



## RISK-RETURN TRADEOFF AND SUSTAINABILITY OF INSURANCE INDUSTRY

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source are credited.

**ABSTRACT:** *Based on the risk-return tradeoff theory, this quantitative study examined the effect of financial risk on the sustainability of insurance companies in Nigeria. Insurance is a pool of risk. Information was taken from the 2012–2021 annual reports of ten selected companies. Liquidity risk, solvency risk, and leverage risk are the three proxies for financial risk, which is the independent variable. Return on equity serves as a proxy for sustainability, which is the dependent variable. Firm size, tangibility, contingency fund, and industry intrinsic factor are the control variables. The study found that, during the studied period, solvency risk significantly increased the sustainability of the sampled insurance companies, while liquidity and leverage risks significantly decreased their sustainability. While the intrinsic value of the insurance industry has a significant negative impact on sustainability, the size and tangible nature of insurance companies have a significant positive impact. The sustainability of the examined insurance companies is not significantly improved by contingency funds. Given that the three financial risk proxies have a substantial impact on return on equity (a measure of sustainability), the applicability of risk-return tradeoff theory in this study is evident. Operationally, insurance companies should monitor their liquidity and leverage risks as because they reduce sustainability. The study recommends (among others) that Insurance firms should continue to optimally increase their size and tangibility in order to increase their sustainability.*

**KEYWORDS:** Insurance industry, industry intrinsic factors, returns on equity, risk management, risk-return theory, sustainability.



## INTRODUCTION

Recent studies have shown that the study of insurance as a specialized discipline has adopted a more quantitative approach, which is not surprising given that insurance primarily revolves around the risk-return tradeoff: the higher the risk, the higher the returns, and vice versa (Bala, Salisu, and Sani, 2022). Technically, financial risk is responsible for business failures and underperformance that can be linked to an overburdened capital structure with a high debt profile and a pitiful cash position (Fali, Terzungwe & Mustapha, 2020). Research on the effects of financial risk on the performance of businesses in general and insurance companies in particular has increased due to a number of factors, such as the global financial crisis, credit crunch, and unforeseen business fluctuations (Ayeni & Emeka, 2021). Some key ideas have been included in recent research on the financial risk and sustainability of insurance companies: liquidity risk (Takon et al. , 2022; Bala, Salisu & Sani, 2022; Nabeel & Hussain, 2017; Ayeni & Emeka, 2021; Fali, Nyor & Mustapha, 2020; Desalegn, 2019); leverage risk (Ayeni & Emeka, 2021; Ajao & Ogieriakhi, 2018; Jugu, Ponjul, Ahan & Dakung, 2020); Solvency risk (Fali, Nyor & Mustapha, 2020; Jugu, Ponjul, Ahan & Dakung, 2020); capital adequacy ratio (Bala, Salisu & Sani, 2022; Nabeel & Hussain, 2017); net claim ratio and net retention ratio (Salaudeen, Salam & Mudashiru, 2021); and return on assets (Otekunrin, Fagboro & Femi, 2019; Salaudeen, Salam & Mudashiru, 2021; Ajao & Ogieriakhi, 2018; Ayeni & Emeka, 2021; Fali, Nyor & Mustapha, 2020; Jugu, Ponjul, Ahan & Dakung, 2020; Takon, et al. 2022; Otekunr; Bala, Salisu, & Sani, 2022). Recent research on the financial risk and sustainability of insurance companies has controlled for a number of important variables, including firm size as measured by total assets (Bala, Salisu and Sani, 2022; Abbas & Mourouj, 2015; Ayeni & Emeka, 2021); firm age (Ajao & Ogieriakhi, 2018; Ayeni & Emeka, 2021); tangibility or non-current assets; firm growth as measured by annual change in total assets; and premium growth as measured by changes in gross written premiums (Ajao & Ogieriakhi, 2018).

