Risk Underwriting's Impact on the Profitability of Insurance Firms: The NICON Case

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Abstract
The impact of underwriting risk on the National Insurance Corporation of Nigeria (NICON) profitability was investigated in this study. NICON Insurance Limited appeared to have additional challenges in its risk underwriting process due to emerging hazards, which could negatively impact profits if improperly assessed. Data was drawn from NICON Insurance Limited's 2004–2024 Audited Financial Statement Reports. The research design employed in this study was ex post facto, and data were analysed using descriptive and inferential statistics. The hypotheses of the study were tested using ordinary least squares regression. Findings showed that while total claims paid had no apparent effect on Return on Assets (ROA), total assets, underwriting risk, and premium income all significantly increased NICON's profitability. It was determined that underwriting risk had a favourable and substantial impact on NICON's profitability. NICON Insurance Limited should develop an efficient investigation strategy for reported claims with cross-confirmation mechanisms to authenticate claim reports prior to payment or denial, as well as improve its claim payment methods and lessen the impact of underwriting risk, such as the amount of losses. For long-term profitability, the excess premium revenue following claim payouts ought to be reinvested. To increase profitability, asset and liability management must be done well. To prevent catastrophic losses that could certainly harm NICON's profitability, it is necessary to properly assess underwriting risks and the company's capacity to retain risk during the underwriting process.

Keywords: Underwriting-risk, financial profitability, NICON Insurance, Nigeria.

1.0 Introduction

The possibility that an insurer won't be able to pay for an insurance claim is known as underwriting risk. This could be the result of an insured event that happened but wasn't covered by the policy, or it could be the result of rising claim costs that surpass the amount of premiums collected. The possibility that an insurer won't be able to appropriately evaluate and price the risk connected with an insurance policy is also known as underwriting risk. This can be the result of insufficient knowledge about the insured, the type of risk, or the insurer's inexperience in the specific industry. According to the National Association of Insurance Commissioners (NAIC, 2024), underwriting risk is determined by the amount of surplus (assets minus liabilities) available to counter potential losses from excess claims. The profitability of an insurance company is its amount of profit; this must be sufficient enough that, for example, a slight adverse change in claims won't result in losses that will adversely affect the company's capacity to survive. Understanding the fundamentals of profitability gives insurance companies important insight to assess any hazards to the company and look for chances to change or evolve the business.

Operating income, net income, or consolidated or segment underwriting gain/loss should not be the only factors used to determine profitability. Businesses require a higher level of information to be able to predict and respond to change in order to comprehend profitability and manage operations proactively. Insurance companies can quickly analyse, assess choices and opportunities, and respond when they have a clear, methodical grasp of profitability. It can be observed that market volatility can happen fast; thus, it is critical to be able to swiftly analyse and modify profitability models with different scenarios in order to reduce risk. Underwriting risk and profitability are related because insurance businesses generate revenue from both fee-based income and underwriting and investment activities. They oversee both short-duration and long-duration policies from the underwriting activities, which have an inherent risk of producing losses that may be linked to a given horizon or extend beyond the policy's life. The decision about the length of the company's asset allocation within the investment portfolios is driven by the management of these short and long-duration policies and the underlying risk for losses over a certain horizon.

Insurance firms must manage their financial sheets to maintain solvency and the capacity to handle future claims, but they also need to understand how profitable their operations are in order to assess chances for expansion, sustainability, market change, and flexibility. Transparency in profitability, therefore, makes it possible to evaluate pricing strategies, organisational expenses, the cost of offering particular items, the effectiveness of underwriting, or to specific clients or channels. Therefore, a study of this kind is necessary to look at how underwriting risk affects NICON Insurance Limited's profitability.

NICON Insurance Limited is the oldest in Nigeria. It operates with a skilled workforce dispersed throughout Nigeria's 36 states. Since its founding in 1969, the company has established a solid reputation as an underwriting house, offering its many policyholders the protection of its financial reserves and underwriting knowledge. About thirty per cent of Nigeria's insurance company chief executives are NICON graduates. NICON Insurance was a founding member of the esteemed West African Insurance College in Banjul, which has made significant contributions to the sub-Saharan African insurance knowledge transfer system. It appears to be facing a significant issue due to a lack of underwriting competence that can quickly identify high-risk clients with a high claim history throughout the underwriting process. The process of examining an insurance application entails assessing an applicant's risk by looking at their lifestyle, financial, and medical records, as well as taking their age and gender into account. Large claims and disproportionate costs could emerge from this, causing the insurer to underwrite a loss rather than make money. Thus, the amount of underwriting premium income is adjudged the most accurate measure of the effectiveness of the underwriting operations of an insurance company.

