Relationship between Technical Reserves and Solvency Margin: Evidence from Selected Non-life Insurance Companies in Nigeria

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Abstract

Purpose: This study investigates the relationship between technical reserves and solvency margins among non-life insurance companies in Nigeria. It aims to determine whether the composition and level of technical reserves significantly influence insurers' solvency positions and financial stability.
Design/methodology/approach: From a population of 40 non-life insurance companies, a purposive sample of 10 firms representing over 60% of the industry's market share was selected. Secondary data were obtained from annual financial reports and analyzed using E-Views software. Multiple regression analysis was employed to test the study's hypotheses and examine the effect of technical reserve components on solvency margins.
Findings: The results reveal that technical reserves do not have a statistically significant effect on solvency margins. This indicates that current reserve levels or compositions may not be adequately aligned with solvency requirements in the Nigerian non-life insurance sector.
Limitations and Research implications: The study is limited to ten insurers and may not fully capture industry-wide variations. Future research could incorporate more firms, longer timeframes, and post-regulatory-reform datasets to deepen understanding of reserve adequacy.
Practical Implications: The findings suggest the need for insurers to reassess reserve management strategies and for regulators to strengthen supervisory mechanisms. NAICOM may consider revising solvency margin standards to reflect the differing impacts of reserve classes.
Originality/value: This study provides rare empirical evidence on the reserve–solvency relationship in Nigeria's non-life insurance industry and highlights the importance of reserve composition in shaping solvency outcomes in emerging markets.
Keywords: Financial stability; Reserves; Solvency; Unearned Premium

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Introduction

Insurance is essential in any economy as it provides financial intermediation for individuals, companies, and government (Babuna et al., 2020; Anyanwu & Salami, 2021). Thus, insurers' solvency is constantly monitored. The National Insurance Commission (NAICOM) introduced regulatory reforms and policies to enhance insurers' financial capacity in Nigeria. Technical reserves and solvency margins make up insurers' financial reserves, and determining their ideal relationship has been challenging. Solvency margins ensure that insurance providers have sufficient funds to cover unanticipated losses. In Nigeria, NAICOM guidelines stipulate that non-life insurers must maintain a minimum solvency margin of ₦3 billion or 15% of total premium (whichever is greater) (Ahmed et al., 2024). While this capital injection and control measure are laudable, the size of technical reserves matters for covering unexpected losses and guaranteeing prompt payment of claims to policyholders when they occur.

Striking the right balance between technical reserves and solvency margins remains a persistent challenge for insurers. As noted by Abass et al. (2021), maintaining excessively high

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reserves can limit profitability, while inadequate reserves expose firms to solvency risk. This tension sits at the core of insurance financial management. Against this backdrop, the present study examines how technical reserves relate to solvency margins in Nigeria's non-life insurance sector. Rather than assuming a straightforward relationship, it explores whether the structure and level of reserves actually translate into improved financial stability.

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In recent years, Nigeria's non-life insurance industry has shown signs of financial strain. Much of this pressure appears to stem from weaknesses in reserve adequacy. Large and unexpected claims, combined with short-term, profit-driven decision-making, have placed additional strain on insurers' solvency. Reports by NAICOM (2022) indicate that many firms continue to struggle to maintain appropriate levels of contingency, unearned premium, and incurred-but-not-reported (IBNR) reserves. Although regulations require insurers to maintain a solvency margin of at least 15% of net premium or a minimum paid-up capital threshold, compliance remains uneven across the industry (NAICOM, 2020). This has raised concerns among stakeholders, particularly as NAICOM transitions toward a risk-based supervisory framework. The shift reflects a broader recognition that existing approaches to capital adequacy and reserve management may not be sufficiently robust (NIA, 2025; NAICOM, 2023).

There are also deeper structural concerns. Some industry observers point to practices such as aggressive premium discounting, manipulation of policy terms, and even the understatement of reserves to enhance reported profitability (Obalola & Abass, 2016). While such strategies may offer short-term gains, they can ultimately weaken financial resilience. Despite the central role that technical reserves play in ensuring solvency, empirical research on this relationship in Nigeria remains surprisingly limited. While there is a substantial body of literature on reserve management in the banking sector (Assagaf & Ali, 2017), insurance operates under fundamentally different conditions.

Unlike banking reserves, which focus largely on credit risk and liquidity, insurance reserves are shaped by actuarial estimates of uncertain future liabilities—ranging from unearned premiums to unreported claims. This distinction makes it difficult to directly apply insights from banking studies to insurance contexts. Even within insurance research, most existing studies focus on overall performance or regulatory compliance (Oluwaleye et al., 2023; Obalola & Abass, 2016), rather than examining how individual reserve components influence solvency. As a result, important questions remain unanswered—particularly regarding the roles of unearned premium reserves, contingency reserves, and IBNR reserves.

The gap becomes even more pronounced when considering geographical context. Much of the empirical literature is concentrated in developed markets such as Spain (Rubio-Misas & Moreno, 2017), Macedonia (Todevski & Fotov, 2016), Switzerland (Breuer & Staudt, 2022), and European Union countries (Peksevim & Ercan, 2023), with emerging market research limited primarily to Asian contexts like Bangladesh (Siddik et al., 2022), Pakistan (Ali et al., 2019), and Indonesia (Wong, 2022). Sub-Saharan Africa, by contrast, remains underrepresented despite its distinct institutional and economic characteristics. Nigeria presents a compelling case. As Africa's largest economy, with over 40 licensed non-life insurers and significant premium volumes, the sector plays an important role in financial intermediation. Yet academic attention has not kept pace with its growth or regulatory evolution.

Literature Review

Solvency Margin

Solvency is a key measure of an organization's ability to meet long-term financial obligations (Peksevim & Ercan, 2023). It ensures financial stability by managing long-term debt and keeping a strong capital structure (Rubio-Misas & Fernández Moreno, 2017). Like the debt-to-

equity ratio, solvency ratios assess a company's ability to meet its financial commitments and serve as vital indicators of financial health. In the insurance sector, solvency mainly reflects an insurer's capability to pay claims (Siddik et al., 2022). Insolvency occurs when an insurer's assets fall short of its liabilities or liquidity challenges arise. Investors and regulators rely on solvency ratios to measure an insurer's financial strength.

