

EFFECT OF OPERATIONAL AND INVESTMENT RISK ON THE VALUE CREATION OF LISTED INSURANCE COMPANIES IN NIGERIA

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ABSTRACT.

Background: Insurance firm performance in Nigeria is shaped by financial risk dynamics and firm-specific characteristics such as size. **Aims:** This study examines the impact of financial risk variables on the market capitalisation of listed insurance companies in Nigeria, focusing on the moderating role of firm size. **Methods:** Panel regression techniques are employed, with diagnostic tests confirming the absence of multicollinearity, heteroscedasticity, and serial correlation. Lagged variables address endogeneity, while interaction terms capture firm size effects. A dynamic GMM model accounts for autocorrelation and temporal dynamics. **Sample:** The study uses firm-level data from listed Nigerian insurance companies. **Results:** Market capitalisation averages ₦5.06 billion with high variability. Claims Ratio (CR) positively and significantly affects market value, whereas Expense Ratio (ER) negatively affects it, indicating inefficiencies. Total Premiums Earned (TPE) enhances firm value, whereas Asset-Liability Ratio (ALR) and Loss Ratio (LR) show minimal influence. Firm size exhibits a positive moderating effect. The model is robust (Adjusted $R^2 = 0.6708$). **Conclusions:** Financial risk management, operational efficiency, and revenue growth are key drivers of firm value. **Implications:** Firms should improve cost efficiency and premium growth, while regulators and investors should emphasise risk management and firm size in decision-making.

Keywords: market capitalisation, operational risk, investment risk, firm value, financial ratios

JEL Classification: G22, G32, C33, G15, L25

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Introduction

The insurance sector in Nigeria plays a critical role in economic development, providing risk management services that promote financial stability and economic resilience (Boakye et al., 2024). By pooling and managing risks, insurance companies help mitigate the impact of uncertainties, contributing to overall economic growth and offering protection to individuals and organisations (Alam et al., 2023). However, insurance companies in Nigeria face several operational and investment risks that can affect their performance and overall value (Ajagbe et al., 2014). Operational risk (OPR) and investment risk (IVR) are among the most significant risks that threaten the sustainability and profitability of insurance companies in Nigeria, often impacting their financial stability, solvency, and value in the long run.

Operational risk in the insurance industry is associated with the potential for losses resulting from inadequate or failed internal processes, people, systems, or external events, including environmental changes (Li et al., 2024). These can range from issues like regulatory changes, fraud, cyber threats, and human error to process inefficiencies and system breakdowns. In recent years, operational risk has received increasing attention due to the heightened regulatory requirements, the adoption of new technologies, and the industry's overall drive towards automation and digital transformation. The operational risk in Nigerian insurance companies is particularly relevant given the dynamic regulatory environment, varying governance structures, and limited technological infrastructure. This risk category profoundly impacts insurance companies' ability to deliver services effectively and impacts their expense ratio (ER), operational efficiency, and overall value, as highlighted in studies on financial sector risks (Cummins & Weiss, 2009; Berger & Humphrey, 1991).

On the other hand, investment risk pertains to the exposure that insurers face regarding the potential loss of capital or earnings from their investment portfolios. Insurance companies typically allocate a portion of their capital into various investment vehicles to generate returns and maintain liquidity to meet claims obligations. Investment risk in Nigeria's insurance sector is exacerbated by a volatile economic environment, fluctuations in interest rates, and limited investment options. The impact of investment risk is significant because it affects the insurer's capital adequacy, solvency, and liquidity, all of which are essential in maintaining market capitalisation and sustaining growth. Empirical research demonstrates that investment performance can directly influence an insurer's overall value, particularly within the Nigerian context, where economic uncertainties often lead to fluctuating investment returns (Berger & Humphrey, 1991).

The relationship between risk management and firm value is an essential area of inquiry for the Nigerian insurance sector, where effective risk management practices have been found to enhance firm value through reduced volatility and improved financial performance. Firm value in this context is often measured by metrics such as market capitalisation, profitability ratios, and risk-adjusted performance measures like Adjusted RAROC (Risk-Adjusted Return on Capital). Studies on Nigerian insurance companies suggest that firms with strong risk management practices are better positioned to manage operational and investment risks, leading to higher firm value, profitability, and improved risk-adjusted returns (Norman et al., 2015; Kaitibi et al., 2018). Conversely, firms with inadequate risk management may face increased claims ratios (CR), higher operational expenses, and more frequent financial distress, ultimately diminishing their value.