Within the context of insurance, the essence of underwriting is to evaluate the risk of selling insurance cover to a potential policyholder based on some risk factors such as health status, age, lifestyle, work, medical history of the insured’s family, hobbies, amongst other factors, while taking into consideration moral hazards which further make such a transaction difficult. Underwriters make decisions about whether to accept, reject, or change the terms of the insurance policy based on this evaluation. NICON Insurance Limited's underwriting risk capacity appears to be impacted by its modest asset base, which could lead to low profitability. The utmost responsibility that an insurance firm is prepared to take on from its underwriting operations is known as its underwriting capacity. An insurer's risk of going bankrupt rises if it takes on more risks by issuing policies.

A key measure of an insurance company's capacity to produce returns on its cash and investment assets is profitability (Isayas, 2022). In order to successfully compete in both domestic and foreign markets, insurance businesses must earn a profit, and ROA is still a crucial indicator of business performance (Msomi, 2023). One of the profitability metrics used to assess the financial strength of an organisation for a specific time is the return on assets (ROA). ROA is a crucial performance indicator since it has a direct bearing on profitability. Additionally, high equity multipliers have little effect on ROA, which is a more accurate indicator of the company's capacity to produce returns on its asset portfolio (Msomi, 2023).

2.0 Empirical Analysis

In a study by Thabiso (2024), the influence of underwriting profit variables, which included the log of total investment (TI), shareholders' fund (SF) and underwriting profit (UWP) on profitability measured by return on assets (ROA) of general insurance firms that were publicly traded in South Africa was examined. A total of 36 insurance companies were sampled over a period of twelve years (2008 – 2019). Signal correlation analysis was performed on the data collected. Results revealed a significant inverse relationship between TI, SF, UWP and ROA with a negative coefficient of –0.4500, –0.3365, and –0.4050, respectively. This means that as TI, SF, and UWP increase, ROA of the sampled general insurance companies decreases. However, the controlled variable - the earning-asset ratio used in the model had a significant positive effect on ROA of the sampled quoted general insurance companies in South Africa, implying that as the earning-asset ratio increases, ROA of the studied insurance firms also increases. Based on these findings, the author concluded that underwriting profit variables each had a marked effect on the ROA of publicly traded general insurance companies in South Africa.

Another study of significant importance is that of Owusu & Owusu (2023), which was on the relationship between risk management strategies and profitability of non-life insurance firms in Ghana. The authors employed a mixed-method analysis where interviews and an ex post facto research design were employed to collect data for analysis. Risk management strategies were risk identification, risk analysis, risk control, and risk monitoring. Qualitatively, a total of 120 workers in ten (10) general insurance companies were interviewed. Quantitatively, data on profit after tax (PAT) of these companies were collected and analysed using Ordinary Least Squares (OLS) regression. Results revealed that, among risk management strategies, risk control and risk identification have an inverse statistically significant effect on PAT of the sampled general insurance companies in Ghana. Other risk management strategy – risk monitoring had a statistically significant positive influence on PAT of the sample insurance companies in Ghana.

Similarly, Hissiyah & Meylianingrum (2023) examined the influence of claim costs (CC), investment returns (IR), and premium income (PI) on operating net profit (ONP) of Sharia Life Insurance firms. The study employed an ex post facto research design and drew data from the company's audited financial reports. Results showed a marked effect of premium income and investment return on the net profit of the sampled insurance companies. On the contrary, no marked influence was found between operating and claim costs and the net profit of the studied insurance firms. On the joint or combined effect analysis, it was found that IR, PI, claim expenses, and operating expenses have a combined significant influence on the net profit of Sharia life insurance companies.

Riwayati & Natalia (2022) conducted a study on the influence of premium income, underwriting ratio, return on investment, and return on equity on the insurance profit of ten (10) general insurance companies quoted on the Indonesia Stock Exchange. The design adopted for the study was ex post facto and the period covered was from 2015 to 2019. The research hypotheses

were tested using multiple linear regression. Results showed a significant positive effect of premium income, the underwriting ratio, return on investment, and return on equity on the insurance profit of the studied insurance companies.

Siopi & Poufinas (2023) investigated the connection between European insurers' profitability and underwriting profit. Data used for the study came from 148 European insurers spanning 10 years, from 2005 to 2014. Results of the study showed a strong and favourable relationship between profitability and underwriting profit. According to the analysis, higher underwriting profits boost European insurers' profitability.

The majority of these empirical investigations were conducted outside of Nigeria. There is a gap in the literature since prior studies did not connect Nigerian insurance companies' underwriting risk to their profitability. This study aims to investigate how underwriting risk affects NICON Insurance Limited's profitability. Additionally, the researcher included independent variables that are rare in the corpus of current empirical literature, such as total assets, total claims paid, premium income, underwriting risk, and ROA as a proxy for profitability.

In this study, the hypotheses to be tested were expressed in the alternate form as follows:

H1: The profitability of NICON Insurance Limited is significantly impacted by total assets.

H2: The profitability of NICON Insurance Limited is significantly impacted by the total number of claims paid.

H3: Underwriting risk has a big impact on NICON Insurance Limited's profitability.

H4: The profitability of NICON Insurance Limited is significantly impacted by premium income.

