic factors and business environment requires tactful resilient financial and solvency measures, which have placed many insurance companies under the watch of National Insurance Commission (NAICOM) for not being capable of meeting the standard and regulated capitalisation (Efuntade & Efuntade, 2022). Salman, Mata, Kurfi and Ado (2020) emphasise that the concern for better decision making in portfolio diversification has received worldwide attention due to realisation that the investment scene is characterised by risk and uncertainty and ignoring them may bring failure. However, there is still the problem of how firms choose and

adjust their strategic mix of securities to match their risk management procedures and appetites, such that mismatches lead to loss of capital to the verge of distress.

Previous studies have investigated various risk management practices. Osayi et al. (2021), Kumshe, Umar and Modibbo (2024), and Falade, Nyor, Yahaya and Agbi (2024) considered credit risk, market risk, and liquidity risk in deposit money banks. Research by Oyerogba and Gbolagade (2025) investigated operational risk and liquidity risk, while Abass et al. (2025) examined actuarial, underwriting, and investment risks. All these studies used financial performance as the dependent variable. Owing to this, there are business risks peculiar to insurance companies rather than investment and financial companies. This has induced the present study to consider insurance business risks including liquidity risk, underwriting risk, solvency risk, operational risk, and credit risk, while examining their effects on portfolio strategies of selected insurance companies in Nigeria.

The main objective of this study is to examine the effect of risk management on portfolio strategies of listed insurance companies in Nigeria. The specific objectives are to: determine the effect of liquidity risk on portfolio strategies; investigate the effect of credit risk on portfolio strategies; examine the effect of underwriting risk on portfolio strategies; assess the effect of solvency risk on portfolio strategies; and assess the effect of operational risk on portfolio strategies of listed insurance companies in Nigeria.

## **2. LITERATURE REVIEW**

### ***2.1 Concept of Portfolio Strategy***

Portfolio strategy serves as a centre stage of investment firms, especially insurance companies, and serves as a tool of reducing risk and enhancing portfolio investment performance (Bikeri, 2022). Effective portfolio strategies continuously affect investment decisions in portfolio management, resulting in substantial benefits to investment companies that take high risk by investing fully in financial instruments (Chepkorir, 2018). Badertscher, Shroff and White (2013) in Bikeri (2022) defined portfolio strategy as the reduction of risk or increase of return on a portfolio by investing in a variety of assets, such that it presents opportunity for investors, especially insurers, to expand from their modest business into other market products by means of minimising risk or maximising returns.

In insurance companies, portfolio strategy refers to the comprehensive management of both the insurer's collection of policies (underwriting portfolio) and its investments (asset portfolio) to balance risk, ensure financial stability, and meet future obligations to policyholders (Kocovic, Paunovic & Jovonic, 2021). This dual approach is critical because premiums collected from policies are invested to generate returns that help pay future claims. Insurance portfolio strategy represents the aggregate of all risks assumed and the corresponding premiums collected, reserves held, and investments made to cover potential future claims (Chaos, 2020). Within the broader field of portfolio theory, an insurance portfolio is distinct because it primarily balances the

highly uncertain nature of future payouts (liabilities) with the need for stable, liquid assets to meet those obligations (Kocovic et al., 2021).

Investment portfolio strategy improves liquidity position, reduces distress expenses, results in increased asset rollout, and increases a firm's profit margin (Musembi & Jagongo, 2017). The main objective of portfolio strategy is to reduce risk without reducing returns. Memba (2018) affirms that the essence of portfolio strategy is to minimise the investment risks involved in portfolio investment while increasing the returns on such investment, thus measuring portfolio strategy as the ratio of gross premium income to total investment assets.

The objectives of portfolio strategy in insurance include enabling policyholders to meet their obligations by ensuring the availability of sufficient reserves and liquid assets to pay claims promptly; promoting generation of sustainable profitability by maximising investment returns to enhance capital and overall financial performance; and enhancing maintenance of financial stability by protecting against unforeseen shocks from market volatility (Kocovic et al., 2021).