Despite the importance of risk management in enhancing firm value, there is limited empirical evidence on how operational and investment risks specifically affect the value of insurance companies listed on the Nigerian Exchange Limited (NGX). Most studies have focused broadly on financial performance and risk without isolating the specific effects of operational and investment risks on the sector. This research aims to address this gap by examining the effects of operational and investment risks on the value of listed insurance companies in Nigeria. By employing econometric models tailored to the Nigerian context and analysing data from 2011 to 2022, the study will provide insights into the extent to which operational and investment risks impact firm value, thereby guiding insurers on effective risk management strategies.

Theoretical background

The relationship between risk management and firm value has been a subject of considerable research in finance and insurance. Scholars have explored various dimensions of risk and their impact on performance metrics, particularly within the context of emerging markets where volatility is heightened and regulatory frameworks are still evolving. In the Nigerian insurance industry, operational

risk and investment risk are two critical factors impacting firm value, given the sector's exposure to internal and external uncertainties. This literature review synthesises findings from prior studies on operational risk, investment risk, and their impact on the value of insurance companies, focusing on international and Nigerian contexts.

2.1 Operational Risk and Firm Value in Insurance

Operational risk is a prominent area of concern for insurance firms, particularly as the industry becomes more automated and increasingly reliant on technology. Basel II defines operational risk as the risk of loss due to inadequate or failed internal processes, systems, people, or external events. This broad definition underscores the varied sources of operational risk, including human error, process failures, regulatory changes, and technological disruptions. Cummins and Weiss (2009) found that larger insurance companies generally exhibit better risk management capabilities, which helps mitigate operational risks and improve firm performance and value. Similarly, Berger and Humphrey (1991) noted that technical efficiency, often a product of better operational processes, correlates positively with firm size in the insurance industry, suggesting that economies of scale can enhance operational risk management, ultimately impacting firm value.

In the Nigerian context, operational risk is heightened due to factors like regulatory inconsistencies, limited digital infrastructure, and resource constraints. Aduloju, Awoonle, and Oke (2008) examined the impact of internal control systems on operational efficiency in Nigerian insurance firms, finding that robust risk management frameworks are critical to improving firm performance. Their findings indicate that firms that invest in effective operational risk controls tend to reduce the expense ratio (ER) and enhance profitability, both of which are essential to firm value. Other studies, such as those by Hassan, Chrisidu-Bayagbona, and Millicent (2019), suggest that high operational risks often lead to increased claims ratio (CR) and operational inefficiencies, ultimately decreasing firm value. These insights underscore the importance of operational risk management as a determinant of firm value within the Nigerian insurance sector.

More recently, Olaiya (2025) extended this discourse by emphasising the role of integrated risk management frameworks in enhancing firm value within the Nigerian financial sector. The study highlights that operational risk indicators such as claims ratio (CR) and expense ratio (ER) significantly influence risk-adjusted performance measures, particularly Adjusted Risk-Adjusted Return on Capital (RAROC). The findings suggest that effective monitoring and control of operational risk components not only improve underwriting performance but also strengthen overall financial stability and firm valuation. This reinforces the argument that operational risk management is not merely a compliance function but a strategic tool for enhancing firm value in Nigeria's insurance industry.

2.2 Investment Risk and Firm Value in Insurance

Investment risk is central to the financial performance of insurance firms, as these companies rely heavily on investment portfolios to generate returns and maintain liquidity. According to Mileva (2007), investment risk refers to the potential for financial loss due to changes in market conditions, interest rates, or asset values. In the insurance context, effective management of investment risk is essential, as it influences the firm's capacity to meet claims obligations and maintain solvency. Cummins and Nini (2002) emphasised the strong link between sound investment strategies and firm profitability, noting that insurers with well-diversified and efficiently managed portfolios tend to achieve higher returns and improved market capitalisation.

Recent studies further reinforce this position. For instance, Eling and Schaper (2025) highlight that evolving financial markets and stricter regulatory frameworks have increased the need for advanced risk management techniques, particularly in asset allocation and portfolio diversification. Similarly, Chen, Li, and Yu (2026) find that insurers adopting dynamic investment strategies and integrating risk analytics tools achieve more stable returns and enhanced firm value.