There are conflicting results in the current literature regarding the relationship between financial risk and the profitability of insurance companies. While some studies have found that certain financial risk proxies have a major effect on profitability (Fali, Nyor, and Mustapha, 2020; Desalegn, 2019; Jugu, Ponjul, Ahan & Dakung, 2020; Bala, Salisu & Sani, 2022; Ayeni & Emeka, 2021), others have found that certain financial risk proxies have negligible effects on profitability (Salaudeen, Salam & Mudashiru, 2021; Fali, Nyor & Mustapha, 2020). Thus, this study is an empirical attempt to further the discussion (research) regarding how financial risk affects the profitability of Nigerian insurance companies. The use of return on assets (ROA) as the sole indicator of profitability is one tactical flaw in recent research on how financial risk affects insurance companies' profitability (Takon et al. Ajao & Ogieriakhi, 2018; Ayeni & Emeka, 2021; Fali, Nyor & Mustapha, 2020; Jugu, Ponjul, Ahan & Dakung, 2020; Bala, Salisu & Sani, 2022; Otekunrin, Fagboro & Femi, 2019; Salaudeen, Salam & Mudashiru, 2021). Since equity is a crucial buffer against the long-term impact of financial risk on insurance company performance, this study used return on equity to measure the profitability of the sampled insurance companies in order to close this gap (Fali, Terzungwe & Mustapha, 2020). Recent research on this subject has also shown limitations, such as the failure to factor in the insurance industry and contingency factors. The purpose of this study is to determine whether the statutory contingency fund of insurance companies and factors related to the insurance industry can also affect how



financial risk affects the profitability of insurance companies in Nigeria. This study considered these factors as controlled variables.

Establishing the effect of financial risk on the profitability of insurance companies in Nigeria is the main goal of this study. Finding out whether (i) liquidity risk significantly affects the profitability of Nigerian insurance companies, (ii) solvency risk statistically affects the profitability of Nigerian insurance companies, and (iii) leverage risk significantly affects the profitability of Nigerian insurance companies are the three primary specific goals of this study. The following questions are posed in accordance with the three distinct goals of this study: (i) Does the profitability of insurance companies in Nigeria suffer significantly from liquidity risk? (ii) Does the profitability of insurance companies in Nigeria suffer significantly from solvency risk? (iii) Does the profitability of insurance companies in Nigeria suffer significantly from leverage risk?

## LITERATURE REVIEW

### Conceptual Framework

The independent variable is financial risk, which has three proxies: liquidity risk (Takon et al. 2022; Bala, Salisu & Sani, 2022), solvency risk (Fali, Nyor & Mustapha, 2020; Jugu, Ponjul, Ahan & Dakung, 2020), and leverage risk (Ayeni & Emeka, 2021; Ajao & Ogieriakhi, 2018); profitability is the dependent variable, and it is measured by return on equity (ROE); the five control variables are firm size (Bala, Salisu & Sani, 2022; Abbas & Mourouj, 2015; Ayeni, 2022), tangibility (Ajao & Ogieriakhi, 2018), contingency fund (Lawuyi, 2022), tangibility (Ajao & Ogieriakhi, 2018), and insurance industry factor (Wahua, 2015; Wahua, Tsekpo & Anamele, 2018).

### Theoretical Framework

Harry Markowitz developed the risk-return tradeoff theory in 1952, which serves as the foundation for this investigation (EWI and ICAN, 2021). According to the theory, if all else is equal, lower returns (profitability) correspond with lower risk, and higher returns (profitability) correspond with higher risk (Borad, 2018). Figure 2 captures this very well. In actuality, insurance firms with greater risk generate higher profits than those with lower risk. This is why the study is relevant, and the risk-return tradeoff theory served as the foundation for Bala, Salisu, and Sani's (2022) investigation.

### Empirical Review

One of the few studies to measure profitability (firm performance with returns on equity, or ROE) is Onsongo, Muathe, and Mwangi (2020). Using panel regression analysis, the study examined how financial risk affected the performance of companies listed on the Nairobi Securities Exchange in Kenya between 2013 and 2017. One of the work's primary conclusions is that returns on equity (ROE) are significantly impacted negatively by profitability as determined by liquidity risk, a proxy for financial risk.

Multiple regression analysis was used in a study by Puspitaningtyas (2017) on the effect of financial risk on the performance of particular listed companies in the Indonesia Stock Exchange for the years 2011–2015. While firm performance was gauged by



profitability, financial risk was quantified by financial leverage risk and liquidity risk. The study found that during the study period, financial risk—both liquidity risk and leverage risk—had negligible effects on the profitability of the sampled firms.