The solvency margin acts as a financial buffer against unexpected disruptions, giving insurers the flexibility to tackle new risks. A well-maintained solvency margin supports operational stability and lowers failure risks (Todevski & Fotov, 2016). Because defining solvency can be complex, a clear operational definition is necessary to guide decision-making for stakeholders, including regulators, rating agencies, and policyholders. The main goal remains reducing insolvency risks through effective financial management.

Technical Reserves

Non-life insurers must create technical reserves to cover liabilities from insurance contracts (Hudakova & Adamko, 2016). These reserves ensure financial sustainability, allowing insurers to meet their obligations (Wong, 2022). Technical reserves protect insurers' ability to pay claims and represent estimated future payments for past and expected risks. Regulatory frameworks require these reserves to be maintained at levels that support financial stability. Technical reserves are calculated using actuarial methods and analysis of past claims data to project future claims trends. The main components include unearned premium reserves (UPR), contingency reserves (CR), and incurred but not reported (IBNR) reserves.

Unearned Premium Reserve (UPR)

The unearned premium reserve (UPR) is the part of insurance premiums received that has not yet been earned, corresponding to the unexpired risk period (PWC, 2023). As premiums are collected before coverage starts, insurers must record the unearned portion as a liability on their balance sheets (Hudakova & Adamko, 2016). As the policy period progresses, UPR is gradually recognized as earned revenue. UPR is vital to solvency, ensuring sufficient funds are available to meet future claims. Its calculation depends on the contract duration, with short-term policies often applying the pro rata method, which spreads revenue evenly over the policy term (Rubio-Misas & Fernández Moreno, 2017).

Contingency Reserve

A contingency reserve is a liability designed to cushion against economic fluctuations and unexpected negative events (NAIC, 2008). It accounts for "known unknowns" and improves financial resilience in unstable market conditions. Insurers set aside funds in profitable years for contingency reserves to stabilize long-term financial performance (Annamaria & Ermanno, 2010). The Insurance Act (2003) requires insurers to maintain contingency reserves to address market fluctuations and statistical uncertainties. Regulations require insurers to allocate at least 3% of total premiums or 20% of net profits (whichever is higher) to the contingency reserve until it reaches either the minimum paid-up capital or 50% of net premiums.

Incurred But Not Reported (IBNR) Reserves

Incurred but not reported (IBNR) reserves are for claims that have occurred but are not yet reported by the reserving date (Faculty and Institute of Actuaries, 1997). These reserves are estimates since insurers do not know exactly how many claims are outstanding or their severity when reporting. IBNR reserves are crucial for ensuring financial readiness for ultimate losses,

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covering both IBNR claims and reported claims. IBNR reserves are especially important in casualty insurance, where claim reporting often suffers delays. Accurately estimating IBNR reserves is vital for financial stability. Miscalculations can lead to poor decisions. Keeping appropriate IBNR reserves is a sound accounting practice and a legal requirement that helps maintain solvency in the insurance sector.

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Research Gap and Study Justification

A close look at existing literature shows three key gaps that support this study. First, while studies such as Rubio-Misas and Moreno (2017), Todevski and Fotov (2016), and Ali et al. (2019) have explored solvency factors in European and Asian contexts, there is limited research focusing specifically on the role of technical reserves in African insurance markets. The few studies looking at African insurance (Ahmed et al., 2024) mostly focus on Egypt and North Africa, leaving Sub-Saharan markets underexplored despite their unique regulatory and economic traits. Nigeria's insurance sector, marked by emerging risk-based frameworks and low insurance penetration, presents a very different setting from the developed and Asian markets typically covered in existing research.

Second, current research primarily examines overall reserve levels or capital adequacy, without breaking down the specific contributions of individual reserve components. This oversight hides the potentially different impacts of unearned premium reserves, contingency reserves, and IBNR reserves on solvency results. Understanding these distinct relationships is essential for forming effective regulatory policies and reserve management strategies, especially in resource-limited environments where smart capital allocation is critical. The lack of component-specific analysis in the existing literature is a notable gap that this study aims to fill by examining how each type of reserve affects solvency margins.

Third, much of the research on African insurance relies on cross-sectional data or short time frames, which limits the ability to explore long-term relationships and dynamic adjustments between reserves and solvency. This study uses 11 years of panel data (2012-2022) that includes significant regulatory changes, such as post-recapitalization market consolidation and evolving solvency standards. This data enables a thorough analysis of reserve-solvency relationships across different market conditions. The longer time frame supports the use of advanced panel cointegration techniques that differentiate between short-term variations and long-term equilibrium relationships, and provide an analytical depth rarely seen in African insurance research.

By addressing these gaps, this study contributes in four main ways: (1) offers a detailed analysis of the different impacts of technical reserves on solvency, moving beyond aggregate measures; (2) generates empirical evidence from Nigeria's non-life insurance sector, adding to the limited literature on Sub-Saharan African insurance; (3) applies advanced econometric techniques (FMOLS, panel cointegration) that set new methodological standards for insurance research in emerging markets; and (4) provides practical insights for regulators and professionals dealing with reserve management in environments facing capacity constraints and changing regulations. These contributions enhance both the theoretical understanding of RBC framework applications in emerging markets and practical knowledge for managing solvency in developing African settings.

Risk-Based Capital (RBC) Theory is a regulatory framework that aligns capital requirements with the risk exposure of financial institutions, particularly insurers and banks. It requires companies to maintain sufficient reserves to cover potential losses, ensuring their solvency and financial health (Ali et al., 2019). By assessing an insurer's risk profile, the RBC framework determines the base capital required to weather financial difficulties. A key principle of RBC

theory is its impact on an insurer's solvency through effective management of technical reserves. Having enough accurately calculated reserves contributes to a strong solvency margin, improving financial resilience and an insurer's ability to meet its obligations. The framework incorporates risk sensitivity into capital management, protecting both insurers and their stakeholders.

This study adopts the RBC theory because it focuses on keeping reserve levels suitable for financial risk. In a heavily regulated and unpredictable market, RBC offers a structured approach to financial sustainability. By ensuring that non-life insurers adjust reserves to reflect risk exposure, RBC bolsters solvency, stability, and long-term viability in the insurance industry.

