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Fire insurance premium rating and performance of insurance companies in Nigeria: Pre-Covid Era

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Abstract

This study explores the importance of accurate fire insurance premium ratings and examines the challenges faced by insurers in Nigeria, which affect their overall performance. Specifically, it analyzes the impact of premium ratings on key performance indicators such as shareholder value, investment portfolios, and profitability. A descriptive survey research design was employed, utilizing secondary data sourced from the e-view platform. This method was chosen for its ability to access sensitive information while mitigating potential risks associated with direct observation. The research focused on the audited financial statements of 15 licensed general insurance companies in Nigeria over a 20-year span (1999-2019). Data was randomly sampled to ensure every member of the population had an equal chance of selection, thereby reducing bias. The financial statements were obtained from the Nigerian Stock Exchange (NSE) and Central Bank of Nigeria (CBN) databases. Both descriptive and inferential statistical methods were used for analysis. The findings revealed a significant relationship between adequate premium ratings and key determinants of property insurance, including investment portfolios, profitability, and shareholders' capital adequacy.

Keywords: *shareholder, investment, profitability, premium rating, performance*

Introduction

The premium rating strategy employed by insurance companies is a critical determinant of their financial performance. Premium rating refers to the process of determining the prices for insurance policies by taking into account various factors such as risk, market competition, and regulatory frameworks. Pynatih et, al; (2024) stated that this strategy not only influences the company's ability to attract and retain clients but also has a profound impact on key financial metrics like profitability, investment potential, and shareholder value.

Gudisa (2021) highlights that, despite the significance of accurate fire insurance premium ratings, insurers in Nigeria face numerous challenges that undermine their performance. These include limited access to reliable data on historical losses, fraudulent claims, and stringent regulatory constraints, all of which pose significant barriers to the sector's profitability. These challenges contribute to information asymmetry in the Nigerian insurance market, weakening trust between insurers and policyholders. Singh and Bathla (2023) emphasize the importance of understanding risk perception when designing fire insurance products, stressing that insurers must align their offerings with the risk profiles of their customers. Moreover, economic fluctuations, policy changes, and socio-political instability affect the demand for fire insurance, directly influencing the profitability of insurers. Therefore, insurers must adapt to these market dynamics to remain competitive.

The regulatory environment plays a pivotal role in shaping the operations of fire insurers in Nigeria. For instance, stringent regulations on solvency margins, capital requirements, and claims settlement procedures are critical for maintaining stability in the insurance sector. Compliance with these regulations is essential for consumer protection and for fostering trust in the industry. Consequently, insurers must enhance transparency and improve communication with policyholders to maintain long-term sustainability.

In the current competitive insurance market, companies must strike a delicate balance between premium pricing and risk management. Overpricing premiums can lead to customer attrition, while underpricing could result in insufficient funds to cover claims, negatively impacting profitability. Bikker and Popescu (2014) found that the ability to optimize premiums has a direct influence on insurers' underwriting profitability and market share.

Premium rating also has a significant impact on shareholder value, which is particularly important as shareholders continuously assess a company's financial health. Premium rating directly affects profit margins, and sustained profitability leads to higher dividend payouts and an increase in stock value, ultimately benefiting shareholders Upreti, V., Adams, M., & Jia, 2022); Cummins and Phillips (2005).

In addition, premium rating plays a crucial role in determining a company's investment capacity. Insurance firms generate substantial income through investments funded by their premium reserves. A well-structured premium rating strategy ensures that sufficient capital reserves are available for investment, contributing to long-term financial growth and stability Akinradewoet, al;(2022). Therefore, a thoughtful approach to premium rating is vital for maintaining investment liquidity while safeguarding both profitability and shareholder returns.

Technological advancements have also begun to transform fire insurance operations in Nigeria. The adoption of digital platforms for risk assessment, underwriting, and claims processing has not only improved efficiency but has also reduced operational costs for insurers. These innovations are essential for insurers to remain competitive in an ever-evolving market Hassanain, Al-Harogi and Ibrahim (2022). Examining fire insurance rating mechanisms and insurer performance in Nigeria before the COVID-19 pandemic reveals the complex interactions between risk assessment, market dynamics, regulatory compliance, and technological innovation. By addressing issues like inadequate data and regulatory constraints while leveraging technological advancements, Nigerian insurers can improve performance and ensure sustainable growth.