In their 2019 study, Offiong, Udoka, and Bassey examined how financial risk affected the profitability of a sample of small and medium-sized businesses in Nigeria. The study used data from the Nigerian Central Bank's statistical bulletin for the 31-year period 1986–2017. Using the Autoregressive Distributed Lag (ARDL) statistical technique, the research data showed that financial risk has a negligible detrimental effect on the profitability of Nigerian small and medium-sized businesses. The proxies of financial risk—inflation, interest rate, liquidity, and foreign exchange currency risk—significantly harm small and medium-sized businesses in Nigeria over the long and short terms.

Panel regression was used by Ayeni and Emeka (2021) to investigate how financial risk affected the profitability of Nigerian businesses. A selection of manufacturing companies listed on the Nigerian Stock Exchange provided secondary data for the study. Firm size and age were used as control variables, and financial risk was measured using liquidity risk and leverage risk. While firm age has a negligible positive impact on the profitability of sampled firms during the study period, the study found that liquidity and leverage risks, in addition to firm size, have a significant negative impact on returns on assets, which serve as a proxy for firm performance. The work highlights that while financial risk is increasing, profitability is not increasing at a pace that is commensurate with financial risk.

The study "corporate liquidity and performance of listed insurance companies in Nigeria" by Bala, Salisu, and Sani (2022) sampled seven insurance companies out of a population of twenty listed insurance companies in Nigeria between 2014 and 2019. The study demonstrated, through the use of regression analysis, that the capital adequacy ratio, a gauge of liquidity, significantly improves the performance of insurance companies listed on the Nigeria Stock Exchange during the reviewed period. The current ratio and the premium to assets ratio, two additional liquidity metrics in the study, both significantly impacted the profitability of the insurance companies in the sample.

## Research Gaps

The absence of factoring for the insurance industry and contingency factors has been noted as a gap in recent research on this subject. The purpose of this study is to determine whether factors related to the insurance industry and the statutory contingency fund of insurance companies can also affect how financial risk affects the profitability of insurance companies in Nigeria. These elements were regarded as controlled variables in this investigation.

The use of return on assets (ROA) as the sole indicator of profitability is one tactical flaw in recent research on how financial risk affects insurance companies' profitability (Takon et al. Ajao & Ogieriakhi, 2018; Ayeni & Emeka, 2021; Fali, Nyor & Mustapha, 2020; Jugu, Ponjul, Ahan & Dakung, 2020; Bala, Salisu and Sani, 2022; Otekunrin, Fagboro & Femi, 2019; Salaudeen, Salam & Mudashiru, 2021). Since equity is a crucial buffer against the long-term impact of financial risk on insurance company performance, this study used return on equity to measure the profitability of the sampled insurance companies in order to close this gap (Fali, Terzungwe & Mustapha, 2020).



## METHODOLOGY

### Research Paradigm

In this study, a quantitative paradigm of research was utilized. When objective judgment is needed; hypotheses need to be tested; data needs to be presented in figures, charts, and tables; and research findings need to be generalized, this kind of study is required (Tsekpo, 2022; the University of South Carolina Libraries, 2018).

### Research Model and Design

$$\text{ROE} = \alpha + \beta\text{Liq} + \beta\text{Sol} + \beta\text{Lev} + \beta\text{Size} + \beta\text{Tang} + \beta\text{Contingency} + \beta\text{Industry} + e$$

The meaning of the variables in the model are: ROE (Return of equity: a profitability indicator); Liq (liquidity risk); Sol (solvency risk); Lev (leverage risk); Size (size of Insurers); Tang (tangibility of Insurers); Cong (contingency fund); Industry (industry intrinsic value);  $\alpha$  (intercept or constant);  $\beta$  (coefficients of each variable); and  $e$  (error term).