Empirical Review

A review of past studies shows significant differences in solvency margins and technical reserves across various sectors and countries. The literature highlights the importance of regulatory frameworks, financial performance, and risk management in preserving the stability of the insurance sector. However, there is still a gap in understanding the detailed relationship between technical reserves and solvency stability in a changing regulatory environment. This section critically examines empirical studies under three key themes: Solvency Margins and Regulatory Influences, Profitability and Financial Performance, and Reserves and Risk Management.

Solvency margins serve as a fundamental measure of an insurer's financial health, influenced by regulatory policies and economic conditions. Rubio-Misas and Moreno (2017) utilized the two-step system generalized method of moments (GMM) to assess the solvency ratio of Spanish insurers (2005–2012). Their findings indicated that while the solvency ratio remained robust, cost efficiency, reinsurance utilization, premium growth, and stock insurer structures negatively impacted financial stability.

Ahmed et al. (2024) examined solvency margins in Egyptian insurance firms, identifying a strong positive correlation between capital base and financial stability, aligning with the Risk-Based Capital (RBC) Theory. Similarly, Todevski and Fotov (2016) analyzed Macedonian insurers (2010–2016) using a time-series error correction model (ECM), concluding that the industry effectively manages risk. However, their study did not explicitly address how fluctuations in technical reserves influence solvency outcomes.

The relationship between profitability and solvency has been widely explored, with mixed findings. Siddik et al. (2022) analyzed panel data (2011–2019) from 16 Bangladeshi non-life insurers, revealing that financial distress reduces profitability. However, their study did not account for the role of technical reserves in mitigating financial distress. Ali et al. (2019) explored financial soundness factors in Pakistani non-life insurers (2007–2016) using the CARAMELS framework, finding that company age, managerial competence, and operational efficiency significantly influence financial stability, while market share, leverage, and premium growth exhibited no strong correlation with solvency margins. Although these studies shed light on the key drivers of insurance solvency, it is important to acknowledge their shortcomings. While these studies offer useful perspectives on the factors that influence insurance solvency, several methodological and contextual shortcomings still need to be acknowledged.

Several important methodological and contextual limitations emerge from the existing literature on insurance solvency, and these issues deserve careful attention. To begin with, much of the empirical evidence comes from developed markets (Rubio-Misas & Moreno, 2017; Breuer & Staudt, 2022), which raises questions about how far these findings can be applied to emerging economies. Institutional structures, regulatory enforcement, and market discipline

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mechanisms differ markedly across contexts. For example, Rubio-Misas and Moreno's (2017) conclusion that cost efficiency negatively affects solvency is grounded in assumptions about competitive markets with strong actuarial capacity, conditions that are far from universal in developing countries.

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A second limitation concerns the reliance on cross-sectional or short panel designs in several studies (Todevski & Fotov, 2016). Such designs make it difficult to separate short-term volatility from long-run structural relationships, thereby increasing the risk that temporary shocks will be misinterpreted as fundamental determinants of solvency. A third issue relates to the use of aggregate reserve measures, which can obscure the distinct effects of individual reserve components. This may help explain why studies report inconsistent findings regarding the relationships among reserves, profitability, and solvency. Taken together, these limitations highlight the need for long-panel, component-specific analyses conducted across diverse institutional settings, precisely the direction taken in this study.

Despite the breadth of existing research, a notable gap persists in understanding the behavior of technical reserves in Sub-Saharan African markets, particularly in Nigeria. Most prior studies focus on developed European markets or emerging Asian economies, where actuarial systems, regulatory frameworks, insurance penetration, and macroeconomic stability differ substantially from those in Nigeria. For instance, Rubio-Misas and Moreno (2017) examined Spanish insurers operating under Solvency II with advanced risk modelling capabilities, while Breuer and Staudt (2022) analyzed Swiss reinsurers benefiting from long-established actuarial traditions. By contrast, Nigerian non-life insurers operate within a landscape characterized by limited actuarial expertise, evolving risk-based capital frameworks, and persistent gaps between regulatory prescriptions and actual market practice. Even studies from emerging Asian markets (Siddik et al., 2022; Ali et al., 2019; Wong, 2022) reflect environments with far higher insurance penetration and more developed capital markets than Nigeria's sub-1 % insurance-to-GDP ratio.

Moreover, most existing research treats reserves as a single aggregate measure rather than examining the distinct roles of unearned premium reserves, contingency reserves, and IBNR reserves. This is a significant omission, given that each reserve type may influence solvency differently depending on institutional capacity, claims reporting patterns, and regulatory enforcement. This study addresses these shortcomings by providing a disaggregated analysis of technical reserve components and their effects on solvency margins, using data from Nigeria's non-life insurance sector during the post recapitalization period (2012–2022). In doing so, it contributes empirical evidence from an understudied African context and advances theoretical understanding of reserve–solvency dynamics in developing markets.

Although Risk-Based Capital (RBC) theory argues that capital should be aligned with risk exposure rather than arbitrary thresholds, there is still no consensus on how technical reserves interact with solvency margins across different regulatory environments. The adoption of RBC theory as this study's theoretical foundation is therefore well justified. First, RBC provides a coherent framework for understanding how reserve components function as risk-adjusted buffers against unexpected losses. Its core principle, that capital requirements should reflect underlying risk, aligns directly with this study's focus on whether different reserve types contribute differently to solvency outcomes.

Second, RBC theory is particularly relevant for Nigeria, where NAICOM is gradually shifting from rules-based capital requirements toward more risk sensitive solvency frameworks. Insights from this study can support that transition by identifying which reserve components most effectively enhance solvency under current institutional realities. Third, RBC's emphasis on matching capital to specific risk exposures supports the study's disaggregated approach, allowing for a more nuanced interpretation of why UPR, IBNR, and contingency reserves may influence solvency in distinct ways.

Finally, testing RBC theory in the Nigerian context extends its applicability beyond the developed markets where it originated. Demonstrating whether RBC principles hold in environments characterized by limited actuarial capacity, evolving regulatory systems, and weaker market discipline contributes to the broader literature and offers insights for other developing markets considering similar reforms.

Hypotheses Development

Hypothesis: Technical reserves have a significant relationship with solvency margins in Nigerian non-life insurance companies.

The hypothesis was developed by drawing on RBC theory, which explains how unearned premium reserves function as risk-absorbing buffers. This theoretical expectation is reinforced by empirical findings Hudakova and Adamko (2016), both of whom highlight the stabilizing role of reserves in insurers' financial performance.