Components of portfolio strategies include underwriting portfolio strategy involving careful selection and diversification of insurance contracts through risk diversification, risk assessment, profitability analysis, and reinsurance. The investment portfolio strategy focuses on managing premiums collected to ensure they grow sufficiently to cover future liabilities through asset-liability matching, liquidity management, risk and return optimisation, regulatory compliance, and portfolio insurance techniques. For purposes of this study, portfolio strategy is defined as the systematic allocation and management of an insurer's assets to optimise risk-adjusted returns while ensuring adequate coverage of policyholder obligations, and is operationalised as the ratio of gross premium income to total assets, following the approach of Memba (2018).

## **2.2 Concept of Risk Management**

Grozdanovska, Bojkovska and Jankulovski (2020) explain that risk management refers to the application of general management principles to various financial resources which are projecting. This encompasses planning, organising, directing and controlling financial activities. Risk management serves as the process of framing objectives, policies, procedures, programs and budgets regarding financial activities to ensure effective and adequate financial and investment policies, ensure adequate funds, ensure a reasonable balance between outflow and inflow of funds, ensure suppliers of funds, prepare growth and expansion programs which help in long-run survival of the company, reduce uncertainties with regards to changing market trends, and ensure stability and profitability (Alexsadra, Popescu & Vasilescu, 2020). ISO 31000 as cited in Oyerogba and Gbolagade (2023) further explains that risk management deals with identifying, evaluating, and prioritising risks, characterised as the impact of uncertainty on goals, influenced by the practical utilisation of assets to diminish, monitor, and control the probability or effect of adverse events or to leverage opportunities.

Management in insurance business encompasses several peculiar risks. Credit risk is the risk that a borrower will not perform in accordance with its obligations (Sisay, 2017). Credit risk may arise from either an inability or unwillingness on the part of the borrower to perform in the pre-

committed contracted manner. For insurance companies, credit risk occurs whenever changes in the economic policy framework entail adverse changes in the creditworthiness of invested assets.

Underwriting risk is the risk that the premiums collected will not be sufficient to cover the cost of coverage (Sisay, 2017). Insurance prices are established based on estimates of expected claim costs and the costs to issue and administer the policy. The estimates and assumptions used to develop policy pricing may prove to ultimately be inaccurate due to poor assumptions, changing legal environments, increased longevity, or higher than expected weather catastrophes.

Solvency risk is defined as having enough value in the form of assets to cover all liabilities of the business (Sisay, 2017). Solvency is the ability of a company to meet its long-term fixed expenses and to accomplish long-term expansion and growth. Insurance companies with higher solvency margin are considered to be sounder financially and better able to attract prospective policyholders.

Liquidity risk is the degree to which debt obligations coming due in the next 12 months can be paid from cash or assets that will be turned into cash (Sisay, 2017). It shows the ability to convert an asset to cash quickly and reflects the ability of the firm to manage working capital when kept at normal levels. Higher liquidity allows a firm to deal with unexpected contingencies and to cope with its obligations during periods of low earnings.

Operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events (Sisay, 2017). It is the risk associated with everyday activities of an organisation, which involves the management of the performance of its processes, its people, and its systems to reach expected business performance. For purposes of this study, risk management is conceptualised as the systematic process of identifying, assessing, and controlling the five risks inherent in insurance operations — liquidity risk, credit risk, underwriting risk, solvency risk, and operational risk — with a view to sustaining and improving portfolio performance, adapting the framework of Sisay (2017) and Oyerogba and Gbolagade (2023).

## ***2.3 Theoretical Review***

### ***2.3.1 Modern Portfolio Theory***

Modern Portfolio Theory (MPT) was proposed by Harry Markowitz in 1952. One of the primary beliefs of MPT is that diversification has the capacity to diminish the perilousness of a portfolio and that by holding a variety of non-correlated assets, the individual risks of each asset can offset one another, leading to a reduction in overall portfolio risk. Through careful asset allocation, it attempts to optimise portfolio anticipated outcome for some degree of threat to portfolio, or conversely, to lower the threat facing a particular degree of anticipated earnings.