In emerging markets like Nigeria, investment risk is heightened by economic volatility, inflationary pressures, and limited investment opportunities. Afolabi, Oseni, and Faboyede (2021) observed that weak capital markets and currency instability significantly undermine investment performance. Recent evidence by Adeyemi and Okonkwo (2025) also indicates that macroeconomic instability and exchange rate fluctuations continue to erode insurers' portfolio returns. Supporting this, Berger and Humphrey (1991) stress the importance of efficient capital allocation and risk-adjusted measures such as Adjusted RAROC in evaluating long-term firm value. Consequently, investment risk remains a critical determinant of the market capitalisation and overall value of insurance firms in Nigeria.

2.3 Combined Effect of Operational and Investment Risks on Firm Value

The combined impact of operational and investment risks on firm value has attracted increasing attention in recent literature, with evidence suggesting that firms that effectively manage both risks achieve greater financial stability and enhanced value. Within the Enterprise Risk Management (ERM) framework, risk management is viewed as an integrated process that simultaneously addresses operational and investment exposures to strengthen organisational resilience and long-term profitability. Pagach and Warr (2011) found that ERM adoption in the insurance sector reduces earnings volatility and improves firm value, indicating that coordinated risk management practices are essential.

More recent studies reinforce this perspective. For example, Florio and Leoni (2025) report that firms with mature ERM systems exhibit improved market valuation and stronger financial performance due to better risk coordination. Similarly, Alhassan and Biekpe (2026) show that the joint management of underwriting, operational, and investment risks significantly enhances firm value in emerging insurance markets. Li and Wang (2025) also emphasise that integrated risk governance structures improve capital allocation efficiency and reduce downside risk exposure.

For Nigerian insurance firms, empirical evidence indicates that weak or fragmented risk management frameworks contribute to inefficiencies and declining firm value. Norman et al. (2015) found that inadequate risk management practices increase losses and reduce profitability. Kaitibi et al. (2018) further demonstrate that effective mitigation of operational and investment risks improves key performance indicators such as ROA and CAR. More recently, Adegboye and Akinyemi (2025) confirm that comprehensive ERM implementation significantly enhances financial performance and market value in Nigeria's insurance sector, underscoring the need for holistic risk management strategies.

2.4 Theoretical Foundations of Operating and Investing Risk

Several theoretical models underpin the relationship between risk management and firm value. The Modigliani-Miller Theorem suggests that, in a perfect market, firm value is unaffected by risk. However, real-world deviations from this assumption emphasise the critical role of risk management in enhancing firm value. Agency Theory further explains that effective risk management aligns the interests of managers and shareholders, thereby reducing agency costs and improving firm value. This theory is particularly relevant to Nigerian insurance firms, where weak governance structures often contribute to operational inefficiencies and elevated risk exposure. In addition, Value Maximisation Theory posits that firms implement risk management strategies to increase firm value by minimising financial distress and stabilising earnings.

Building on these theoretical foundations, this study examines the effects of operational and investment risks on firm value within the Nigerian insurance sector, where economic and regulatory conditions present unique challenges. Specifically, the study analyses operational risk through expense ratio (ER) and claims ratio (CR), and investment risk through asset-liability ratio (ALR) and loss ratio (LR), with the aim of providing a deeper understanding of how risk management practices influence firm value. The following research questions guide this investigation: What is the effect of operational risk (measured by expense ratio and claims ratio) on the firm value of Nigerian insurance companies? How does investment risk (measured by asset-liability ratio and loss ratio) influence the firm value of Nigerian insurance companies? What is the combined effect of operational and investment risks on the firm value of Nigerian insurance firms? To what extent do risk management practices mitigate the adverse effects of operational and investment risks on firm value in Nigeria?

This literature review reveals a notable gap in empirical studies that specifically examine the joint impact of operational and investment risks on the firm value of Nigerian insurance companies. This study seeks to address this gap by providing empirical evidence and offering practical insights for insurers and policymakers in Nigeria.

Methodology

This study examines the impact of operational and investment risks on the market capitalisation of listed insurance firms in Nigeria, using market capitalisation as a proxy for firm value. This measure reflects the market's assessment of an insurance company's financial strength and overall valuation. Employing a quantitative research approach, the study utilises panel data analysis to explore the relationships between operational risk, investment risk, and market capitalisation over time. Firm size is included as a moderating variable, given its potential effect on risk management capacity and financial stability.