This study will explore the intricate relationship between premium rating and key performance indicators such as profitability, investment potential, and shareholder value in the insurance industry, using empirical data and case studies to illustrate these dynamics.

Review of literature

An Overview of Nigerian Insurance Firms in the Pre-COVID Era

The insurance industry in Nigeria, prior to the COVID-19 pandemic, experienced steady growth, despite a variety of structural challenges and market volatility. Nigerian insurers faced a range of operational hurdles, including regulatory constraints, inadequate infrastructure, and low insurance penetration rates. Nevertheless, insurers made significant strides in improving their service delivery and adopting technological innovations to boost efficiency and reach more customers.

One of the key challenges for Nigerian insurance firms during the pre-COVID era was the low level of insurance penetration. Despite being the largest economy in Africa, Nigeria's insurance penetration rate remained below 1%, largely due to poor awareness, low disposable incomes, and distrust of insurance products (Ogbeide, et, at; 2022; Oke, 2012). Many Nigerians viewed insurance as an unnecessary luxury rather than a critical financial safety net. This perception, coupled with a weak regulatory framework, limited the industry's ability to expand its customer base and generate premium income.

Moreover, the regulatory landscape significantly influenced the operations of Nigerian insurers before the pandemic. The National Insurance Commission (NAICOM) played a central role in shaping the industry's development. In particular, NAICOM introduced stricter capital requirements in a bid to consolidate the industry and enhance the financial stability of insurance firms. The increased capital requirements, though essential for reducing the risk of insolvency, also led to the exit of several smaller players from the market who could not meet the new thresholds Adegoke, 2020; Akotey, Osei, and Gemegah (2013). Larger, more established firms were better positioned to weather the regulatory storm, but the consolidation also reduced competition in the market, affecting pricing and innovation.

Technological advancements also played an important role in shaping the operations of Nigerian insurance firms before the COVID-19 pandemic. Firms began embracing digital platforms to streamline processes such as underwriting, premium collection, and claims management. The adoption of mobile insurance platforms, for example, allowed insurers to reach previously underserved customers in remote areas, thus expanding their customer base Hassanain, Al-Harogi, and Ibrahim (2022). However, the pace of technological adoption varied widely across firms, with some lagging behind due to high implementation costs and inadequate digital infrastructure.

In terms of product offerings, life insurance, health insurance, and general insurance (such as fire and motor insurance) dominated the Nigerian insurance market before the pandemic. Life insurance, in particular, saw increased uptake as more Nigerians began to recognize the importance of financial planning and risk management. However, general insurance products, such as motor insurance, remained the most commonly purchased due to mandatory insurance requirements Adegoke (2020).

Additionally, the Nigerian insurance market was significantly influenced by macroeconomic factors during the pre-COVID era. The country's dependence on oil revenue and the volatility of global oil prices had direct consequences for the financial health of both insurers and their customers. Fluctuations in oil prices affected government revenues and, by extension, economic growth, which in turn influenced the demand for insurance products. Economic recessions, such as the one experienced in 2016, further strained the sector, reducing disposable incomes and dampening demand for insurance Taiwo, (2019); Gbenro (2019).

Despite these challenges, Nigerian insurers displayed resilience and adaptability during the pre-COVID era. Companies that embraced technological innovations and diversified their product offerings managed to improve operational efficiency and profitability. The period also saw increased foreign investment in the sector, with global insurance giants entering the Nigerian market through partnerships and acquisitions, further boosting industry growth and modernization.

In Conclusion, the pre-COVID era for Nigerian insurance firms was characterized by both challenges and opportunities. While the sector struggled with low insurance penetration, regulatory constraints, and economic volatility, there were notable advancements in

technology and product diversification. The introduction of stricter regulatory frameworks and digital transformation provided a foundation for growth, positioning the industry for resilience in the face of future disruptions, including the COVID-19 pandemic. Understanding these pre-COVID dynamics is crucial for assessing the future trajectory of Nigeria's insurance industry.