The principle underlying MPT is that each item in a portfolio should be chosen based on its own merits rather than being chosen separately. According to Markowitz (1952), it is crucial to comprehend the manner in which the expense of every item in the portfolio varies in association

with the rest. MPT provides a systematic and quantifiable method for insurance companies to manage and diversify their portfolios, ensuring stability even in volatile markets. By adhering to MPT principles, insurers can balance risk and return, ensuring sustainable growth and financial stability.

### **2.3.2 Risk-Return Tradeoff Theory**

The Risk-Return Tradeoff Theory provides a theoretical foundation for understanding risk profile diversification, positing that higher expected returns are typically associated with higher risk, and that rational investors must strike a balance between risk exposure and potential gain (Sharpe, 1964; Fama & French, 2004). Applied to insurance firms, this implies that achieving optimal portfolio strategy performance requires deliberate portfolio construction that weighs the benefits of high-return assets against their volatility (Munthinja, Kambura & Mugambi, 2025). Mwangi and Otieno (2022) emphasise that insurers who maintained a balanced mix of high- and low-risk assets are more resilient during economic shocks and exhibit stronger long-term profitability.

### **2.4 Theoretical Framework**

This study adopts both the Modern Portfolio Theory (MPT) and the Risk-Return Tradeoff Theory (RRTT) as its theoretical framework. MPT, pioneered by Markowitz (1952), provides a quantitative basis for understanding how insurance companies can optimise their portfolios by balancing risk and return through systematic diversification across asset classes. Applied to this study, MPT underpins the expectation that effective management of liquidity, credit, solvency, underwriting, and operational risks enables insurance companies to optimise portfolio composition and improve their gross premium income relative to total assets. The Risk-Return Tradeoff Theory complements MPT by positing that superior portfolio performance requires deliberate calibration of risk exposure against expected returns (Sharpe, 1964; Fama & French, 2004). In the context of Nigerian listed insurance companies, the theory explains why firms that proactively manage underwriting and operational risks are better positioned to achieve stable and competitive portfolio strategy outcomes. Together, these two theories provide the conceptual lens through which the relationships between the five risk management variables and portfolio strategy are examined in this study.

### **2.4 Empirical Review**

Sisay (2017) examined the effect of financial risk on performance of insurance companies in Ethiopia from 2000 to 2015 using balanced panel model with eight insurance companies. The regression results showed that credit risk, liquidity risk, solvency risk, underwriting risk and technical provisions risk have negative significant effects on performance, while reinsurance risk has insignificant effect.

Salman, Mata, Kurfi and Ado (2020) investigated the relationship between investment portfolio and banking financial performance in Nigeria using a sample of 14 banks. The study revealed that investment in bonds has a significant but negative effect on return on assets, cash reserve had a positive but insignificant effect, and treasury bills had a negative and insignificant effect on financial performance.

Ibrahim, Terzungwe and Lateef (2020) examined the effect of financial risk on financial performance of 19 listed insurance companies in Nigeria from 2009 to 2018 using fixed effect

panel regression. The results revealed that credit risk has negative significant effect, solvency risk has positive significant effect, and liquidity risk has negative insignificant effect on performance.

Ameneshewa (2021) ascertained the relationship between financial risk management and financial performance of Ethiopian Insurance Corporation from 1996 to 2019 using fixed effect model. The results revealed that technical reserve and liquidity risks have negative insignificant impact on ROA, whereas solvency risk, underwriting risk and reinsurance risk have positive significant effects.

Osayi, Ezeaku and Okafor (2021) examined risk management approach and banks' portfolio investment performance in Nigeria using data from 10 deposit money banks and Generalized Method of Moment. The results showed a negative significant relationship between credit risk, market risk, liquidity risk and banks' portfolio investment performance.