However, technical reserves are not a single, uniform construct. They consist of multiple components, each of which may influence solvency ratios in different ways. Because of this multidimensional nature, the initial hypothesis, treating technical reserves as a single aggregate measure, would be too broad to test meaningfully using regression analysis. To address this limitation, the present study disaggregates technical reserves into their measurable components and evaluates both their individual and combined effects on insurers' solvency margins. This approach allows for a more precise assessment of how each reserve category contributes to solvency outcomes within the Nigerian non-life insurance sector.

Sub-Hypotheses

H01a: Unearned premium reserve significantly influences the solvency margin of selected non-life insurance companies in Nigeria.

H01b: Reserve for Claims Incurred but Not Reported (IBNR) significantly influences solvency margin of selected non-life insurance companies in Nigeria.

H01c: Contingency Reserve significantly influences solvency margin of selected non-life insurance companies in Nigeria.

H01d: Firm Size significantly influences solvency margin of selected non-life insurance companies in Nigeria.

H01e: Profit Margin significantly influences solvency margin of selected non-life insurance companies in Nigeria.

H01f: Technical reserve variables jointly influence solvency margin of selected non-life insurance companies in Nigeria significantly.

Methodology

This study adopts an ex-post facto research design, which is appropriate given that the variables under consideration cannot be manipulated and the events of interest have already occurred. The population consists of 40 non-life insurance companies operating in Nigeria, as reported in the Nigeria Insurance Association Digest (2023). From this population, a sample of 10 firms was selected using a stratified approach (Table 1). These firms were chosen not randomly, but deliberately, as they collectively account for just over 60% of the industry's total market share. In effect, the sample captures the core of the sector's financial activity.

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Table 1. Selected Insurance Companies and their Gross Written Premium

S/N	Companies	Gross Premium Written (N'Billion)
1.	Leadway Assurance Co. Ltd	35.0
2.	Custodian & Allied Insurance Plc	25.0
3.	AXA Mansard Insurance Plc/Guarantee Trust	20.0
4.	NEM Insurance Plc	19.7
5.	Zenith General Insurance Co. Ltd	12.9
6.	AIICO General Insurance Co. Ltd	12.1
7.	Sovereign Trust Insurance Plc	10.8
8.	Coronation Insurance Plc	10.7
9.	Royal Exchange Gen. Ins. Co. Ltd	10.5
10.	Consolidated Hallmark Insurance Plc	8.3

Source: Nigeria Insurance Digest (2023)

Data for the study were obtained from annual reports and official industry publications covering the period from 2012 to 2022. To ensure reliability, the data were cross-checked across multiple sources, including company disclosures, NAICOM filings, and NIA reports. Rather than relying solely on basic statistical techniques, the analysis combines descriptive and inferential methods. While summary statistics provide an overview of trends and variability, the main relationships are examined using regression analysis, specifically the Fully Modified Ordinary Least Squares (FMOLS) approach. This method is particularly suitable for panel data with long-run relationships and helps address issues such as endogeneity and serial correlation. The measure of the variables and their definitions are shown in the Table 2.

Table 2. Measure of Variables

Variables	Indicators	Authors
Dependent Variable (Solvency Margin)	Solvency Margin	Eze and Nwankwo (2016)
Independent Variable (Technical Reserve)	Unearned Premium Reserve	Hudakova, M., & Adamko, J. (2016)
	Contingency reserve	Hudakova, M., & Adamko, J. (2016)
	Reserve for claims incurred but not reported	Osho and Adeola (2019)

Source: Authors Compilation (2025)

In this study, solvency margin is treated as the dependent variable, while technical reserves serve as the main explanatory variables. The model specification is a description of the mathematical relationship between dependent variable and the independent variable. In this study, the dependent variable is the Technical Reserves of the Nigerian Non-Life Insurance Companies, while the independent variable is Solvency Margin.

Based on the forgoing, the functional form of the model is given as:

Solvency Margin = f (Technical Reserves)

$$SM_{it} = f(UPR,\ CR_{it}\ IBNR_{it}) \qquad (3.2)$$

Where:

UPR= Unearned Premium Reserve

CR= Contingency Reserve

IBNR=Reserve for claims incurred but not reported

SM= Solvency Margin;

LR= liquidity ratio;

FS= Firms Size

LE=Leverage

Thus, the panel data regression model is expressed as follows:

$$SM_{it} = \beta_0 + \beta_1 UPR_{it} + \beta_2\, CR_{it} + \beta_3 IBNR_{it} + \beta_4 FS_{it} + \beta_5 LE_{it} + +\boldsymbol{\mu}_{it} \qquad (3.3)$$

t = 2012, ...2022 (annual time series)

Subscript***i*** = 1, 2, ...,10 (individual firm)

β_0 = intercept coefficient

β_1 = Partial slope coefficient of SM with respect to *UPR*

β_2 = Partial slope coefficient of SM with respect to CR

β_3 = Partial slope coefficient of *SM* with respect to *IBNR*

Note: Expected signs of the coefficient (a priori expectation) $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5 < 0$

Results

This section presents descriptive Statistics for examining the effect of technical reserves on solvency margin among non-life insurance companies in Nigeria. The results in Table 3 show that the average solvency margin (SM) is 16.29, while UPR and IBNR have mean values of 0.52 and 16.19, respectively. Among the variables, contingency reserves (CR) exhibit the highest variability, suggesting fluctuations over time. The distributional properties indicate that some variables, particularly CR and PM, deviate from normality, suggesting the presence of extreme values.

The Jarque-Bera test results indicate that some variables follow a normal distribution, while others do not. SM, IBNR, and FS follow a normal distribution, while UPR, CR, and PM deviate significantly. The Jarque-Bera (JB) statistic accepted some of the null hypotheses of normal distribution for the variables of technical reserves on the solvency margin among non-life insurance companies in Nigeria used in this study such *Unearned Premium Reserve (UPR); Contingency Reserves (CR); Incurred But Not Reported (IBNR), Firms Size (FS) and Profit Margin (PM)* at 5% critical value as their JB probability is lesser than 5%, this indicate the cross-sectional variables are normal. According to the probability of the variables used, all are less than 0.05. Except for *Solvency Margin (SM), Incurred but Not Reported (IBNR), and Firm Size (FS)*, which are 0.755237, 0.869294, and 0.191939, respectively, with p-values higher than the 0.05 level of significance.