3.0 Methods

In this study, an *ex post facto* research design was used. The usage of secondary data, which is already available, justifies the design choice. As a result, this design supports the utilisation of secondary data to accomplish the study's goals. In a similar vein, it is deemed pertinent in a quantitative approach to research with the aim of analysing the data gathered, using the analysis's findings to test the study's research hypotheses, and drawing conclusions that are consistent with solving the research problem. This study is on how underwriting risk affects NICON Insurance's profitability. It thus addresses the profitability of NICON Insurance Limited in Nigeria as well as underwriting risk activities. The Audited Financial Statement Reports of NICON Insurance Limited in Nigeria provided the data. The use of secondary data is justified by the fact that it is readily available, fully applicable, and sufficient to make inferences and provide a solution to the query.

3.1 Data Collection Method

The Archival Retrieval Technique (ART) was used to extract information from NICON Insurance Limited's Audited Financial Statement Reports in Nigeria.

3.2 Study Variables

In this study, the variables were categorised into three, namely: the dependent variable, the independent variable, and the control variables. Table 1 below lists the variables used for data collection, their measurement, the study's notations, and a priori expectations:

Table 1: Econometric Notations and Variable Measurement

Variable	Notation	Measurement	Predicted signs
Dependent:			
Profitability	ROA	Net income/ total assets.	
Independent:			
Total assets	TOA	Total naira value of NICON assets	+/-
Total claims paid	TCP	Total naira value of NICON gross claims paid	+/-
Underwriting risk	UNR	Total assets – Total liabilities of NICON	+/-
Premium income	PRI	Total gross premium of NICON	+/-
Control:			
Firm Size	SIZ	The natural logarithm of total asset of NICON	+/-

3.3 Data Analysis Technique

To analyse the data gathered for this study, descriptive statistics were used. For the test of the hypotheses, multiple linear regression analysis was adopted. To identify the most important and crucial explanatory factors influencing NICON Insurance Limited's profitability in Nigeria, Ordinary Least Squares (OLS) was adopted. To demonstrate that the estimating approach (OLS) has some desirable qualities and to enable the validity of hypothesis testing about the coefficient estimations, several fundamental assumptions must be made. The estimators found using OLS will have several desired characteristics known as Best Linear Unbiased Estimators if these Classical Linear Regression Model assumptions are true. As stated by Burgess, Tian et al. (2023), when the presumptions are met, it indicates that all of the data from the patterns was utilised. In order to verify that relevant classical linear regression model assumptions are not violated, some diagnostic tests were also performed. Some of the relevant diagnostics test were as follows:

3.3.1 Test of Heteroscedasticity

The thesis states that the variance of the mistakes is equal or constant. Heteroscedasticity is the term used when the variance of the mistakes is not constant. The white test was performed to determine homoscedasticity.

3.3.2 Test of Normalcy

This can be used to determine whether the residuals of the regression model are normally distributed. A residuals histogram can be created to identify violations of this assumption (Tian et al., 2023). The JB (Jarque-Bera) test, which adheres to the distribution of chi-square statistics, was used for the test of normality in this investigation.

3.3.3 Autocorrelation Test

The purpose of this test was to determine whether the errors associated with certain observations are uncorrelated. By this test, the errors are expected to be independent of and uncorrelated with each other and to have zero covariance across time. This test basically makes sure that our models do not violate homoscedasticity. The traditional Durbin-Watson statistic test was used.

3.3.4 Test for Multicollinearity

Multicollinearity is the term used to describe strong associations among the regressors in a multiple regression model. Multicollinearity can lead to skewed or misleading results when a researcher or analyst attempts to determine how effectively each regressor can be used to predict or understand the regressand in a statistical model. Multicollinearity is consequently absent if the variance inflation factor (VIF) is larger than 10 and vice versa.

3.3.5 Analysis of Descriptive

All of the variables utilised in the investigation are examined and summarised by descriptive statistics using such measures of central tendency as the mean, the minimum, the maximum, and measures of dispersion like the standard deviation. These were generated for each variable of the study, beginning from the year 2004 through to the year 2023.

3.3.6 Analysis of Correlation

This study demonstrates the relationships between factors. The analysis's findings illustrate the type, direction, and importance of the correlation between the variables under investigation.

3.3.7 Significance Tests

The "EViews" Statistical Package will be used to ascertain the link between the variables in this investigation. Regression analysis, which should produce the R^2 or Coefficient of Determination, ANOVA or Analysis of Variance, and pertinent t-tests, F-tests, and P-values are the tests of significance. A 95% confidence level was used while using inferential statistical methods. (α = 0.05).

3.4 Model Details

The parameters of the model created for this investigation were estimated using the multiple regression technique. The regression model was subjected to multiple regression statistics to quantify, interpret, and forecast the correlation among the predicting variables. The parameters of the model developed for this study were estimated using the multiple regression technique to quantify, interpret, and forecast the correlation between the variables. The following are the various multiple linear regression models used in the study:

$Yi, t= \beta0 + \beta1\ Xi, t + \beta2\ Xi, t + \ldots \beta nXni, t + \varepsilon it$ Eqn. 1

Where $\beta1, \beta2 \ldots \beta n$ are the regressor parameters; εit = the error term or random variable.