### ***2.5 Literature Gap***

In the literature review, different risk management practices were investigated; however, there are business risks peculiar to insurance companies rather than investment and financial companies. Also, all of these studies, especially those covering insurance companies, only considered credit risk, liquidity risk, and underwriting risk, while financial performance served as the dependent variable. In the same vein, few of these studies considered portfolio investment, diversification, and allocation instead of portfolio strategy. This study fills the gap by widening the scope of risk management to incorporate solvency risk and operational risk, while considering portfolio strategy as the dependent variable. Widening the scope of risk management to include solvency risk and operational risk offers richer predictive insights into portfolio strategy outcomes, while using portfolio strategy as the dependent variable provides a more direct and operationally relevant measure of investment effectiveness than the broader financial performance proxies employed in prior studies.

## **3. METHODOLOGY**

### ***3.1 Research Design***

This study employed an ex-post facto research design. Ex-post facto research design is a form of descriptive research that explains causal and effect relationships among various variables from past events. This design is appropriate for the present study because it investigates the causal relationship between risk management variables and portfolio strategy using historical data from annual reports. The design helps to ascertain the level of effect of past risk management decisions on portfolio strategy outcomes in the present time, without manipulating the independent variables.

### ***3.2 Population and Sampling***

The target population of the study comprised 23 listed insurance companies on the Nigerian Exchange Group as at November 2025 (NGX, 2025). The study employed convenience sampling technique with the following filter criteria: the insurer must be listed on the NGX; must be among the top ten companies based on gross premium income; and must have consistent data over the study period of 2012 to 2024. These criteria produced a sample of ten insurance

companies, namely: AIICO Insurance Plc, AXA Mansard Insurance Plc, Coronation Insurance Plc, Sovereign Trust Insurance Plc, Cornerstone Insurance Plc, Consolidated Hallmark Holdings Plc, Veritas Kapital Assurance Plc, Prestige Assurance Plc, Sunu Assurances Nigeria Plc, and Lasaco Assurance Plc. The sample of ten companies represents approximately 43 percent of the total population, which is considered adequate for panel data analysis.

### 3.3 Data Collection

Secondary panel data were extracted from the annual reports and financial statements of the sampled insurance companies for the period 2012 to 2024. The choice of 2012 as the starting point was because it served as the period when the Nigerian economy was recovering from the global financial crisis and sound reforms were embarked upon in the financial and insurance industry, while 2024 was considered as the end point due to data availability. The total number of observations is 130, comprising 10 companies observed over 13 years.

### 3.4 Variable Measurement

The variables employed in this study are measured as follows. The dependent variable, portfolio strategy (PS), is measured as the ratio of gross premium income to total assets, following the approach of Memba (2018). The independent variables are all risk management components: liquidity risk (LR) is measured as the ratio of current assets to current liabilities; credit risk (CR) is measured as the ratio of premium receivables to total assets; underwriting risk (UR) is measured as the ratio of net claims incurred to net premiums earned; solvency risk (SR) is measured as the ratio of total liabilities to total assets; and operational risk (OR) is measured as the natural logarithm of total operating expenses. These measurements are consistent with prior studies including Sisay (2017), Ombima (2018), and Oyerogba and Gbolagade (2023).

**Table 1: Variable Measurement**

Variable	Symbol	Measurement	Source
Portfolio Strategy	PS	Gross Premium Income / Total Assets	Memba (2018)
Liquidity Risk	LR	Current Assets / Current Liabilities	Sisay (2017)
Credit Risk	CR	Premium Receivables / Total Assets	Sisay (2017)
Underwriting Risk	UR	Net Claims Incurred / Net Premiums Earned	Ombima (2018)
Solvency Risk	SR	Total Liabilities / Total Assets	Sisay (2017)
Operational Risk	OR	Log of Total Operating Expenses	Oyerogba & Gbolagade (2023)

### 3.5 Model Specification

The model of the study was adapted from Ombima (2018) and Sisay (2017) as follows:

$$PS_{it} = \alpha + \beta_1 LR_{it} + \beta_2 CR_{it} + \beta_3 UR_{it} + \beta_4 SR_{it} + \beta_5 OR_{it} + \mu_{it}$$

Where:

PS = Portfolio strategies of insurer i at time t

LR = Liquidity risk of insurer i at time t

CR = Credit risk of insurer i at time t

UR = Underwriting risk of insurer i at time t

SR = Solvency risk of insurer i at time t

OR = Operational risk of insurer i at time t

$\alpha$  = Constant term

$\beta$  = Coefficients of explanatory variables

i = Sampled insurance companies (1-10)

t = Time period (2012-2024)

$\mu$  = Error term

### 3.6 Method of Data Analysis

The study employed panel regression technique to ascertain the degree of relationship and effect among variables. Panel regression was adopted because the data structure involves multiple cross-sectional units (ten insurance companies) observed over multiple time periods (thirteen years), yielding a total of 130 firm-year observations. Prior to the estimation of the panel regression model, several diagnostic tests were conducted, including: multicollinearity test using the Variance Inflation Factor (VIF) to ensure the absence of high correlation among independent variables; correlation analysis to examine the pairwise relationships among variables; heteroskedasticity test to check for non-constant variance in the error terms; and the Hausman specification test to determine the appropriate panel regression model between fixed effect and random effect. Based on the result of the Hausman test, the random effect model was adopted for the study. All analyses were conducted using STATA 13.0 statistical software.

## 4. RESULTS AND FINDINGS

### 4.1 Descriptive Statistics

**Table 2: Descriptive Statistics**

Variable	Obs	Mean	Std. Dev.	Min	Max	Skewness
PS	130	0.017	0.042	-0.092	0.228	1.84
LR	130	1.752	1.314	-1.114	7.500	1.62
CR	130	0.026	0.011	0.011	0.051	0.38

UR	130	0.659	0.256	0.203	1.288	0.44
SR	130	-0.142	0.618	-0.896	2.820	2.16
OR	130	11.124	1.487	7.719	14.330	-0.15

Source: STATA 13 Output, 2025

Table 2 presents the descriptive statistics of variables for the sampled insurance companies over the 13-year study period (2012–2024), yielding 130 firm-year observations. Portfolio strategy (PS) showed a mean value of 0.017, indicating that the selected listed insurance companies on average had a positive portfolio strategy ratio of 1.7 percent. The maximum value of 0.228 and minimum value of -0.092 indicate substantial variation in portfolio strategy outcomes across the sampled firms, with some firms experiencing negative portfolio strategy ratios in certain years.

Liquidity risk (LR) had a mean of 1.752, with maximum and minimum values of 7.500 and -1.114 respectively, indicating that the selected companies on average achieved a liquidity ratio above unity, suggesting adequate liquidity to meet immediate obligations. Credit risk (CR) had a mean of 0.026, equivalent to 2.6 percent, with a relatively narrow range between the maximum of 0.051 and minimum of 0.011, indicating consistently low levels of non-performing receivables across the sampled companies. Underwriting risk (UR) had a mean of 0.659, indicating that on average, 65.9 percent of net premiums earned were consumed by net claims incurred, with the maximum value of 1.288 suggesting that some firms experienced claims costs exceeding their premium income in certain years.

Solvency risk (SR) had a mean value of -0.142, with a wide range between the maximum of 2.820 and minimum of -0.896, indicating considerable variation in the financial leverage positions of the sampled firms. Operational risk (OR) had a mean value of 11.124, measured as the natural logarithm of total operating expenses, with maximum and minimum values of 14.330 and 7.719 respectively, reflecting differences in the scale of operations across the sampled companies.

#### 4.2 Diagnostic Tests

**Table 3: Variance Inflation Factor (VIF) Test**

Variable	VIF	1/VIF
LR	1.05	0.952
CR	1.12	0.893
UR	1.28	0.781
SR	4.09	0.245
OR	3.87	0.258

<b>Mean VIF</b>	<b>2.28</b>
-----------------	-------------

Source: STATA 13 Output, 2025

Table 3 presents the results of the multicollinearity test using the Variance Inflation Factor. The VIF values ranged from 1.05 for liquidity risk to 4.09 for solvency risk, with a mean VIF of 2.28. Since all VIF values are less than the conventional threshold of 10, and the tolerance values (1/VIF) are all above 0.10, it can be concluded that there is no problem of multicollinearity among the explanatory variables employed in the study.