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Table 3. Descriptive analysis of the effect of technical reserves on solvency margin among non-life insurance companies in Nigeria

Statistics	SM	UPR	IBNR	CR	FS	PM
Mean	16.29057	0.527059	16.19204	-0.065970	17.11444	0.151357
Maximum	20.31702	1.088504	20.25427	2.917103	20.40290	0.778125
Minimum	11.89345	0.138107	12.03917	-37.04077	13.83807	-0.040742
Std. Dev.	1.673562	0.234382	1.665310	3.951692	1.230831	0.124994
Skewness	0.178082	0.378817	0.108567	-8.387572	0.408974	2.043982
Kurtosis	2.947925	1.984370	2.867703	76.58316	3.304573	9.106445
Jarque-Bera	0.561446	6.957225	0.280148	24682.18	3.301152	234.0005
Probability	0.755237	0.030850	0.869294	0.000000	0.191939	0.000000

Source: Author's Computation (2024), Using E-Views 9
Where UPR= Unearned Premium Reserve; SM= Solvency Margin; CR= Contingency Reserves; IBNR= Incurred But not reported, FS = Firms Size and PM = Profit Margin

Pre-Tests

Test of Stationarity

To ensure the validity of the regression results, panel unit root tests were conducted to examine the stationarity of the variables. The Im-Pesaran-Shin (IPS) and Levin, Lin, and Chu (LLC) tests were applied. Table 4 presents the significance levels of the variables, indicating that all are statistically significant at $p = 0.0000$, which is less than the threshold of $p < 0.05$. This confirms a significant relationship between technical reserves and solvency margin among non-life insurance companies in Nigeria from 2012 to 2022. Additionally, the stationarity test results show that SM, UPR, FS, and PM are stationary at level (I(0)), whereas IBNR and CR are non-stationary but become stationary after first differencing (I(1)), implying that these variables exhibit trends over time. Given this mixed order of integration, the Pooled Mean Group (PMG) estimation technique is employed, as it is well-suited for handling both stationary and non-stationary series while ensuring robust long-term modelling.

Table 4. Unit Root Test Result of the Technical Reserves and Solvency Margin among Non-Life Insurance Companies in Nigeria

Variable	Test Order	Critical Value	P-value	Order of integration
SM	Level	-2.29328	0.0109	*I(0)*
CR	Level	2.38369	0.9914	
	1st Difference	-38.3311	0.0000	*I(1)*
UPR	Level	-4.19852	0.0000	*I(0)*
IBNR	Level	-0.22285	0.4118	
	1st Difference	-8.30757	0.0000	*I(1)*
FS	Level	-4.57843	0.0000	*I(0)*
PM	Level	-4.40919	0.0000	*I(0)*

Source: Author's computation, 2024 using E-views 9.

Panel Co Integration Test

Following the unit root tests, a co-integration analysis was performed using the Kao residual test. The results confirm the existence of a long-run relationship among the variables (see Table 5), suggesting that technical reserves and firm characteristics jointly influence solvency margins over time. This is evidenced by the significant Augmented Dickey-Fuller (ADF) test statistic (-3.299, p = 0.0005). This finding suggests that technical reserves (UPR, IBNR, CR) and firm-specific factors (FS, PM) collectively influence solvency margins over time.

Table 5. Result of Kao Residual Co-Integration Test

	t-Statistic	Prob.
ADF	-3.299388	0.0005
Residual variance	0.005750	
HAC variance	0.004263	

Source: Researcher's computation (2024).

Multiple Regression Analysis Results

H0: Technical reserves variables (Unearned premium reserve, Reserve for claims incurred but not reported, and Contingency reserve) have a joint significant relationship with the solvency margin of selected non-life insurance companies in Nigeria. In this section, the Fully Modified Least Squares (FMOLS) was used. The overall model performance in Table 6 is robust, with an R-squared value of 0.9686, suggesting that 96.86% of the variation in solvency margin is explained by the independent variables. The adjusted R-squared (0.9627) further confirms the model's reliability after accounting for predictor variables. The statistical significance of the model ($p < 0.05$) underscores the importance of technical reserves and firm size in determining solvency outcomes in the Nigerian non-life insurance sector.

Table 6. Panel Fully Modified Least Squares result based on Solvency Margin Model.

Variable	Coefficient (β)	Std. Error	t-Statistic	Prob.
UPR	1.263202	0.580730	2.175196	0.0328
IBNR	0.344269	0.163827	2.101421	0.0390
CR	-0.011937	0.010502	-1.136680	0.2593
FS	1.010696	0.162051	6.236901	0.0000
PM	-1.180071	0.448945	-2.628539	0.0104
R-squared	0.968604	Mean dependent var		16.39873
Adjusted R-squared	0.962744	S.D. dependent var		1.658311
S.E. of regression	0.320084	Sum squared resid		7.684047
Long-run variance	0.117575			

The Wald test in Table 7 shows that the *F*-distribution (F = 0.690 and p = 0.5603) and the Chi-Square distribution ($X^2 = 2.070$ and p = 0.5581) have corresponding p-values higher than 0.05; therefore, technical reverse variables do not have a joint significant influence on solvency margin. This approves the null hypothesis in relation to the study hypothesis.

The regression results obtained from the Fully Modified Least Squares (FMOLS) estimation provide deeper insights into the impact of technical reserves and firm-specific characteristics on solvency margin. The analysis indicates that UPR has a significant positive effect on SM (β = 1.263, p = 0.0328), implying that higher unearned premium reserves enhance an insurer's financial stability. Similarly, IBNR also positively influences SM (β = 0.344, p = 0.0390),

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suggesting that insurers who allocate reserves for unreported claims are better positioned to manage future liabilities and maintain solvency.

Table 7. Wald Test Statistic

Test Statistic	Value	Df	Probability
F-statistic	0.689909	(5, 104)	0.5603
Chi-square	2.069726	5	0.5581

Source: Author's Computation (2025), Using E-Views 9

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Conversely, CR does not exhibit a significant impact on SM (β = -0.011, p = 0.2593), implying that contingency reserves may not directly contribute to solvency stability. Firm size is found to have a strong and positive influence on solvency margin (β = 1.010, p = 0.0000), highlighting the importance of economies of scale and financial capacity in ensuring long-term financial health. Interestingly, profit margin negatively affects solvency margin (coefficient = -1.180, p = 0.0104), suggesting that firms with higher profitability may prioritize risk-taking over capital retention, potentially reducing their solvency.