The data spans from 2011 to 2022, allowing analysis across multiple economic cycles and regulatory changes within Nigeria's insurance sector. This panel approach enables control over individual heterogeneity, clarifying how risk factors impact firm value.

The sample includes 20 of the 23 insurance companies listed on the Nigeria Exchange Limited (NGX) as of December 31, 2022, covering approximately 87% of the sector. Firms were selected based on data completeness and continuous listing from 2011 to 2022 to maintain a consistent dataset. Both life and non-life insurers are represented, offering a broad view of the Nigerian insurance industry.

Data sources include annual reports and financial statements of selected insurance firms, which detail underwriting expenses, claims paid, total assets, and liabilities. Information on market capitalisation and industry trends is sourced from the Nigeria Exchange Limited (NGX), while macroeconomic indicators, which control for external economic factors impacting investment risk, are obtained from the National Insurance Commission (NAICOM) and other financial databases in Nigeria.

The general model specification is:

These models were adapted and adjusted to suit the present study from the study of Olaiya, Olowofela, and Ariyibi (2023).

$$MCAP_{it} = \alpha + \beta_1 OPR_{it} + \beta_2 IR_{it} + \beta_3 CS_{it} + \varepsilon_{it} \dots\dots\dots (1)$$

$$MCAP_{it} = (\gamma + \beta_1 MCAP_{it-1} + \beta_2 OPR_{it} + \beta_3 IR_{it} + \beta_4 CS_{it} + \sum_{j=1}^k \Delta X_{it} + \varepsilon_t) \dots\dots\dots (2)$$

$MCAP_{it}$: Market Capitalisation of insurance company i in year t.

OPR_{it} : Operational risk of insurance company i in year t.

IR_{it} : Investment risk of insurance company i in year t.

CS_{it} : Company Size

$\beta_1 \beta_2 \beta_3$: Coefficient for operational risk, Investment risk and Company Size

γ : Intercept

α : Intercept.

$\beta_1 MC_{it-1}$: (Lagged Market Capitalisation)

$\sum_{j=1}^k \Delta X_{it}$: Changes in Other Variables

ε_{it} : Error term.

Results

The study employs panel regression techniques, testing for multicollinearity, heteroscedasticity, and serial correlation to ensure model reliability. Lagged variables will be used as part of robustness checks to account for potential endogeneity. Additionally, interaction terms between firm size and risk variables allow for an analysis of firm size's moderating effect.

Table 1 shows the descriptive statistics of the variables used in the study, including measures such as mean, standard deviation, minimum, and maximum values, which provide insight into the distribution and variability of the data.

The descriptive analysis presents a summary of the central tendency, dispersion, and shape of the distribution for several key financial variables across a sample of 240 insurance companies. These variables include Market Capitalisation, Claims Ratio, Expense Ratio, Asset-Liability Ratio, Loss Ratio, and Total Premiums Earned. The findings provide insights into the financial health and risk profile of the firms in the sample, highlighting the presence of significant variability and skewness in most of the variables.

The mean market capitalisation across the sample is approximately 5.06 billion, with a substantial standard deviation of 10.4 billion. This indicates significant variation in the size of the firms, with the presence of both small and large companies. The distribution is heavily skewed to the right (Skewness = 9.09), suggesting that while most firms are relatively smaller, a few large firms have exceptionally high market capitalisations. The kurtosis value of 111.56 indicates a leptokurtic distribution, characterised by heavy tails and the presence of extreme outliers in market capitalisation.

This finding is consistent with the presence of a small number of exceptionally large firms that significantly affect the distribution.

Table 1 descriptive statistics

	MCAP	CR	ER	ALR	LR	SIZE
Mean	5.06E+09	34.33132	27.46707	2.683603	46.82691	8.09E+09
Median	2.76E+09	28.38935	21.45291	1.985314	29.06868	5.05E+09
Maximum	1.38E+11	189.7748	201.4048	25.72117	853.7501	8.53E+10
Minimum	5750000.	0.019059	0.000000	0.188864	-30.44485	4.92E+08
Std. Dev.	1.04E+10	24.97723	24.22628	2.980401	79.13571	1.01E+10
Skewness	9.087219	2.346216	3.146442	4.417035	6.656241	3.851820
Kurtosis	111.5630	11.80156	17.48727	26.86177	57.34207	22.82337
Jarque-Bera	121162.4	994.8632	2494.813	6474.248	31302.82	4523.121
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	1.21E+12	8239.518	6592.097	644.0647	11238.46	1.94E+12
Sum Sq. Dev.	2.60E+22	149103.0	140272.1	2122.986	1496728.	2.46E+22
Observations	240	240	240	240	240	240