This study's objective is to empirically examine how financial risk affects Nigerian insurance companies' profitability. Descriptive research design is highly appropriate for this study for the following reasons, according to Osei-Attakora (2022) and Larson, Story, Eisenberg, and Neumark-Sztainer (2016): it is a cause and effect study; it is to test the relevance of risk-return tradeoff theory; the methodology is sequentially framed in a scientific order; hypotheses are to be tested in this study; it is a parametric research where the dependent variable is to be drawn from a normal distribution; it is a parametric study where the dependent variable is to be drawn from a normal distribution; and a robust statistical program (in this case, SPSS) is to be used to analyze the data. One model, which is consistent with Wahua (2020), was used to test all three of the hypotheses created for this study at the same time.

### Operationalisation of Variables

Financial risk (the independent variable) with an emphasis on liquidity, solvency, and leverage risks is one of the main topics this study covers. Returns on equity (ROE) are used to measure profitability, the dependent variable, while the size of insurance companies, the tangibility factor, the contingency fund, and the insurance industry factor are the control variables discussed. The study's population consists of insurance firms with Nigerian incorporation.

Firm size is measured using the natural logarithm of total assets (Bala, Salisu & Sani, 2022; Abbas & Mourouj, 2015; Ayeni & Emeka, 2021); an industry factor is measured using a dummy variable (Wahua, 2015; Wahua, Tsekpo & Anyamele, 2018); liquidity is measured using the capital adequacy ratio (Nabeel and Hussain, 2017); solvency is measured with the net income to total assets ratio (Fali, Nyor & Mustapha, 2020); and leverage risk is measured with the total liabilities to total assets ratio (Fali, Nyor & Mustapha, 2020).



## Study Population and Sample Size

Twenty six (26) insurance companies in the general business category make up the study's population. Thus, homogenous-purposeful sampling techniques (study of units with common features) were used in the study. "Judgemental or selective or subjective" sampling technique is another name for it (Foley, 2018; Crossman, 2020). Enebi, Kanwai, and Nurudeen (2020) support this sampling technique. Ten general business insurers make up the sample size because they have complete data on the years covered (2012 to 2021): Royal Exchange General Insurance Company Limited, Custodian and Alliance Insurance Ltd, FBN Insurance Limited, FIN Insurance Limited, Guinea Insurance Plc, Linkage Assurance Plc, Mutual Benefit Assurance Plc, NEM Insurance Plc, and Consolidated Hallmark Insurance Plc.

## Data Collection and Analyses Methods

In this study, secondary data collection method was used; and this is supported by Wahua, Mkombo, Okai, and Acquah-Yalley (2023) and Wahua, Mkombo, Dioha, and Okolobi (2023) who both used secondary data collection method to gather their data. Total assets, total capital, total liabilities, non-current assets, net income, contingency fund, and profit after tax are the items that were taken from the annual accounts of the selected insurance companies for the years 2012–2021. This study used the statistical package for social sciences (SPSS, Version 26) to perform descriptive statistics, Pearson correlational, and ordinary least square multiple regression analyses. This is consistent with the strategy used by Tsekpo (2022), Wahua and Ezeilo (2021), and Osei-Attakora (2021; 2022).

## RESULTS AND INTERPRETATION

### Normality test

When the kurtosis is between -7 and +7 and the skewness is between -3 and +3, the normality assumption is met (Wahua, 2018). Leverage risk (1.883, 2.220), liquidity risk (-0.169, -0.561), solvency risk (0.946, 0.703), tangibility (1.406, 2.150), contingency (2.391, 6.502), size (0.469, 0.636), and ROE (-0.056, 1.671) are the key variables' skewness and kurtosis statistics. Because the data are taken from a normal distribution, the main variables used in this study satisfy the fundamental assumptions of normality based on the enumerated statistics (Wahua, Kwode, Chukwuma, & Attipoe, 2023) Therefore, it is appropriate to test the hypotheses using ordinary least square regression analysis.