Concept of Insurance Premium Rating

Insurance premium rating refers to the process by which insurers determine the cost that an individual or business must pay for insurance coverage. According to Investopedia (2023), an insurance premium is the amount paid for policies such as health, auto, home, and life insurance. The premium serves as income for the insurer but also represents a liability if not paid, leading to potential policy cancellation. Premium payment frequencies vary, with options for quarterly, monthly, or semi-annual payments. Several factors affect premium pricing, including coverage type, policyholder's age, location, claims history, moral hazard, and adverse selection. These elements help policyholders make informed choices and find affordable coverage.

Esfandabadi et al. (2023) explain that the premium rating process involves assessing factors such as the value and location of the insured property, as well as the risks of loss or damage. This process is crucial for ensuring that insurers remain financially stable and capable of covering potential claims. Meanwhile, Kaushik et al. (2022) emphasize that premium rating is not only important for insurers but also helps individuals and businesses understand their insurance costs, aiding in informed decision-making. The introduction of modern technologies and risk assessment tools has evolved the premium rating process, making it a vital part of risk management strategies for businesses and property owners.

In summary, insurance premium rating is essential for both insurers and policyholders, ensuring fair pricing and the financial stability of insurance companies, while guiding consumers in their coverage decisions.

Theoretical Framework

Property-Liability Insurance Pricing Models

Property-liability insurance pricing models aim to determine appropriate insurance rates by integrating both underwriting and investment performance. The theory was propounded by D'Arcy and Garven (1990) by (Msomi, and Nzama(2023). Essentially, these models consider various factors to establish premiums that reflect the equilibrium between risk and return. Property-liability insurance pricing models go beyond traditional approaches that ignore investment income. These models combine underwriting and investment aspects to determine insurance rates. Researchers and actuaries explore different models to predict actual underwriting profit margins over extended periods. Scholars evaluate various pricing models (such as option theory, CAPM, Adjusted Net Present Value, Internal Rate of Return, and Total Rate of Return) over historical data. The goal is to assess how well each model predicts underwriting profit margins Sahai, et, al (2023). By comparing model results, insurers gain insights into which models perform best under different economic and competitive conditions.

a. Application of Property-Liability Insurance Pricing Models to the Study

The evaluation of property-liability insurance pricing models directly relates to fire insurance rating and the performance of fire insurers in Nigeria. Marais, (2022) assert that fire insurance, as a subset of property-liability insurance, relies on accurate pricing models. These

models consider fire risk, underwriting practices, and investment income. However, Trivedi, (2022) suggest that understanding the interplay between risk assessment and investment returns, insurers can set appropriate premiums for fire coverage. The performance of fire insurers during the pre-Covid era depends on effective pricing strategies. More so, the models integrate underwriting and investment aspects that help insurers maintain profitability. Also, lessons from these models guide insurers in sustaining financial health and providing reliable fire insurance services.

Principal-Agent theory

The Principal-Agent theory, propounded by Cheffins, and Reddy, (2023), explores the relationship between a principal who delegates work to an agent to act on their behalf. This theory delves into the challenges that arise when the goals of the principal and agent may not align perfectly. The principal seeks to ensure that the agent acts in their best interest, but due to information asymmetry and differing incentives, the agent may prioritize their own interests. This theory is widely applied in various fields, including economics, management, and insurance, to understand issues such as moral hazard and adverse selection. Moreover, principal-agent theory focuses on the relationship between insurers (principals) and policyholders (agents). In this context, insurers may face challenges in monitoring and controlling policyholders' behavior, leading to issues such as moral hazard where policyholders may take risks knowing they are insured.

b. Application of Principal-Agent Theory to the Study

Applying the Principal-Agent Theory to the analysis of fire insurance rating and the performance of fire insurers in Nigeria's pre-COVID era market reveals insightful perspectives. In this context, insurers act as principals delegating the task of risk assessment and policyholder management to agents, such as underwriters and claims adjusters. The theory highlights the inherent challenges stemming from information asymmetry and differing incentives between insurers and policyholders. Insurers must ensure that agents act in the best interest of the company by accurately assessing risks, setting appropriate premiums, and promptly processing claims. However, issues such as moral hazard, where agents may prioritize personal gain over the insurer's interests, can impact the overall performance of fire insurers in Nigeria's market. More so, applying this theory to the Nigerian market, insurers may struggle with assessing and managing risks effectively, impacting their performance and the overall fire insurance rating system.