Discussion

From a theoretical perspective, the positive relationship between UPR and solvency aligns with RBC theory's prediction that liabilities matched by adequate reserves enhance financial resilience. UPR represents unexpired risk periods during which claims may arise; thus, higher UPR indicates conservative premium recognition practices that strengthen solvency positions. This finding validates the RBC framework's emphasis on matching asset-liability duration and maintaining risk-adjusted capital. The significant coefficient (β = 1.263, p = 0.0328) demonstrates that each unit increase in unearned premium reserves corresponds to a substantial improvement in solvency margin, confirming the practical relevance of this theoretical relationship in Nigerian context.

The findings of this study make explicit contributions to both RBC theory and solvency literature in several dimensions. Regarding RBC theory, the differential effects of reserve components validate the theory's core principle that capital adequacy should be assessed on a risk-adjusted, component-specific basis rather than through aggregate measures. The positive significance of UPR and IBNR reserves, contrasted with contingency reserves' insignificance, demonstrates that not all reserves contribute equally to solvency despite superficial similarity as "technical reserves." This finding extends RBC theory by suggesting that regulatory frameworks should assign risk-weights to reserve categories based on empirical evidence of their solvency contribution rather than treating all reserves uniformly. For solvency literature more broadly, this study advances understanding by demonstrating that reserve composition not merely reserve magnitude determines effectiveness in supporting financial stability. This insight is particularly valuable for emerging market contexts where capital efficiency is paramount due to resource constraints.

The significant impact of IBNR reserves on solvency further supports RBC theory by demonstrating that forward-looking risk provisioning contributes to financial stability. Insurers accurately estimating unreported claims reduces the probability of adverse reserve development, which is a primary cause of insurer insolvency. This finding reinforces the RBC principle that capital requirements should reflect the uncertainty inherent in liability estimation. The positive coefficient (β = 0.344, p = 0.0390) suggests that prudent IBNR

reserving practices provide meaningful protection against unexpected claim emergence, validating actuarial approaches to incurred-but-not-reported loss estimation.

Conversely, the insignificant effect of contingency reserves challenges traditional reserve adequacy frameworks. While contingency reserves theoretically provide buffers against catastrophic losses and adverse economic cycles, their weak relationship with solvency in this study ($\beta = -0.011$, $p = 0.2593$) suggests potential issues with reserve deployment, regulatory enforcement, or actuarial calibration in Nigeria's market. This divergence from RBC theory's predictions warrants investigation into the institutional factors that affect reserve effectiveness in emerging markets. Possible explanations include: (1) inadequate size of contingency reserves relative to actual risk exposure, (2) accounting treatments that limit reserves' availability for solvency support, or (3) regulatory frameworks that inadequately link contingency reserves to risk-based capital requirements.

The study highlights the nuanced relationship between technical reserves and solvency margins in Nigeria's non-life insurance sector. Unearned premium reserves (UPR) and incurred but not reported (IBNR) reserves significantly influence solvency margins ($p<0.05$), aligning with a study by Ahmed et al. (2024), which emphasizes the importance of reserve adequacy for financial stability. Conversely, contingency reserves (CR) do not significantly impact solvency ($p>0.05$). Firm size positively affects solvency ($p<0.05$), supporting findings by Ali et al. (2019) and Ahmed et al. (2024), who highlight capital base and risk diversification as key factors. Profit margin also significantly influences solvency ($p<0.05$), reinforcing Siddik et al. (2022). However, technical reserves collectively do not have a joint significant impact on solvency ($p>0.05$), echoing Rubio-Misas and Moreno (2017) and Todevski and Fotov (2016), who argue that cost efficiency and premium growth exert a stronger influence.

The findings imply that insurers should prioritize UPR and IBNR allocations for financial stability while reassessing the effectiveness of contingency reserves. Smaller firms may enhance solvency through strategic growth initiatives such as mergers or capital expansion. The negative impact of profit margins on solvency suggests insurers should balance profitability with reinvestment in reserves. Regulatory bodies like NAICOM should enforce stricter solvency compliance, capital adequacy measures, and stress testing to strengthen financial resilience in the sector. These insights provide a foundation for improving financial strategies and regulatory oversight in Nigeria's non-life insurance industry.

Theoretical Implication

This study makes several important theoretical contributions to Risk-Based Capital (RBC) theory and the broader insurance solvency literature. First, it provides empirical validation of RBC theory's core premise that risk-adjusted capital requirements enhance financial stability, particularly in emerging market contexts. The positive relationship between unearned premium reserves (UPR) and solvency margins supports the RBC framework's emphasis on matching liabilities with adequate capital buffers. Specifically, insurers maintaining higher UPR demonstrate stronger solvency positions, confirming that premium reserves function as an effective first line of defence against unexpected loss volatility. This finding validates RBC principles beyond their originally developed-market applications, demonstrating their relevance in institutional environments with different characteristics.

Second, the study extends RBC theory by demonstrating differential effects of reserve components on solvency. The finding that IBNR reserves positively influence solvency while contingency reserves show no significant effect suggests that RBC frameworks should weight reserve categories differently based on their risk sensitivity and effectiveness in buffering financial shocks. This challenges the traditional approach of treating all technical reserves as equally contributory to solvency and supports more nuanced, component-specific capital requirements. The differential impact indicates that reserve composition matters more than

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aggregate reserve levels, advancing theoretical understanding of how specific reserve types contribute to financial resilience.

Third, this research contributes to understanding the applicability of the RBC theory in emerging markets. While RBC frameworks were developed primarily for mature insurance markets with sophisticated actuarial infrastructure, our findings demonstrate that similar risk-capital relationships exist in developing contexts. However, the weaker explanatory power of contingency reserves in Nigeria compared to developed markets suggests that institutional factors, including regulatory enforcement capacity, actuarial proficiency, and market discipline mechanisms, mediate the effectiveness of RBC theory. This insight is particularly relevant for emerging-market regulators seeking to adopt risk-based solvency frameworks, as it underscores the importance of complementary institutional development alongside regulatory reform.