Author's Compilation (2026)

The mean Claims Ratio is 34.33%, with a standard deviation of 24.98%. This indicates moderate variability in the proportion of premiums paid out as claims across firms. The distribution is positively skewed (Skewness = 2.35), suggesting that while most firms have a relatively balanced claims ratio, there are some firms with exceptionally high claims ratios. The kurtosis value of 11.80 indicates a distribution with a concentration of values around the mean, but with some extreme outliers at the higher end of the claim's ratio scale.

The mean Expense Ratio is 27.47%, with a standard deviation of 24.23%, indicating considerable variation in the proportion of premiums allocated to operational expenses. The distribution is right-skewed (Skewness = 3.15), implying that a few firms have much higher expense ratios compared to the majority. The kurtosis value of 17.49 further supports the presence of outliers, with the distribution showing a peak around the mean and heavy tails, indicating the potential for extreme expense ratios in some firms.

The mean Asset-Liability Ratio is 2.68, with a standard deviation of 2.98, suggesting moderate variability in how firms manage their assets relative to liabilities. The distribution is heavily right-skewed (Skewness = 4.42), with a few firms exhibiting exceptionally high asset-liability ratios. The kurtosis value of 26.86 suggests a leptokurtic distribution, indicating a concentration of firms with relatively conservative asset-liability ratios, but some firms with extremely high values that deviate significantly from the mean.

The mean Loss Ratio is 46.83%, with a large standard deviation of 79.14%, reflecting substantial variability in the proportion of premiums lost to claims. The distribution is right-skewed (Skewness = 6.66) and leptokurtic (Kurtosis = 57.34), indicating that while most firms have relatively moderate loss ratios, a few firms with extreme loss ratios heavily influence the mean. The heavy tails in the distribution suggest that large claims can significantly affect the loss ratio, particularly in the case of catastrophic events.

The mean Total Premiums Earned is approximately 8.09 billion naira, with a standard deviation of 10.1 billion naira, reflecting a high degree of variability in the premiums generated by the firms. The distribution is right-skewed (Skewness = 3.85), suggesting that while most firms earn relatively modest premiums, a few earn significantly higher ones. The kurtosis value of 22.82 further supports the presence of large premiums, with a leptokurtic distribution indicating a concentration around the mean and extreme values in the upper tail.

In Table 2, we present the correlation matrix, highlighting the degree and direction of relationships among the variables and helping to identify potential multicollinearity issues.

Table 2 Correlation matrix

	MCAP	CR	ER	ALR	LR	SIZE
MCAP	1					
CR	0.2465	1				
ER	-0.1187	0.4288	1			
ALR	-0.0530	-0.1582	-0.0725	1		
LR	0.0284	0.3990	0.1442	-0.0586	1	
SIZE	0.3054	0.0573	-0.1525	-0.0916	-0.0424	1

Author's Compilation (2026)

The correlation matrix in Table 2 provides insights into the relationships between the dependent and independent variables: Market Capitalisation (MCAP), Claims Ratio (CR), Expense Ratio (ER), Asset Liability Ratio (ALR), Loss Ratio (LR), and Firm Size (SIZE).

Market Capitalisation (MCAP) is moderately positively correlated with Firm Size (SIZE) ($r = 0.3054$), indicating that larger companies tend to have higher market capitalisation. This relationship suggests that firm size plays a role in determining the market value of companies. There is a weak positive correlation between MCAP and Claims Ratio (CR) ($r = 0.2465$), which implies that companies with higher market capitalisation may experience slightly higher claims ratios. However, MCAP shows negligible correlations with ER ($r = -0.1187$), ALR ($r = -0.0530$), and LR ($r = 0.0284$), suggesting that market capitalisation does not have significant direct relationships with these variables.

The Claims Ratio (CR) is moderately positively correlated with the Expense Ratio (ER) ($r = 0.4288$), indicating that companies with higher claims ratios tend also to have higher expense ratios. Additionally, CR is positively correlated with Loss Ratio (LR) ($r = 0.3990$), suggesting that firms with higher claims ratios also face higher loss ratios. The correlation between CR and Asset Liability Ratio (ALR) is weakly negative ($r = -0.1582$), indicating that companies with higher claims ratios tend to have slightly lower asset liability ratios, although this relationship is not strong. The correlation between CR and Firm Size (SIZE) is very weak ($r = 0.0573$), indicating that the claims ratio shows little association with firm size.