### Descriptive Statistics

The overall outlook of the sampled insurance companies from 2012 to 2021 showed that the standard deviation (risk) was higher than the mean (benefit) in the following variables: ROE was 50%, profitability was 68%, total assets were 17%, net income was 10%, and total liability was 54%. According to these figures, the insurance industry in Nigeria was extremely unstable during the study period. In contrast, every variable used to test the hypotheses (except ROE) showed favorable risk-return performance, with returns (mean) exceeding risk factors (standard deviation) for liquidity (65%), solvency (39%), leverage (2%), contingency (7%), and tangibility (32%). According to Wahua and Ahlijah



(2020), the sampled insurance companies have an average annual operation of 30 years, indicating a good amount of experience in the insurance industry

### Test of Hypotheses

**H1:** The profitability of Nigerian insurance companies is not significantly impacted by liquidity risk.

**H2:** The profitability of Nigerian insurance companies is not significantly impacted by solvency risk.

**H3:** The profitability of Nigerian insurance companies is not significantly impacted by leverage risk..

**Table 1:** Results of test of hypotheses 1 - 3

| Variable                      | B              | Beta   | t      | Sig.         | Tolerance | VIF   |
|-------------------------------|----------------|--------|--------|--------------|-----------|-------|
| (Constant)                    | -146.952       |        | -2.806 | <b>0.006</b> |           |       |
| Liquidity Risk                | -0.197         | -0.274 | -2.274 | <b>0.025</b> | 0.437     | 2.289 |
| Solvency Risk                 | 0.172          | 0.281  | 2.235  | <b>0.028</b> | 0.401     | 2.494 |
| Leverage Risk                 | -0.132         | -0.610 | -4.015 | <b>0.001</b> | 0.275     | 3.641 |
| Size                          | 7.246          | 0.433  | 3.376  | <b>0.001</b> | 0.385     | 2.595 |
| Tangibility                   | 0.000          | 0.308  | 2.182  | <b>0.032</b> | 0.317     | 3.151 |
| Contingency                   | 0.000          | 0.023  | 0.218  | <b>0.828</b> | 0.58      | 1.725 |
| Insurer                       | -1.232         | -0.261 | -3.049 | <b>0.003</b> | 0.864     | 1.158 |
| R. Statistic                  | 0.670          |        |        |              |           |       |
| R. Squared Statistic          | 0.449          |        |        |              |           |       |
| Adjusted R. Squared Statistic | 0.404          |        |        |              |           |       |
| Durbin-Watson Statistic       | 1.890          |        |        |              |           |       |
| F. Statistic (prob.)          | 10.108 (0.001) |        |        |              |           |       |

Dependent Variable: ROE (a sustainability indicator)

**Source:** Authors (2024)

Tolerance statistic is within 1 – 10 (an acceptable region); and the VIFs are between 0.10 and above (an acceptable statistical region too). This indicates the absence of any serious autocollinearity challenge. There is also no multicollinearity issue because the Durbin-Watson Statistic is within the permissible range of 1.5 to 2.5 (Wahua and Ahlijah, 2020). With an F-Value of 10.108, the study's model is significant and indicates that it fits the test well. When error terms are taken into account, the Model explains 40% of the changes in ROE, whereas when they are not, it accounts for 45%. The following was determined by the study. (1) Between 2012 and 2021, liquidity risk significantly reduces the profitability (ROE) of Nigerian insurance companies by 27%. (ii) Between 2012 and 2021, solvency risk significantly increased the profitability (ROE) of Nigerian insurance companies by 28%. (iii) Between 2012 and 2021, leverage risk significantly reduces the profitability (ROE) of Nigerian insurance companies by 61%.

Based on the above summarised empirical findings, since liquidity risk, solvency risk, and leverage risk did significantly affect the profitability of Nigerian insurance companies



between 2012 and 2021, hypotheses 1, 2, and 3 are hereby rejected. Additionally, this study found that: (i) Between 2012 and 2021, the size of Nigerian insurance companies significantly increased their profitability by 43%; (ii) Between 2012 and 2021, Nigerian insurance companies' tangible assets significantly increased their profitability by 31%; (iii) Between 2012 and 2021, contingency funds had a non-significantly positive 2.3% impact on the profitability of Nigerian insurance companies; and (iv) Between 2012 and 2021, the intrinsic factor of Nigeria's insurance industry has a significant negative impact on the profitability of Nigerian insurance companies by 26%.