The functional forms of the models used in testing each hypothesis of the study are presented in a multiple regression model below:

ROA = f (TOA, SIZ) Eqn. 2

ROA = f (TCP, SIZ) Eqn. 3

ROA = f (TPR, SIZ) Eqn. 4

ROA = f (UNR, SIZ) Eqn. 5

ROA = f (TOA, TCP, TPR, UNR, SIZ) Eqn. 6

The equations are linearised in a multiple linear regression model as:

$ROAit = \beta0 + \beta1TOAit + \beta2SIZit + \varepsilon it$ Equation 7

$ROA_{it} = \beta_0 + \beta_1 TCP_{it} + \beta_2 SIZ_{it} + \varepsilon_{it}$ Equation 8
$ROA_{it} = \beta_0 + \beta_1 TPR_{it} + \beta_2 SIZ_{it} + \varepsilon_{it}$ Equation 9
$ROA_{it} = \beta_0 + \beta_1 UNR_{it} + \beta_2 SIZ_{it} + \varepsilon_{it}$ Equation 10
$ROA_{it} = \beta_0 + \beta_1 TOA_{it} + \beta_2 TCP_{it} + \beta_3 TPR_{it} + \beta_4 UNR_{it} + \varepsilon_{it}$ Equation 11

Where:
ROA = Return on assets as a measure of profitability of NICON Insurance Limited.
TOA = total assets
TCP = total claims paid
UNR = underwriting risk
PRI = premium income
SIZ = Firm Size
β_0 = regression constant or intercept;
$\beta_1 - \beta_4$ and ε_{it} are as defined earlier.

3.5 Methods of Estimation and Rationale

The statistical dependability of the estimated result is assessed using the R-squared (R^2) and F-value statistics. The regression equations' explanatory power is evaluated using the R^2. It evaluates whether or not the regression line fits the data. The relevance of the entire model is tested using the F-statistic. At a specified level of significance, it entails comparing the computed F value (Fc) with the critical value (Ft). The value of R^2 appropriately mirrors the fluctuations in the predicted variable and demonstrates the forecasting potential of the model if Ft < Fc, that is, the calculated F value is less than the table value. When Fc is less than Ft, the regression's overall significance is poor, indicating a weak model.

In terms of the econometric methods, the least squares regression procedures were employed. The logic is based on the following explanations: The temporal feature of the obtained data allows for long-term research (time series). Regression analysis of time series data yields superior findings since it decreases the degree of freedom issue and improves sample size (Al-Harbi, 2023). While avoiding the problems of multicollinearity, aggregation bias, and endogeneity, it also serves to account for the individual cross-sectional or firm-specific impacts that the various pools might demonstrate on the predicted variable in the model. Both the statistical significance of the test (T-test) of the individual regressor and the overall F-test were employed to assess the regression results. Crucially, the coefficient of determination (R^2) was used to assess the model's goodness of fit. Every test was carried out at the significance level of 5%.

3.6 Decision Rule

Using a 5% (0.05) threshold of significance, H_0 is rejected if the computed statistical probability is less than the p-value of 0.05.

4.0 Discussion of Findings, Analysis, and Presentation of Data

In accordance with the goals and speculative hypotheses outlined in this study's first section, the data collected by the researcher are presented and analysed in this section. By using suitable statistical and analytical methods, it is intended to provide empirical data regarding the topic of study and to confirm or refute the speculative hypotheses.

The information displayed came from NICON Insurance Limited's Audited Financial Statement Reports from 2004 to 2024, and some of it was calculated using time series. Below is a presentation of the time series data gathered for this investigation.