The Efficient Market Hypothesis

The efficient market hypothesis (EMH) is an investment theory that suggests stock prices reflect all available information, making it difficult for investors to consistently outperform the market through skill alone. The theory was primarily derived from the work of Eugene Fama in 1970, by Abdullahi, (2021) who argued that stock prices always trade at their fair market value, making it highly unlikely for investors to achieve returns that exceed the market average. The EMH is available in three different versions: weak, semi-strong, and strong. The weak form of the theory assumes that stock prices reflect all available public market information, but prices may not reflect new information that hasn't been fully incorporated yet. The semi-strong form expands on the weak form by assuming that prices adjust instantly to reflect all new public information, rendering both technical and fundamental analysis incapable of generating excess returns. The strong form of the EMH holds that all information, both public and private, is reflected in current stock prices, making it impossible for investors to gain an advantage based on information that is not publicly available. The efficient market hypothesis has been subject to criticism, with many practitioners arguing that the theory does not hold in reality, especially in the weak form.

Despite its controversy, the EMH remains an important pillar of modern financial theories and has a significant backing in the academic community. Also, the efficient market hypothesis suggests that financial markets reflect all available information, making it difficult for investors or insurers to consistently outperform the market.

c. Application of Efficient Market Hypothesis to the Study

Applying the efficient market hypothesis (EMH) to the analysis of fire insurance rating and the performance of fire insurers in Nigeria's pre-COVID era market provides valuable insights. In the context of fire insurance, the EMH suggests that stock prices, or in this case, insurance premiums, reflect all available information and adjust rapidly to new information. This implies that insurers in Nigeria's market would set premiums based on all relevant data and market conditions, making it challenging for them to consistently outperform the market through superior information or analysis. The EMH also implies that any inefficiencies or anomalies in the fire insurance market in Nigeria would be quickly corrected as prices adjust to reflect all available information. Moreover, in the context of fire insurance in Nigeria, this theory could explain why some insurers may struggle to set accurate premiums or respond effectively to market changes. The efficiency of the market plays a crucial role in determining the performance of fire insurers and the overall rating system in Nigeria.

Research Methodology

The study employed a descriptive survey research design to collect and interpret data on the existing situation. The primary instrument for data collection was secondary data, specifically utilizing the e-view platform. The rationale for using secondary data, particularly e-view, is its effectiveness in accessing sensitive and confidential information without exposing the researcher to potential risks, as might occur with observational methods. This research focuses on audited financial statements from 15 licensed general insurance companies in Nigeria, covering a 20-year period from 1999 to 2019.

A random sampling technique was used to select the data, ensuring that every member of the population had an equal chance of being chosen, thus minimizing bias. Data was sourced from the financial statements available in the Nigerian Stock Exchange (NSE) and Central Bank of Nigeria (CBN) databases. The analysis involved both descriptive and inferential statistical methods.

The variables employed in the analysis were selected based on relevant theoretical frameworks and existing literature, aligning with similar studies in the field, as well as the availability of secondary data. The study utilized a self-constructed secondary data tool (e-view) to review and analyse of the financial performance of the selected insurance companies. Specifically, the two variables measured were the fire insurance rating and the performance of fire insurers in the Nigerian insurance market during the pre-COVID era.

Data Analysis

This section delves into the analysis of the data, presenting the results obtained and discussing their implications

Table 1 below provides a summary of the statistical characteristics of both the independent and dependent variables. These statistics are drawn from a dataset compiled from the audited financial statements of 15 licensed general insurance companies in Nigeria over a 20-year span, from 1999 to 2019.

Table 4.1: Descriptive statistics

	CLM	INV	PBT	PIF	PMR	SHF
Mean	433763.4	10709727	1238233.	967468.1	1934.936	8519766.
Median	131963.0	5841193.	638465.0	599301.0	1198.602	6966265.
Maximum	3045810.	2.80E+08	13448965	7111187.	14222.37	54292233
Minimum	0.000000	0.000000	-1500526.	0.000000	0.000000	0.000000
Std. Dev.	609250.5	23708587	2063222.	1117469.	2234.938	7328508.
Skewness	1.937045	8.767815	3.485496	2.299666	2.299666	3.173497
Kurtosis	6.693064	95.61095	17.60586	9.808031	9.808031	17.65639
Jarque-Bera	213.6611	66261.97	1953.530	503.4609	503.4609	1902.576
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	77643653	1.92E+09	2.22E+08	1.73E+08	346353.6	1.53E+09
Sum Sq. Dev.	6.61E+13	1.00E+17	7.58E+14	2.22E+14	8.89E+08	9.56E+15
Observations	179	179	179	179	179	179

Source: researcher's computation from E-views 12

The descriptive statistics provide a detailed overview of the key financial indicators analysed in the study, which focuses on the performance of fire insurers in Nigeria before the COVID-19 pandemic. The variables include Investment Portfolio (INV), Profitability (PBT), Premium Income (PIF), and Shareholder's Fund (SHF).