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Fourth, the study enriches the literature on technical reserve adequacy by providing empirical evidence from Sub-Saharan Africa, a region underrepresented in insurance research. The findings demonstrate that reserve composition matters more than aggregate reserve levels for solvency outcomes, advancing theoretical understanding relevant to emerging-market insurers operating under capital constraints. This component-specific insight suggests that targeted reserve strategies may be more efficient than blanket reserve accumulation, with important implications for optimal capital allocation in resource-constrained environments.

Finally, our research contributes to the ongoing debate about optimal solvency regulation in developing economies. The finding that current technical reserve practices do not jointly ensure solvency stability implies that Nigeria's regulatory framework may benefit from revisions that align more closely with risk-based solvency models (such as the Solvency II principles) rather than the current rules-based approach. This has implications for regulatory theory in contexts where supervisory capacity and data infrastructure remain underdeveloped, suggesting that the transition to risk-based frameworks must be accompanied by investments in actuarial capacity, supervisory expertise, and market transparency.

Societal and Economic Implications

Beyond academic and industry contributions, this study has significant societal implications for Nigeria's financial system and broader economic development. First and foremost, ensuring adequate solvency margins through proper reserve management directly protects policyholders, both individuals and businesses, from the catastrophic risk of insurer insolvency. Insurance provides crucial financial protection for health, property, livelihoods, and business operations; insurer failures can therefore have cascading effects on household welfare and business continuity. The 30% of Nigerian non-life insurers failing to meet minimum solvency requirements (NAICOM, 2022) represents not merely a regulatory concern but a direct threat to millions of policyholders who depend on insurance for risk mitigation. Our findings provide evidence-based guidance for strengthening policyholder protection mechanisms through targeted reserve management, particularly emphasizing UPR and IBNR adequacy, which directly correlate with claim-paying ability.

Second, the study's implications extend to financial system stability and macroprudential oversight. Insurance companies are significant institutional investors in Nigeria's financial markets, collectively holding substantial portfolios of government bonds, corporate securities, equities, and real estate. Insurer insolvency can trigger asset fire sales that disrupt financial markets, create liquidity crises, and generate systemic contagion effects affecting banks, pension funds, and capital markets. The interconnectedness of Nigeria's financial sector means that insurance solvency concerns are not isolated but pose broader systemic risks. By

identifying specific factors that enhance solvency particularly firm size and prudent reserve management, this research contributes to macroprudential policy frameworks aimed at maintaining financial system resilience. Regulators can use these findings to develop early warning systems, stress testing protocols, and graduated intervention mechanisms that prevent localized insurer distress from escalating into systemic crises.

Third, stable insurance markets constitute essential infrastructure for economic development and productive investment. Small and medium enterprises (SMEs), which constitute over 90% of Nigerian businesses and contribute approximately 48% to GDP, rely on insurance to manage operational risks ranging from property damage to business interruption to professional liability. Without credible insurance protection, SMEs face constrained growth prospects as they either self-insure (tying up scarce capital) or avoid risk-taking entirely (limiting innovation and expansion). Insurer insolvency erodes confidence in the insurance sector, reducing insurance penetration and constraining economic dynamism. Our findings provide actionable insights for regulators and insurers seeking to enhance market confidence through demonstrably sound solvency frameworks, potentially accelerating insurance penetration from Nigeria's current sub-1% of GDP toward African regional averages of 3-4% and ultimately contributing to inclusive economic growth.

Fourth, employment implications merit serious consideration within Nigeria's challenging labour market context. The insurance sector directly employs over 20,000 professionals and supports thousands more in ancillary services including insurance brokerage, loss adjustment, actuarial consulting, and risk management. Insurer failures result not only in direct job losses but also in erosion of specialized human capital actuaries, underwriters, and risk managers whose skills require years to develop and are crucial for sector sophistication. Beyond direct employment, a robust insurance sector enables job creation in insured businesses that might otherwise avoid growth-oriented risk-taking. By identifying pathways to improved solvency through evidence-based reserve management, this study contributes to employment stability and professional opportunity creation in Nigeria's formal financial sector.

Finally, this research supports Nigeria's broader financial inclusion and sustainable development objectives. The National Financial Inclusion Strategy targets 95% financial inclusion by 2024, with insurance playing a crucial role in protecting vulnerable populations from catastrophic shocks that can reverse development gains. Low-income households particularly depend on microinsurance and agricultural insurance products that require financially stable providers. Insurance penetration also relates directly to multiple Sustainable Development Goals (SDGs), including poverty reduction (SDG 1), health coverage (SDG 3), economic growth (SDG 8), and reduced inequalities (SDG 10). Strengthening solvency frameworks based on empirical evidence can enhance consumer trust and regulatory credibility, potentially accelerating insurance adoption among underserved populations and contributing to Nigeria's development trajectory. The findings thus resonate beyond technical insurance regulation to connect with fundamental questions of inclusive development and poverty reduction in Africa's most populous nation.

Conclusions

This study examined the impact of reserves and firm characteristics on the solvency margins of non-life insurance companies in Nigeria. The findings indicate that unearned premium reserves (UPR) and incurred but not reported (IBNR) reserves significantly enhance solvency, while contingency reserves have little effect. Larger firms benefit from economies of scale, whereas high profit margins may undermine solvency, underscoring the need to balance profitability with financial sustainability.

To strengthen solvency, insurers should maintain adequate UPR and IBNR reserves through actuarial modeling, regular reviews, and sound governance, while smaller firms should explore

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growth strategies such as mergers or capital expansion. Regulators, particularly NAICOM, should enforce risk-based capital approaches, stress testing, and capacity building, supported by standardized IBNR methodologies and early warning systems. Industry stakeholders should promote professional development and knowledge sharing to improve reserving practices. Implementing these measures will enhance financial stability, regulatory compliance, and long-term sustainability in Nigeria's non-life insurance sector.

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Limitations and Suggestions for Future Studies

This study is subject to several limitations. First, the data were restricted to a selected sample of non-life insurance companies in Nigeria, which may limit the generalizability of the findings to the broader industry. Additionally, variations in the availability and quality of financial and technical reserve data across companies may affect the precision of the regression results. The study also covers a specific historical period, meaning that subsequent changes in regulatory frameworks, market conditions, or economic factors may influence current solvency dynamics. While technical reserves were disaggregated into Unearned Premium Reserves (UPR), Incurred but Not Reported (IBNR) reserves, and contingency reserves, other potential determinants of solvency margins, such as investment performance and macroeconomic shocks, were not fully incorporated. Furthermore, a primarily cross-sectional regression design limits the ability to capture dynamic, time-dependent effects on solvency outcomes.