Table 2: Time Series Dataset: Examine variables in ratios between 2004 and 2024

NAME OF INSURANCE FIRM	YEARS	*ROA (%)	*UBR (N'000)	*SIZ (LOG TOA)	TOA (N'000)	PRI (N'000)	TCP (N'000)
NICON Insurance Limited.	2004	-0.63	-59,464,231.70	7.04	10,947,749.30	50,101	12,084
	2005	-0.63	-59,464,231.70	7.04	10,947,749.30	67,466	12,402
	2006	-0.63	-45,499,481.70	7.04	10,947,749.30	81,584	76,276
	2007	0.09	78,117,588.70	8.17	48,529,569.70	89,105	15,844
	2008	-1.29	-66,969,458.30	8.15	6,298,460.70	126,470	25,865
	2009	0.08	73,079,180.70	8.15	30,631,006.00	153,127	49,499
	2010	-0.65	-53,488,989.30	8.14	34,939,873.00	157,337	37,590
	2011	0.11	56,499,580.70	8.1	29,377,856.00	18,444,703	7,607,747
	2012	-0.58	-52,302,596.30	8.11	34,868,088.00	20,716,780	9,122,589
	2013	0.11	39,029,750.70	8.05	41,718,939.00	22,830,564	9,705,592
	2014	-0.07	-47,158,511.30	8.07	58,766,470.00	33,274,428	19,615,675
	2015	0.01	-1,328,438.00	7.9	80,724,025.00	32,449,277	11,169,209
	2016	0.13	-17,215,768.00	7.89	75,818,527.00	26,428,520	15,180,156
	2017	0.01	122,597.00	7.97	92,413,127.00	30,407,396	18,448,038
	2018	0.02	13,552,424.00	8.02	105,913,642.00	37,002,279	25,219,021
	2019	0.03	15,270,603.00	8.04	109,988,570.00	49,440,231	22,517,129
	2020	0.01	16,685,064.00	8.1	126,568,170.00	61,318,398	24,723,493
	2021	0.02	17,508,220.00	8.13	135,579,941.00	71,001,519	32,380,465
	2022	0.03	19,471,917.00	8.15	142,231,109.00	82,148,514	34,842,453
	2023	0.04	28,003,891.00	8.2	159,477,319.00	97,865,468	46,757,928
	2024	0.05	36,535.865.00	8.25	176,723,529.00	113,582,422	58,673,403

Sources: NICON Insurance Limited's Audited Financial Statement Reports (2004-2024).

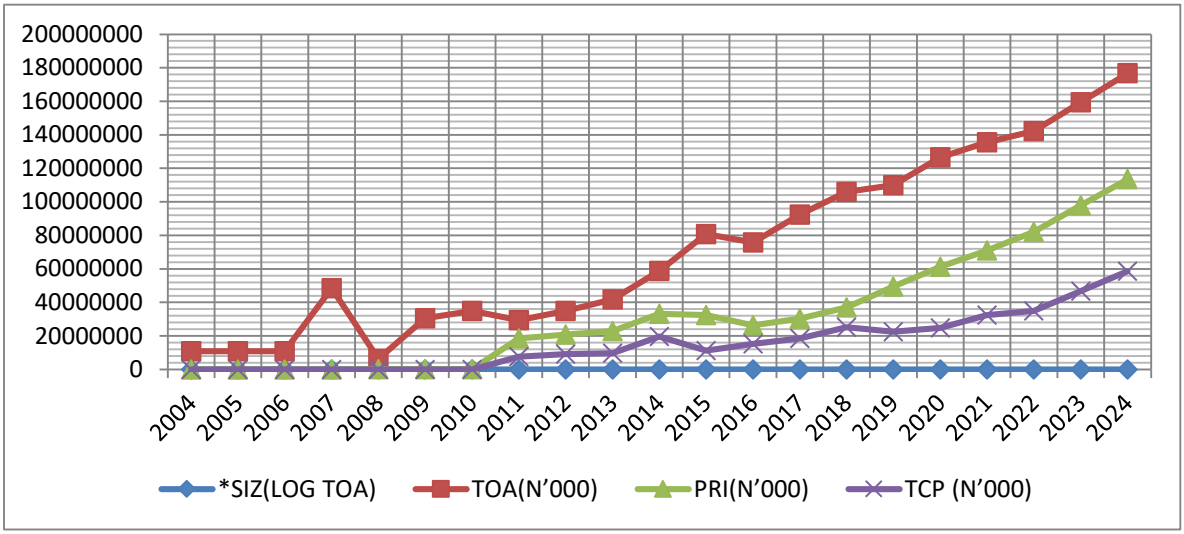
Starting with trend, descriptive, and other inferential analyses, the dataset of the variables is analysed in accordance with the study's objectives under this category.

4.1 Analysis of Trends

This illustrates how the predicted and each of the predicting variables interact. This graph's main purpose is to visually depict the relationship between these variables so that one can infer the type of relationship that is anticipated. When jointly analysed for the combined effect of all regressors on the regressand, the graph showed whether fluctuations in the regressand are linked to variations in the predictors, suggesting a probable relationship between these variables.

A. Additionally, this study will guarantee that the linearity or co-movement assumptions of a classical linear regression model (CLRM), as well as the stationarity of variables, which are prerequisites for carrying out a statistical test of significance in a regression analysis, are not violated.

Figure 1 shows the study variables' trend from 2004 to 2024.



EViews and Microsoft Excel Representations (2025) are the sources.

Figure 1 illustrates how NICON Insurance Limited's profitability and underwriting risk trend are evolving in Nigeria. It shows that the explanatory factors are probably maintaining a fairly steady trend, and that fluctuations in the movement are highly likely to cause a corresponding change in NICON Insurance Limited's profitability in Nigeria. In this instance, the standard linear regression assumption is not broken.