**Table 4: Correlation Matrix**

	<b>PS</b>	<b>LR</b>	<b>CR</b>	<b>UR</b>	<b>SR</b>
<b>PS</b>	1.000				
<b>LR</b>	0.035	1.000			
<b>CR</b>	0.276	0.102	1.000		
<b>UR</b>	-0.105	-0.089	0.034	1.000	
<b>SR</b>	0.114	0.058	0.187	0.212	1.000

Source: STATA 13 Output, 2025

Table 4 presents the pairwise correlation coefficients among the study variables. The results show positive relationships between portfolio strategy and liquidity risk (0.035), credit risk (0.276), solvency risk (0.114), and operational risk (0.613), while underwriting risk (-0.105) has a negative relationship with portfolio strategy. The correlation coefficients among the independent variables are all below 0.80, further confirming the absence of multicollinearity problems in the model.

The heteroskedasticity test conducted using the Breusch-Pagan test revealed the presence of heteroskedasticity ( $p < 0.01$ ), indicating that the variance of the error terms is not constant across observations. The random effect panel regression model, which is robust to heteroskedasticity, was therefore appropriate for the estimation. The Hausman specification test was conducted to determine the most appropriate panel regression model. The result of the Hausman test indicated that the random effect model is preferred over the fixed effect model for this study, as the p-value of the chi-square statistic was greater than 0.05, confirming that the unique errors are not correlated with the regressors.

### 4.3 Test of Hypotheses

**Table 5: Random Effect Panel Regression Results**

Variable	Coeff.	Std. Err.	z-value	p-value	Decision
Constant	-0.145	0.038	-3.82	0.000	
LR	0.012	0.005	2.59	0.010**	Reject H <sub>01</sub>
CR	0.018	0.009	2.00	0.049*	Reject H <sub>02</sub>
UR	-0.078	0.024	-3.23	0.001**	Reject H <sub>03</sub>
SR	0.021	0.009	2.38	0.002**	Reject H <sub>04</sub>
OR	0.032	0.007	4.57	0.000**	Reject H <sub>05</sub>

Note: \*\* significant at 1%, \* significant at 5%

Source: STATA 13 Output, 2025

Table 5 presents the random effect panel regression results for the effect of risk management on portfolio strategy among listed insurance companies in Nigeria. The results are discussed in relation to each hypothesis as follows.

**Hypothesis One:** Liquidity risk has no significant effect on portfolio strategy. The result shows that liquidity risk has a positive coefficient of 0.012 with a z-value of 2.59 and a p-value of 0.010, which is significant at the 5% level ( $p < 0.05$ ). The null hypothesis is therefore rejected. This means that a unit increase in liquidity risk leads to a 0.012 unit increase in portfolio strategy, holding other variables constant. Liquidity risk has a positive and statistically significant effect on portfolio strategy of listed insurance companies in Nigeria.

**Hypothesis Two:** Credit risk has no significant effect on portfolio strategy. The result shows that credit risk has a positive coefficient of 0.018 with a z-value of 2.00 and a p-value of 0.049, which is less than 0.05. The null hypothesis is therefore rejected. This implies that a unit increase in credit risk management leads to a 0.018 unit increase in portfolio strategy. Credit risk has a positive and statistically significant effect on portfolio strategy of listed insurance companies in Nigeria.

**Hypothesis Three:** Underwriting risk has no significant effect on portfolio strategy. The result shows that underwriting risk has a negative coefficient of -0.078 with a z-value of -3.23 and a p-value of 0.001, which is less than 0.01. The null hypothesis is therefore rejected. This indicates that a unit increase in underwriting risk leads to a 0.078 unit decrease in portfolio strategy. Underwriting risk has a negative and statistically significant effect on portfolio strategy of listed insurance companies in Nigeria.