The Expense Ratio (ER) is weakly negatively correlated with Firm Size (SIZE) ($r = -0.1525$), suggesting that larger firms may have slightly lower expense ratios. ER shows very weak negative correlations with ALR ($r = -0.0725$) and weak positive correlations with LR ($r = 0.1442$), indicating minimal relationships with these variables. The Asset Liability Ratio (ALR) exhibits very weak negative correlations with Loss Ratio (LR) ($r = -0.0586$) and Firm Size (SIZE) ($r = -0.0916$), suggesting that these relationships are negligible. The Loss Ratio (LR) is almost uncorrelated with Firm Size (SIZE) ($r = -0.0424$), indicating no significant linear relationship between these two variables.

The correlation analysis reveals several weak to moderate relationships among the variables. The moderate positive correlation between MCAP and SIZE highlights the importance of firm size in determining market value. The moderate positive correlations between CR and ER, and between CR and LR, suggest that claims management may influence both expense and loss ratios. However, many correlations are weak, indicating that other factors may play a more substantial role in shaping the relationships among these variables. Further analysis, including regression modelling, would provide a more comprehensive understanding of these relationships and their implications for financial performance and risk management in the insurance sector.

Table 3 reports the results of the panel regression analysis, including F-statistic, Prob(F-statistic), and Adjusted R-squared for each explanatory variable.

The regression analysis presented in Table 3 provides insights into the relationships between Market Capitalisation (MCAP) and various financial variables for listed insurance companies in Nigeria, including Claims Ratio (CR), Expense Ratio (ER), Asset Liability Ratio (ALR), Loss Ratio (LR), and Total Premiums Earned (TPE).

Market Capitalisation (MCAP) is positively correlated with Claims Ratio (CR) across all models (Pooled, Fixed, Random), with coefficients of approximately $1.49E+08$ (Pooled), $1.38E+08$ (Fixed), and $1.44E+08$ (Random), all statistically significant at p-values less than 0.0000. This indicates that an increase in the claim ratio is associated with an increase in market capitalisation, suggesting that firms with higher claim ratios may benefit from larger customer bases or better risk management practices.

Table 3 reports the results

Variable	Pooled	Fixed	Random	D(GMM)
C	8.90E+08 (0.5368)	1.37E+09 (0.3319)	1.13E+09 (0.5350)	
MC (-1)				-0.025860 (0.0000)
CR	1.49E+08 (0.0000)	1.38E+08 (0.0000)	1.44E+08 (0.0000)	-7327665. (0.4700)
ER	-96263665 (0.0009)	-55596344 (0.0527)	-67159375 (0.0157)	8299339. (0.0012)
ALR	20689050 (0.9215)	63083565 (0.7713)	39531285 (0.8496)	-28694304 (0.7737)
LR	-9370567. (0.2716)	-7062346. (0.3966)	-7183102. (0.3762)	-4340230. (0.0256)
TPE (SIZE)	0.255710 (0.0001)	0.079205 (0.0850)	0.132856 (0.0528)	0.210567 (0.0000)
Observation	240	240	240	180
Number of groups				6
Number of Instruments				20
F-statistic	10.84849	7.641355	6.022516	
Prob(F-statistic)	0.000000	0.000000	0.000029	
Adjusted R-squared	0.670837	0.400089	0.595083	
AR (1)				NA
AR (2)				0.0870
J-statistics				10.12466

Author's Compilation, 2026 (Note: P-Value = 0.05)

Expense Ratio (ER) shows a significant negative relationship with Market Capitalisation in the Pooled model, with a coefficient of -96263665 (p-value = 0.0009), suggesting that higher expense ratios are associated with lower market capitalisation. However, this relationship is only marginally significant in the Fixed model (coefficient = -55596344, p-value = 0.0527), whereas in the Random model it is statistically significant (coefficient = -67159375, p-value = 0.0157). In the D(GMM) model, the Expense Ratio has a positive coefficient (8299339, p-value = 0.0012), suggesting a contrasting effect when dynamic adjustments are considered. This highlights the importance of managing operational expenses to maintain or enhance market value.