4.2 Analysis of Descriptive Statistics

The purpose of this study was to determine if the data have the necessary qualities for econometric application by evaluating the descriptive properties of the study variables. Descriptively, statistics such as the mean, standard deviation, minimum, and maximum were used in these analyses. The properties of the research variables are mostly revealed by these statistics in terms of variance or how close the data points are to the mean. Finding the degree of data variability away from the mean is the ultimate objective. An unreliable estimate results from a high degree of variability, which also suggests a high degree of variation and a significant likelihood for non-normality of the data. A low degree of variability in the dataset is sought.

Table 3: Descriptive Statistics

	ROA	TOA	TCP	UBR	PRI	SIZ
Mean	0.189500	67334397	13875953	2277544.	29202663	7.923000
Median	0.015000	53648020	10437401	6837511.	24629542	8.085000
Maximum	0.130000	1.59E+08	46757928	78117589	97865468	8.200000
Minimum	-1.290000	6298461.	12084.04	-66969458	50100.83	7.040000
Std. Dev.	0.094735	49039246	12894010	15863463	19875810	0.389576
Skewness	-1.353384	0.421387	0.719904	0.114378	0.835398	-1.780428
Kurtosis	3.883968	1.862101	2.641081	1.878421	2.740841	4.448610
Jarque-Bera	6.756658	1.670900	1.834892	1.091890	2.382268	12.31513
Probability	0.034104	0.433679	0.399538	0.579294	0.303876	0.002117
Sum	-3.790000	1.35E+09	2.78E+08	-45550890	5.84E+08	158.4600
Sum Sq. Dev.	2.960495	4.57E+16	3.67E+15	4.00E+16	1.70E+16	2.883620
Observations	21	21	21	21	21	21

Source: EViews output

The dataset was clustered below the mean, which translates to the intended result that the dataset has a low level of variability, according to a compilation of descriptive data for the characteristics displayed in Table 3. The mean and standard deviation scores were minimal. This suggests that the study's underwriting risk indicators for NICON Insurance Limited in Nigeria were minimal, resulting in a mean score of 0.189 for the company's profitability.

4.3 Unit Root Examination

A unit root test was employed to check for the stationarity of the variable to prevent false results. As shown in Table 4 in Appendix II, all data were found, at 1% level of significance, to be stationary at first difference.

4.4 Test of Correlation

To eliminate the multicollinearity issue in the calculated parameters, a bivariate correlation must be performed to examine the profitability effect of underwriting risk on NICON Insurance Limited. The multicollinearity issue in the calculated parameters was avoided because all of the variables in Table 5 below maintained positive correlations with correlation coefficients ranging from 0.5 and above.

Table 5: Correlation Test Results

		ROA	UBR	TOA	PRI	SIZ
ROA	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	20				
UBR	Pearson Correlation	.796**	1			
	Sig. (2-tailed)	.000				
	N	20	20			
TOA	Pearson Correlation	.613**	.401	1		
	Sig. (2-tailed)	.004	.080			
	N	20	20	20		
PRI	Pearson Correlation	.514*	.306	.946**	1	
	Sig. (2-tailed)	.020	.189	.000		
	N	20	20	20	20	
SIZ	Pearson Correlation	.516	.515*	.481*	.431	1
	Sig. (2-tailed)	.020	.020	.032	.058	
	N	20	20	20	20	20

Source: From Nicon Insurance data from 2004 to 2024

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

4.5 Examining Research Hypotheses

The first hypothesis was that NICON Insurance Limited's profitability in Nigeria is not significantly impacted by total assets. The empirical findings shown in Table 6 showed a coefficient value of 4.33, suggesting that total assets had a favourable impact on NICON Insurance Limited's profitability in Nigeria. At 0.02, the p-value was below 0.05. The conclusion is that NICON Insurance Limited's profitability in Nigeria is significantly positively impacted by total assets. The F-stat and p- value of 5.554950 and 0.01, respectively, show that the model is significant at 1%. The R^2 of 0.395, which represents the model's explanatory power, shows that, taken together, all variables included in the model accounted for about 39.5% of the variations in NICON Insurance Limited's profitability in Nigeria, with variables outside the model accounting for the remaining 60.5%.

Table 6: Hypothesis One: Ordinary Least Squares Regression Test

Dependent Variable: ROA
Method: Least Squares
Date: 07/11/25 Time: 16:50
Sample: 2004 2024
Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.742670	1.675863	-1.039864	0.3130
TOA	4.33E-09	1.73E-09	2.499384	0.0230
SIZ	0.159245	0.218009	0.730455	0.4751

R-squared	0.395231	Mean dependent var	-0.189500
Adjusted R-squared	0.324082	S.D. dependent var	0.394735
S.E. of regression	0.324528	Akaike info criterion	0.724593
Sum squared resid	1.790416	Schwarz criterion	0.873953
Log likelihood	-4.245928	Hannan-Quinn criter.	0.753749
F-statistic	5.554950	Durbin-Watson stat	3.049440
Prob(F-statistic)	0.013916		