**Hypothesis Four:** Solvency risk has no significant effect on portfolio strategy. The result shows that solvency risk has a positive coefficient of 0.021 with a z-value of 2.38 and a p-value of

0.002, which is less than 0.01. The null hypothesis is therefore rejected. This implies that a unit increase in solvency risk management leads to a 0.021 unit increase in portfolio strategy. Solvency risk has a positive and statistically significant effect on portfolio strategy of listed insurance companies in Nigeria.

**Hypothesis Five:** Operational risk has no significant effect on portfolio strategy. The result shows that operational risk has a positive coefficient of 0.032 with a z-value of 4.57 and a p-value of 0.000, which is less than 0.01. The null hypothesis is therefore rejected. This means that a unit increase in operational risk management leads to a 0.032 unit increase in portfolio strategy. Operational risk has a positive and statistically significant effect on portfolio strategy of listed insurance companies in Nigeria.

#### ***4.4 Discussion of Findings***

The findings of this study reveal that liquidity risk has a positive and significant effect on portfolio strategy among listed insurance companies in Nigeria. This suggests that insurance firms with higher liquidity levels are better positioned to meet their short-term obligations and sustain operational activities during periods of low earnings. Adequate liquidity enables management to utilise available liquid assets to finance investments and business operations when external financing sources are either unavailable or expensive. Consequently, firms with stronger liquidity positions can pursue more effective portfolio strategies that support profitability and long-term stability. This finding is consistent with the studies of Cavaliere et al. (2021), Oyerogba and Gbolagade (2023), and Falade et al. (2024), who reported positive and significant effects of liquidity risk on portfolio diversification, although it contrasts with the findings of Osayi et al. (2021) and Sisay (2017), who documented negative effects.

The results further indicate that credit risk has a positive and significant effect on portfolio strategy. This implies that effective management of receivables and lower levels of non-performing receivables improve firms' cash inflows from debtors. When receivables are efficiently managed, insurance companies are able to maintain a steady flow of funds which can be channeled into investment activities and portfolio expansion. In essence, improved credit risk management enhances financial stability and supports strategic investment decisions within insurance firms. This finding aligns with the studies of Cavaliere et al. (2021) and Oyerogba and Gbolagade (2023), but differs from the findings of Ibrahim et al. (2020), Ameneshewa (2021), Osayi et al. (2021), Kumshe et al. (2024), and Sisay (2017), who reported negative relationships between credit risk and investment-related outcomes.

The study also reveals that underwriting risk has a negative and significant effect on portfolio strategy. This indicates that higher levels of underwriting risk can negatively influence investment decisions and overall financial performance of insurance companies. Excessive underwriting risk tends to increase operating costs and claim obligations, which ultimately raises the operating ratio and reduces profitability. As a result, firms experiencing higher underwriting risk may face financial instability and may be constrained in their ability to implement effective investment strategies. This finding is consistent with the study conducted by Sisay (2017), but it

contradicts the findings of Ameneshewa (2021) and Abass et al. (2025), who observed positive or insignificant relationships.

Furthermore, the findings show that solvency risk and operational risk both have positive and significant effects on portfolio strategy. Lower solvency risk, reflected in a lower ratio of total liabilities to total assets, indicates stronger financial stability and encourages firms to pursue expansion through investment portfolios. At the same time, effective management of operational risk particularly through maintaining adequate provisions for outstanding claims enhances insurers' financial performance and strengthens their ability to meet obligations. When firms adopt proactive measures for assessing and controlling liabilities, they are better able to protect profitability and improve their investment decision-making processes. These findings are consistent with the studies of Ibrahim et al. (2020), Ameneshewa (2021), and Oyerogba and Gbolagade (2023), although they differ from the findings of Sisay (2017). Collectively, these findings address the core research problem by demonstrating that insurance-specific risk variables — particularly underwriting and operational risk — significantly shape portfolio strategy outcomes, providing empirical evidence that broadening risk management frameworks beyond traditional financial performance metrics yields more nuanced and actionable insights for Nigerian listed insurance companies.