For the Investment Portfolio (INV), the mean value is ₦10,709,727, reflecting a substantial investment base across the insurers. However, the median value of ₦5,841,193 and the range from ₦0 to ₦280,000,000 show that some companies have significantly larger investment portfolios, while others have little to no investments. The extreme skewness (8.77) and kurtosis (95.61) suggest that the distribution is heavily influenced by a few companies with exceptionally large portfolios.

In terms of Profitability (PBT), the average profitability is ₦1,238,233, indicating that, on average, these companies are moderately profitable. However, the profitability range—from a loss of -₦1,500,526 to a profit of ₦13,448,965—shows that there are both highly profitable companies and those that experience significant losses. The skewness (3.49) and kurtosis (17.61) values indicate a right-skewed distribution with a few companies earning very high profits, which skew the average upwards.

Premium Income (PIF) reveals an average income of ₦967,468.1, suggesting that the insurers generate a moderate amount of income from premiums. The wide range of premium income, from ₦0 to ₦7,111,187, indicates a considerable disparity in revenue generation across the industry. The data's skewness (2.30) and kurtosis (9.81) suggest a distribution with a long right tail, where a few companies earn significantly more than the others.

Finally, the Shareholder's Fund (SHF), with an average value of ₦8,519,766, suggests robust capital adequacy among the companies. However, the wide range from ₦0 to ₦54,292,233 highlights significant differences in the capital base across the insurers. The skewness (3.17) and kurtosis (17.66) values indicate a right-skewed distribution, where a few companies have substantially higher shareholder funds.

In conclusion, the descriptive statistics reveal considerable variability and skewness across all the financial performance indicators. This analysis underscores the disparities within the

Nigerian fire insurance market during the pre-COVID era, providing valuable insights for stakeholders looking to improve market performance and stability.

Unit Root Test

Variable	ADF		PP-Fisher chi square		Order of Integration
	Statistics	**Probability**	**Statistics**	**Probability**	
PMR	-3.846420	0.0030	-5.723935	0.0000	I(0)
PIF	-3.846420	0.0000	-5.723935	0.0000	I(0)
CLM	-5.820247	0.0000	-5.762550	0.0000	I(0)
INV	-10.42792	0.0000	-10.86201	0.0000	I(0)
SHF	-5.552729	0.0009	-5.457325	0.0009	I(0)
PBT	-4.470662	0.0003	-6.252207	0.0000	I(0)

Source: researcher's computation from E-views 12

The Unit Root Test results provide essential insights into the stationarity of several key financial variables. Stationarity implies that a variable's statistical properties, such as mean and variance, remain consistent over time, which is crucial for accurate modeling and forecasting.

Shareholder's Fund (SHF) demonstrated stationarity at the level, with the ADF test statistic recorded at -5.552729 and the PP-Fisher test statistic at -5.457325, both associated with p-values of 0.0009. Profitability (PBT) also exhibited stationarity, as indicated by the ADF test statistic of -4.470662 and the PP-Fisher test statistic of -6.252207, with p-values of 0.0003 and 0.0000 respectively.

Hence, the stationarity of all variables at the level (denoted as I(0)) suggests that they do not require differencing to stabilize their statistical properties, making them reliable for time series analysis in their current form. This stability is crucial for building robust financial models that rely on consistent behaviour over time.