## CONCLUSION AND RECOMMENDATIONS

### Summary of Research

Based on the risk-return tradeoff theory, this quantitative study examined the effect of financial risk on the sustainability of insurance companies in Nigeria. Insurance is a pool of risk. Information was taken from the 2012–2021 annual reports of ten selected companies. Liquidity risk, solvency risk, and leverage risk are the three proxies for financial risk, which is the independent variable. Return on equity serves as a proxy for sustainability, which is the dependent variable. Firm size, tangibility, contingency fund, and industry intrinsic factor are the control variables. The study found that, during the studied period, solvency risk significantly increased the sustainability of the sampled insurance companies, while liquidity and leverage risks significantly decreased their sustainability as measured by returns on equity, a profitability index). While the intrinsic value of the insurance industry has a significant negative impact on profitability, the size and tangible nature of insurance companies have a significant positive impact. The sustainability of the examined insurance companies is not significantly improved by contingency funds.

### Discussion of Findings

The study's key conclusions are that, during the studied period, solvency risk significantly increased the profitability of the sampled insurance companies, while liquidity and leverage risks significantly decreased it. Leverage risk and liquidity risk significantly impair profitability, according to Ayeni and Emeka (2021). According to Bala, Salisu, and Sani (2022), liquidity risk significantly boosts insurance companies' profitability. According to Desalegn (2019), liquidity risk significantly improves a company's profitability. According to Fali, Nyor, and Mustapha (2020), solvency risk significantly increases profitability while liquidity risk has a nonsignificantly negative effect. According to Jugu, Ponjul, Ahan, and Dakung (2020), during the same study period, solvency risk significantly increased profitability while leverage risk had a nonsignificantly negative effect.

In relation to the control factors, the analysis revealed that insurance companies' size and tangibility have a substantial and positive effect on their profitability, while the intrinsic value of the insurance industry has a substantial and negative impact on profitability. The contingency fund fails to show a significant impact on the profitability of these insurance companies. Previously, Ajao and Ogieriakhi (2018) discovered a significant negative impact of insurers' size on profitability, with tangibility showing no significant impact, and leverage exhibiting a nonsignificant positive impact. Ayeni and Emeka (2021) also identified



a significant negative impact of insurers' size on profitability. Desalegn (2019) noted a positive impact of insurers' size on profitability, while Jugu, Ponjul, Ahan, and Dakung (2020) found no significant negative impact of insurers' size on profitability.

### **Implications of the Study**

The three proxies of financial risk—liquidity, solvency, and leverage risks—have a major influence on profitability, making the applicability of risk-return tradeoff theory in this study abundantly evident. Practically, since risk is unavoidable in the insurance industry, it is imperative to measure its effects on profitability in order to effectively manage it. Because liquidity and leverage risks lower profitability, Nigerian insurance companies should monitor them operationally. To improve their liquidity, the insurance industry needs to receive more capital infusions. Theoretically, a more capitalized insurance sector would have less high capital structure debt, which is the cause of leverage risk. Additionally, because they greatly increased their profitability, insurers should keep expanding both in terms of size (total assets) and tangibility (fixed or non-current assets). In terms of policy, this study highlights the necessity for Nigerian insurance industry regulators to examine the current statutory contingency reserve, as its effect on profitability is positively nonsignificant.

### **Recommendations of the Study**

The following suggestions are made in light of the study's findings: (i). To boost profitability, Nigerian insurers should keep growing in size and tangibility as much as possible; (ii). Since the statutory contingency reserve's current rate has little bearing on profitability, the National Insurance Commission should review it now. (iii). Because liquidity and leverage risks drastically lower profitability, Nigerian insurance companies should be aware of them; and (iv) It is imperative that Nigerian insurers use the risk-return tradeoff theory to evaluate their performance because it places them on the cautious side of things, which is necessary for their sustainability.

### **Study Limitations and Suggested Further Studies**

There is a need for cross-country comparative research on this subject, and this study lacks comparative analysis. Future studies may also need to focus on comparisons with other developing markets to enrich the findings. It is recommended that future research use one or more of the continuous control variables (size, tangibility, and contingency) as mediating or moderating variables because higher statistical analyses like mediation and moderation were misstated. The results of this study did not factor in macroeconomic variables like inflation in Nigeria during the period under review. Subsequent studies should control this variable.

### **Ethical Considerations**

The authors declare no conflicting interest in this study as findings are empirically backed; and recommendations are equally findings-backed.



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