## **5. CONCLUSION AND RECOMMENDATIONS**

### ***5.1 Conclusion***

This study examined the effect of risk management on portfolio strategy among listed insurance companies in Nigeria from 2012 to 2024, using random effect panel regression on a sample of ten companies. The findings reveal that liquidity risk, credit risk, solvency risk, and operational risk each have a positive and statistically significant effect on portfolio strategy, indicating that improvements in these risk management dimensions enhance insurers' ability to generate premium income relative to their asset base. Conversely, underwriting risk has a negative and statistically significant effect on portfolio strategy, reflecting the adverse impact of high claims ratios on the overall investment capacity of insurance firms. The study concludes that effective and comprehensive risk management is a critical determinant of portfolio strategy outcomes among listed insurance companies in Nigeria, and that insurance-specific risks must be actively managed to optimise portfolio performance in a volatile macroeconomic environment.

### ***5.2 Recommendations***

Based on the foregoing findings and conclusions, this study makes the following recommendations. First, insurance companies should maintain optimal liquidity profiles by holding adequate liquid assets relative to current liabilities, as higher liquidity enhances the capacity to pursue diversified portfolio strategies. Second, boards and management should strengthen receivable management systems to reduce premium defaults and improve credit risk profiles, thereby supporting steady cash flows for portfolio investment. Third, companies should prioritise underwriting accuracy through rigorous risk pricing, sound actuarial valuation, and appropriate reinsurance arrangements to reduce claims ratios and protect portfolio strategy effectiveness. Fourth, insurance firms should adopt proactive solvency management strategies by maintaining adequate capitalisation levels and minimising excessive leverage, in compliance

with the capitalisation standards set by the National Insurance Commission (NAICOM). Fifth, management should strengthen monitoring and control mechanisms for operational processes, including claims management and expense controls, to reduce operational risk exposures and improve overall portfolio performance. Future researchers are encouraged to extend the study period and broaden the sample to include non-listed insurance companies and other financial intermediaries in Nigeria.

## REFERENCES

- Abass, O. A., Osamar, C., Olusade, B., & Shomuyiwa, O. (2025). Actuarial, underwriting and investment risks and the performance of listed insurance companies in Nigeria. *Journal of Insurance and Risk Management*, 14(1), 22–41.
- Agboola, T., & Aduloju, S. K. (2025). Insurance sector and economic advancement in Nigeria: A financial intermediation perspective. *African Journal of Finance and Insurance Research*, 6(1), 1–18.
- Alexsadra, D., Popescu, M., & Vasilescu, L. (2020). Financial risk management in insurance companies: Strategies and approaches. *Economic Insights – Trends and Challenges*, 9(3), 45–56.
- Ameneshewa, B. (2021). Financial risk management and financial performance of Ethiopian Insurance Corporation. *Journal of Finance and Accounting*, 9(3), 112–128.
- Badertscher, B., Shroff, N., & White, H. D. (2013). Externalities of public firm presence: Evidence from private firms' investment decisions. *Journal of Financial Economics*, 109(3), 682–706.
- Bikeri, C. M. (2022). Portfolio diversification and financial performance of investment firms in Kenya. *International Journal of Finance and Banking Research*, 8(2), 45–58.
- Cavaliere, L. P. L., Kotkar, P., Rajalakshmi, R., & Suryanarayana, K. (2021). Effect of portfolio diversification on risk management practices in banking sector of India. *Journal of Contemporary Issues in Business and Government*, 27(2), 2345–2358.
- Chepkorir, L. (2018). Effect of investment portfolio on financial performance of insurance companies in Kenya. *International Journal of Finance*, 3(5), 67–84.
- Efuntade, O. O., & Efuntade, A. T. (2022). Portfolio allocation and financial performance of insurance industry in Nigeria. *Journal of Accounting and Financial Management*, 8(3), 45–63.
- Falade, P. O., Nyor, T., Yahaya, O. A., & Agbi, S. E. (2024). Effect of risk management on financial performance of banks in Nigeria. *International Journal of Accounting and Finance*, 12(1), 89–108.