Source: EViews output from NICON data from 2004 to 2024

The diagnostic test result of the model was carried out to check against the presence of multicollinearity, serial correlation, heteroskedasticity, normality of regression residuals, and stability tests in order to assess the model's applicability and the dependability of the parameters it returned. The results indicated that none of these issues was present, as shown in Table 10 in Appendix III. The residual is normally distributed because the JB score (4.315), as well as the accompanying P-value of 0.115, which is higher than 0.05, is not significant. The Breusch-Godfrey LM (B-GLM) Test for Serial Correlation was performed after the Durbin-Watson Stat (DW-Stat), whose value of 3.04 fell within the acceptable range of no autocorrelation. The results showed an F-statistic of 2.443866 with a P-value of 0.0990, which is higher than 0.05, indicating the absence of an autocorrelation issue. Additionally, White's F-statistic value of 1.484465 and p-value of 0.2828 for the heteroskedasticity test are negligible because they are bigger than 0.05, indicating that there is no heteroskedasticity issue. Lastly, the stability of the regression model was demonstrated by the CUSUM of Squares graph, which displayed blue dotted lines inside red dotted lines. Overall, the outcome can be regarded as legitimate and trustworthy for both predictive analysis and policy decision-making.

The second hypothesis was that NICON Insurance Limited's profitability in Nigeria is not significantly impacted by the total number of claims paid. A coefficient of 1.22 was found in the empirical data shown in Table 7, suggesting that the total claims paid had a favourable impact on NICON Insurance Limited's profitability in Nigeria. At 0.0699, the p-value superseded the threshold of 0.05. The conclusion is that NICON Insurance Limited's profitability in Nigeria is not significantly impacted by the total number of claims paid. With an F-statistic of 4.039637 and a p-value of 0.03, which is significant at 1%, the model yielding this result is significant.

The model's explanatory strength is shown by the R2 value of 0.322, indicating that the variables in the model together accounted for roughly 32.2% of profitability changes, with variables outside the model accounting for the remaining 67.8%.

Table 7: Regression Test for Ordinary Least Squares for Hypothesis Two

Dependent Variable: ROA
Method: Least Squares
Date: 07/11/25 Time: 16:51
Sample: 2004 2024
Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.219885	1.741695	-1.274554	0.2196
TCP	1.22E-08	6.28E-09	1.934060	0.0699
SIZ	0.234979	0.224123	1.048435	0.3091

R-squared	0.322149	Mean dependent var	-0.189500
Adjusted R-squared	0.242402	S.D. dependent var	0.394735
S.E. of regression	0.343577	Akaike info criterion	0.838673
Sum squared resid	2.006773	Schwarz criterion	0.988033
Log likelihood	-5.386729	Hannan-Quinn criter.	0.867829
F-statistic	4.039637	Durbin-Watson stat	3.077895
Prob(F-statistic)	0.036698		

Source: EViews output from NICON data from 2004 to 2024

The diagnostic test of the model was carried out for multicollinearity, autocorrelation, heteroskedasticity, normality of regression residuals, and stability tests to assess the model's applicability and the dependability of the parameters it returned. The results indicated that none of these issues was present, as shown in Table 11 in Appendix III. The B-GLM test was performed after the DW-Stat. The value of 3.07 was within the acceptable range of no autocorrelation. The results showed an F-statistic of 2.091257 with a P-value of 0.1403, which is higher than 0.05 and indicates the absence of an autocorrelation issue. Additionally, regarding the heteroskedasticity test, there is no heteroskedasticity issue, according to Breusch-Pagan-Godfrey, which showed an F-value of 0.715842 and an insignificant p-value of 0.6872. Lastly, the CUSUM of Squares graph demonstrated the stability of the model, which displayed blue dotted lines inside red dotted lines. Overall, the outcome can be regarded as legitimate and trustworthy for both predictive analysis and policy decision-making.

The third hypothesis was that underwriting risk had no appreciable impact on NICON Insurance Limited's profitability in Nigeria. Findings presented in Table 8 showed a coefficient of 6.82 and a significant p-value of 0.0002, suggesting that underwriting risk had a favourable impact on NICON Insurance Limited's profitability in Nigeria.

In conclusion, underwriting risk significantly boosts NICON Insurance Limited's profitability in Nigeria. With an F-value of 14.71265 and a corresponding significant p-value of 0.000, the model producing this result is significant. The R^2 (0.633) showed the explanatory power of the model, indicating that all predictors in the model together account for about 63.3% of the changes in profitability, with the remaining 36.7% being accounted for by factors excluded in the model.