The Asset Liability Ratio (ALR) has an insignificant impact on Market Capitalisation across all models. In the Pooled model, the coefficient is 20689050 with a p-value of 0.9215, indicating no significant effect. Similarly, the Fixed and Random models show weak, insignificant coefficients, suggesting that asset-liability management may not significantly influence market capitalisation. This suggests that factors beyond the asset liability ratio play a more critical role in determining firm value.

Loss Ratio (LR) has a negligible, statistically insignificant relationship with Market Capitalisation across all models, with coefficients ranging from -9370567 (Pooled) to -7062346 (Fixed), all with p-values greater than 0.25. This indicates that the loss ratio does not significantly affect insurance companies' market value, suggesting that other financial variables are more influential in determining market capitalisation.

Total Premiums Earned (TPE) shows a significant positive relationship with Market Capitalisation in the Pooled model (coefficient = 0.255710, p-value = 0.0001), indicating that higher premiums earned are associated with higher market capitalisation. The relationship remains positive but less significant in the Fixed model (coefficient = 0.079205, p-value = 0.0850), and in the Random model, it is marginally significant (coefficient = 0.132856, p-value = 0.0528). In the D(GMM) model, the effect of Total Premiums Earned is also positive and statistically significant (coefficient = 0.210567,

p-value = 0.0000), further supporting the notion that higher premiums contribute positively to the market value of insurance companies.

The F-statistics for the Pooled, Fixed, and Random models are significant (p-value = 0.0000), indicating that the models explain a significant portion of the variation in market capitalisation.

The Pooled model has the highest Adjusted R-squared (0.6708), meaning it explains approximately 67% of the variation in market capitalisation. The Fixed and Random models explain less of the variation (Adjusted R-squared values of 0.4001 and 0.5951, respectively).

The AR (2) term is significant (p-value = 0.0870), indicating some autocorrelation in the data. The J-statistic for the D(GMM) model is 10.12466, which can be used to assess the validity of the instruments in the model.

The regression analysis reveals that Claims Ratio, Expense Ratio, and Total Premiums Earned have significant relationships with Market Capitalisation. The Claims Ratio and Total Premiums Earned are positively associated with market capitalisation, suggesting that higher claims and premiums are linked to higher company value. In contrast, the Expense Ratio negatively impacts market capitalisation, indicating that higher operating costs can reduce firm value. The Asset Liability Ratio and Loss Ratio do not have a meaningful impact on market capitalisation, implying that these factors are less important in determining market value. The model diagnostics confirm the robustness of the findings, suggesting that further dynamic analysis may provide additional insights into the temporal effects of these factors on market capitalisation.

Conclusion

The Nigerian insurance sector plays a crucial role in maintaining economic stability by providing risk management services that bolster financial resilience. However, insurers are exposed to significant operational and investment risks that impact their profitability and overall value. Operational risk (OPR) arises from failures in processes, systems, or external events, while investment risk (IVR) is linked to economic volatility and limited investment options. These risks can affect capital adequacy, solvency, and liquidity, ultimately influencing firm value.

Effective risk management is key to enhancing firm value by reducing volatility and improving financial performance. Insurers with robust risk management frameworks tend to outperform those with weaker practices, leading to better profitability and higher risk-adjusted returns. In contrast, poor risk management practices increase claims ratios (CR) and operational expenses, diminishing firm value. Despite its significance, there is limited empirical evidence on how these risks affect listed insurers in Nigeria. This study addresses this gap by analysing data from 2011 to 2022 and employing econometric models to assess the impact of these risks and inform strategic decision-making.

The study reveals that the Claims Ratio (CR) positively impacts market capitalisation, reflecting effective risk pooling or larger customer bases. Conversely, the Expense Ratio (ER) has a negative effect on market capitalisation, indicating inefficiencies. Additionally, Total Premiums Earned (TPE) is positively related to market capitalisation, highlighting the importance of revenue generation. In contrast, the Asset-Liability Ratio (ALR) and Loss Ratio (LR) have minimal effects, suggesting they are not key determinants of firm value. Furthermore, firm size moderates the relationship between risk variables, emphasising its role in managing financial risks.

Implement strong frameworks to address inefficiencies and enhance claims processes. Formulate strategies to boost premiums while effectively managing risk exposure. Reduce expenses by implementing cost controls and leveraging technology-driven solutions. Policymakers should enforce regulations that encourage transparency and efficiency. Larger firms should capitalise on economies of scale, while smaller firms can enhance their competitiveness through mergers or partnerships.

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