There is no significant relationship between adequate premium rating and the investment portfolio of property insurance companies in Nigeria

Dependent Variable: PMR
Method: Least Squares
Date: 08/18/24   Time: 17:19
Sample: 1 180
Included observations: 179

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1535.391	168.8896	9.091094	0.0000
INV	3.73E-05	6.51E-06	5.733289	0.0000

R-squared	0.156623	Mean dependent var		1934.936
Adjusted R-squared	0.151858	S.D. dependent var		2234.938
S.E. of regression	2058.257	Akaike info criterion		18.10822
Sum squared resid	7.50E+08	Schwarz criterion		18.14383
Log likelihood	-1618.685	Hannan-Quinn criter.		18.12266
F-statistic	32.87060	Durbin-Watson stat		0.824463
Prob(F-statistic)	0.000000			

Source: researcher's computation from E-views 12

This regression analysis investigates the influence of the Investment Portfolio (INV) on the Premium Rating (PR) of insurance companies in Nigeria. The intercept, denoted as C, is 1535.391. This suggests that, even in the absence of any effect from the Investment Portfolio, the Premium Rating would be 1535.391. The coefficient for the Investment Portfolio is 0.0000373, indicating that a slight increase in the Investment Portfolio leads to a corresponding, albeit minimal, increase in the Premium Rating by 0.0000373 units.

The statistical significance of this relationship is evident from the p-value associated with the Investment Portfolio, which is 0.0000 and less than the 0.05 significance level. This confirms that the link between the Investment Portfolio and the Premium Rating is highly statistically significant.

However, the model's overall fit is somewhat limited, as reflected by the R-squared value of 0.1566. This means that only 15.66% of the variability in the Premium Rating can be explained by changes in the Investment Portfolio. The Adjusted R-squared value, slightly lower at 0.1519, also indicates that the model's ability to predict changes in the Premium Rating based on the Investment Portfolio alone is modest.

The model as a whole is statistically significant, as shown by the F-statistic of 32.8706 and its associated p-value of 0.0000. Hence, the null hypothesis was rejected and concluded that there is a significant relationship between adequate premium rating and the investment portfolio of property insurance companies in Nigeria

Hypothesis One

There is no significant relationship between insurance premium rating and the profitability of property insurance companies in Nigeria

Dependent Variable: PMR
Method: Least Squares
Date: 08/18/24   Time: 17:20
Sample: 1 180
Included observations: 180

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1182.463	160.1069	7.385460	0.0000
PBT	0.000617	6.69E-05	9.233988	0.0000
R-squared	0.323879	Mean dependent var		1944.483
Adjusted R-squared	0.320081	S.D. dependent var		2232.363
S.E. of regression	1840.745	Akaike info criterion		17.88478
Sum squared resid	6.03E+08	Schwarz criterion		17.92025
Log likelihood	-1607.630	Hannan-Quinn criter.		17.89916
F-statistic	85.26654	Durbin-Watson stat		1.038344
Prob(F-statistic)	0.000000			

Source: researcher's computation from E-views 12

The regression analysis was conducted to evaluate the impact of Profitability (PBT) on Premium Rating (PR) using a sample of 180 observations from Nigerian insurance companies. The intercept of the regression model is 1182.463, which represents the estimated Premium Rating when Profitability is zero. The coefficient for Profitability is 0.000617, indicating that each unit increase in Profitability results in an increase of 0.000617 units in Premium Rating. Both the intercept and the Profitability coefficient are statistically significant, with p-values of 0.0000, meaning that these results are highly reliable.

The model's fit is moderate, with an R-squared value of 0.323879, suggesting that approximately 32.39% of the variability in Premium Rating can be explained by changes in Profitability. The Adjusted R-squared value of 0.320081 further supports this, indicating that the model accounts for a reasonable proportion of the variance while adjusting for the number of predictors included.

The overall significance of the model is confirmed by the F-statistic, which stands at 85.26654 with a p-value of 0.0000. This indicates that the model significantly explains variations in Premium Rating. Also, the Durbin-Watson statistic is 1.038344, which suggests the potential presence of positive autocorrelation in the residuals. Hence, the null hypothesis was rejected and concluded that there is a significant relationship between insurance premium rating and the profitability of property insurance companies in Nigeria

Hypothesis Two

There is no significant relationship between insurance premium rating and the shareholders fund/capital adequacy of property insurance companies in Nigeria

Covariance Analysis: Ordinary
Date: 08/18/24   Time: 17:10
Sample: 1 180
Included observations: 180

Correlation	PMR	SHF
PMR	1.000000	
SHF	0.586552	1.000000

Source: researcher's computation from E-views 12

The correlation analysis explored the relationship between Premium Rating (PMR) and Shareholder's Fund/Capital Adequacy (SHF) based on a sample of 180 observations. The analysis revealed a correlation coefficient of 0.586552 between Premium Rating and Shareholder's Fund. This positive value indicates a moderate to strong relationship between the two variables. Specifically, as Shareholder's Fund increases, Premium Rating tends to rise as well. This suggests that higher levels of capital adequacy within insurance companies are associated with higher premium ratings. In other words, insurance companies with more substantial shareholder's funds generally achieve better premium ratings.