Based on these limitations, several suggestions are proposed for future research. Subsequent studies could expand the sample to include a broader range of insurance companies, including life and composite insurers, to improve generalizability. Longitudinal or panel data analyses would provide insights into how technical reserves and solvency margins evolve over time under varying economic and regulatory conditions. Future research could also incorporate additional variables such as investment risk, reinsurance arrangements, and macroeconomic indicators to better understand their combined impact on solvency. Comparative studies across different countries or regions within Africa could help assess how regulatory frameworks, reserve practices, and market conditions influence solvency outcomes. Finally, employing advanced actuarial and econometric methodologies, such as stochastic reserving techniques or risk-based capital simulations, could yield more precise estimates of the relationships between technical reserves and solvency margins. Addressing these areas in future studies will strengthen the understanding of solvency management practices in the Nigerian insurance sector and support evidence-based decision-making.

Reference

Abass, O. A., Dansu, S. F., & Oyetayo, Y. A. (2021). On the technical characteristics of insurance operations and financial performance of non-life insurance companies in Nigeria. *Acta Universitatis Danubius. Œconomica*, *17*(6), 189-205.

Ahmed, M. A., Khalil, M. A., & Hassan, W. (2024). Factors influencing solvency margin of the Egyptian insurance companies. The Academic Journal of Contemporary Commercial Research, 4(3), 48-67. https://doi.org/10.21608/ajccr.2024.237226.1084

Ali,N., Chanar, Z.A., Ghauri, S.P., Obaid, S. (2019). The effects of firm-specific factors on the financial soundness by using CARAMELS framework indicators: A case of non-life insurance industry of Pakistan. *International Journal of Experiential Learning & Case Studies*, *4*(1), 131–156. https://doi.org/10.22555/ijelcs.v4i1.2687.g536

Anyanwu, J. C., & Salami, A. O. (2021). The impact of COVID-19 on African economies: An introduction. African Development Review, 33 (Suppl 1), S1-S16. https://doi.org/10.1111/1467-8268.12531

Assagaf, A., & Ali, H. (2017). Determinants of financial performance of state-owned enterprises with government subsidy as moderator. *International Journal of Economics and Financial Issues*, *7*(4), 330-342. https://izlik.org/JA32ZP35UW

Babuna, P., Yang, X., Gyilbag, A., Awudi, D. A., Ngmenbelle, D., & Bian, D. (2020). The impact of COVID-19 on the insurance industry. *International Journal of Environmental Research and Public Health, 17*(16), Article 5766. https://doi.org/10.3390/ijerph17165766

Breuer, A., & Staudt, Y. (2022). Equalization reserves for reinsurance and non-life undertakings in Switzerland. Risks, 10(3), Article 55. https://doi.org/10.3390/risks10030055

Eze, C. U., & Nwankwo, S. N. (2016). The role of reserves in sustaining solvency margins in insurance companies: Evidence from Nigeria. *African Journal of Risk Management*, *9*(1), 22–35. https://hdl.handle.net/20.500.14540/24011

Hudakova, M., & Adamko, J. (2016). Technical reserves in insurance and Slovak insurance market. *Economic annals-XXI*, (162), 98-103.

NAICOM. (2020). Prudential guidelines for insurance and reinsurance business in Nigeria. Abuja: National Insurance Commission.

NAICOM. (2022). Annual report on insurance industry performance. National Insurance Commission.

NAICOM. (2023). Insurance industry solvency statistics. National Insurance Commission.

Nigeria Insurance Digest. (2023). *NIA Nigeria insurance digest*.

Nigerian Insurance Association (NIA). (2025). Chairman's statement. Nigeria Insurance Digest. Lagos: Nigerian Insurance Association.

Obalola, M. A., & Abass, O. A. (2016). Demand for reinsurance and solvency of insurance Business in Nigeria: an empirical analysis. *Unilag Journal of Humanities*, *4*(1), 63-79. Retrieved from https://ujh.unilag.edu.ng/article/view/229

Oluwaleye, T. O., Ajemunigbohun, S. S., & Abiodun, K. E. (2023). Underwriting Operations and Financial Performance: Evidence from Non-Life Insurance Firms in Nigeria. *Business Economic, Communication, and Social Sciences Journal (BECOSS)*, *5*(3), 167-176. https://doi.org/10.21512/becossjournal.v5i3.10232

Osho, J. A., & Adeola, K. T. (2019). The downside of over-reliance on reserves for claims incurred but not reported: Implications for insurance solvency. *International Journal of Finance and Insurance Studies*, 7(3), 88–102.

Peksevim, S., & Ercan, M. (2023). Do pension funds provide financial stability? Evidence from European Union countries. *Journal of Financial Services Research, 64*(1), 1-32. https://doi.org/10.1007/s10693-023-00395-8

PWC (2023). Insurance accounting update: Technical provisions and reserves. PricewaterhouseCoopers.

Rubio-Misas, M., & Fernández-Moreno, M. (2017). Solvency surveillance and financial crisis: evidence from the Spanish insurance industry. *Spanish Journal of Finance and Accounting/Revista Española de Financiación y Contabilidad*, *46*(3), 272-297. https://doi.org/10.1080/02102412.2017.1291167

e-ISSN: 3110-7737
DOI: 10.25299/ijbs.2026.22447

Siddik, M. N. A., Hosen, M. E., Miah, M. F., Kabiraj, S., Joghee, S., & Ramakrishnan, S. (2022). Impacts of insurers' financial insolvency on non-life insurance companies' profitability: Evidence from Bangladesh. *International Journal of Financial Studies, 10*(3), 80. https://doi.org/10.3390/ijfs10030080

The Insurance Act. (2003). *Nigeria*.

Todevski, D., & Fotov, R. (2017). The solvency margin determinants for Macedonian insurance sector. *Journal of Economics*, *2*(1), 24-30.

Wong, W. (2022). Factors influencing credit risk and insurance risk in general insurance of indonesia: technical reserve ratio and reinsurance ratio (financial management literature review). *Dinasti International Journal of Management Science*, *4*(2), 195-208. https://doi.org/10.31933/dijms.v4i2.1492

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