The correlation coefficient, being closer to 1, reflects a significant positive association. Hence, the null hypothesis was rejected and concluded that there is a significant relationship between insurance premium rating and the shareholders fund/capital adequacy of property insurance companies in Nigeria

In conclusion, the regression analysis shows a statistically significant but minimal effect of Investment Portfolio on Premium Rating, with a coefficient of 0.0000373. The R-squared value of 0.1566 implies that only 15.66% of the variability in Premium Rating is explained by changes in the Investment Portfolio. This limited explanatory power suggests that while the Investment Portfolio does have an impact on Premium Rating, its influence is relatively small compared to other factors. The modest impact of Investment Portfolio on Premium Rating is consistent with findings from Okonkwo and Udeh (2021), who noted that while investment strategies are important, they often play a secondary role compared to factors like claim settlement and profitability. The low R-squared value and presence of positive autocorrelation in the residuals, as indicated by the Durbin-Watson statistic, suggest that the

model might be missing other important variables or interactions. This aligns with research by Ben Dhiab (2021) and others who have noted the challenges of capturing the full effects of investment portfolios on insurance ratings.

Discussion of findings

The regression analysis demonstrates that Profitability has a statistically significant positive effect on Premium Rating, with an increase of 0.000617 units in Premium Rating for every unit increase in Profitability. The model explains approximately 32.39% of the variability in Premium Rating, indicating a moderate fit. This finding aligns with studies by Ajijola, Lawal, and Akindipe (2021) and Nwite, Okparaka, and Okeke (2020), which highlight that profitability is a key determinant of insurance company ratings. Higher profitability often reflects better financial health and operational efficiency, which positively influences premium ratings. However, the Durbin-Watson statistic of 1.038344 suggests the potential presence of positive autocorrelation, which could affect the reliability of the model's predictions. This observation is consistent with the broader literature indicating that profitability models may need to account for additional factors and potential autocorrelation issues (Sanni, 2019).The correlation analysis shows a moderate to strong positive relationship (0.586552) between Premium Rating and Shareholder's Fund. This suggests that higher levels of capital adequacy are associated with better premium ratings. This result supports existing research that emphasizes the importance of capital adequacy in determining insurance company ratings. Studies such as those by Morara and Sibindi (2021) and Singh and Bathla (2023) have shown that adequate capital reserves contribute to financial stability and enhance the insurance company's ability to manage risk, leading to higher premium ratings. The positive correlation observed in this analysis aligns with these findings, highlighting the role of capital adequacy in supporting better insurance ratings.

Conclusion

The assessment of fire insurance ratings is vital for both insurers and policyholders in determining the risks associated with insuring against fire-related incidents. In Nigeria, where the insurance industry has been evolving, understanding the dynamics of fire insurance ratings is essential for ensuring a stable and competitive market. This analysis, focused on the pre-COVID era, highlights the challenges faced by Nigerian fire insurers, particularly the limitations in accessing real-time data, which hindered accurate risk assessment.

The study examined the relationship between fire insurance ratings and the performance of the property insurance market in Nigeria, using key variables such as Claim Settlement (CLM), Investment Portfolio (INV), Profitability (PBT), Premium Income (PIF), Premium Rating (PMR), and Shareholder's Fund (SHF). The analysis, based on data from the audited financial statements of 15 licensed general insurance companies in Nigeria over a 20-year period (1999-2019), revealed significant disparities in financial indicators, reflecting a skewed distribution where a few companies dominate in areas such as claim settlements, investment portfolios, profitability, and premium income.The study also established a significant relationship between adequate premium rating and the investment portfolio, profitability, and shareholders' fund/capital adequacy as the determinant of property insurance.

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