Table 8: Regression Test Using Ordinary Least Squares for Hypothesis Three

Dependent Variable: ROA
Method: Least Squares
Date: 07/11/25 Time: 16:53
Sample: 2004 2024
Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.235365	1.377793	-0.170828	0.8664
UBR	6.82E-09	1.47E-09	4.625340	0.0002
SIZ	0.007749	0.173533	0.044653	0.9649

R-squared	0.633820	Mean dependent var	-0.189500
Adjusted R-squared	0.590740	S.D. dependent var	0.394735
S.E. of regression	0.252525	Akaike info criterion	0.222870
Sum squared resid	1.084073	Schwarz criterion	0.372230
Log likelihood	0.771298	Hannan-Quinn criter.	0.252027
F-statistic	14.71265	Durbin-Watson stat	1.659634
Prob(F-statistic)	0.000196		

Source: EViews output from NICON data from 2004 to 2024

The diagnostic test result of the model performed against multicollinearity, autocorrelation, heteroskedasticity, normality of regression residuals, and stability tests indicated that none of these issues was present, as shown in Table 12 in Appendix III. The residual is normally distributed, as indicated by the JB-value of 3.37 and the accompanying insignificant P-value of 0.18. The B-G LM Test was performed following the DW-Stat. value of 1.65, which fell within an acceptable range of no autocorrelation. The results showed an F-statistic of 0.809516 with an insignificant P-value of 0.5068, indicating a lack of autocorrelation issue. Moreover, the Breusch-Pagan-Godfrey heteroskedasticity test yielded an F-value of 0.640002 and a corresponding insignificant p-value of 0.7375, evidencing no heteroskedasticity issue. Lastly, the model's stability was demonstrated by the CUSUM of Squares graph, which displayed blue dotted lines inside red dotted lines. Overall, the outcome can be regarded as legitimate and trustworthy for both predictive analysis and policy decision-making.

The fourth hypothesis was that NICON Insurance Limited's profitability in Nigeria is not significantly impacted by premium income. The empirical findings shown in Table 9 showed a coefficient of 0.078061 and a significant p-value of 0.01, suggesting that premium income had a favourable impact on NICON Insurance Limited's profitability in Nigeria. In conclusion, premium income significantly boosts NICON Insurance Limited's profitability in Nigeria. With an F-value of 6.141762 and a significant p-value of 0.009, which is significant at 1%, the model yielding this result is noteworthy. The R^2 of 0.419 showed the explanatory power of the model, demonstrating that the regressors in the model together accounted for about 41.9% variations in profitability, with variables outside the model accounting for the remaining 58.1%.

Table 9: Regression Analysis Using Ordinary Least Squares for Hypothesis Four

Dependent Variable: ROA
Method: Least Squares
Date: 07/11/25 Time: 16:55
Sample: 2004 2024
Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.922069	3.284112	-0.889759	0.3860
PRI	0.078061	0.029276	2.666376	0.0163
SIZ	0.740736	1.696325	0.436671	0.6678

R-squared	0.419469	Mean dependent var	-0.189500
Adjusted R-squared	0.351171	S.D. dependent var	0.394735
S.E. of regression	0.317959	Akaike info criterion	0.683690
Sum squared resid	1.718660	Schwarz criterion	0.833049
Log likelihood	-3.836896	Hannan-Quinn criter.	0.712846
F-statistic	6.141762	Durbin-Watson stat	3.445427
Prob(F-statistic)	0.009829		

Source: EViews output from NICON data from 2004 to 2024

The diagnostic test of the model was carried out for multicollinearity, autocorrelation, heteroskedasticity, normality of regression residuals, and stability tests to assess the model's applicability and the dependability of the parameters it returned. The results indicated that none of these issues was present, as shown in Table 13.

Table 13: Results of the Diagnostic Test for Hypothesis IV

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.903304	Prob. F(4,13)	0.1699
Obs*R-squared	7.386733	Prob. Chi-Square(4)	0.1168

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.299962	Prob. F(2,17)	0.0615
Obs*R-squared	5.593174	Prob. Chi-Square (2)	0.0610
Scaled explained SS	8.705324	Prob. Chi-Square (2)	0.0129

Source: EViews output from NICON data from 2004 to 2024

The B-G LM Test was performed after the DW-Stat. The value of 3.44 was within the acceptable range of no autocorrelation. The results showed an F-statistic of 1.903304 with an insignificant P-value of 0.1699, indicating the absence of an autocorrelation issue. Additionally, the Breusch-Pagan-Godfrey result showed no heteroskedasticity issue because the F- value of 3.299962 and an insignificant p-value of 0.0615 showed the model was insignificant. Lastly, the model's stability

was demonstrated by the CUSUM of Squares graph, which displayed blue dotted lines inside red dotted lines. Overall, the outcome can be regarded as legitimate and trustworthy for both predictive analysis and policy decision-making.

4.6 Analysis of the Results

Ordinary Least Squares of the study's regression analysis produced conflicting findings. The profitability of NICON Insurance Limited in Nigeria was found to be significantly positively impacted by total assets. This result supports Aduloju & Akindipe's (2022) conclusion that the size of assets significantly influences the financial performance of insurance companies in Nigeria. Another research showed that NICON Insurance Limited's profitability was not significantly impacted by the total amount of claims paid. This result also supports Hissiyah & Meylianingrum's (2023) conclusion that claim costs have no appreciable impact on Sharia Life Insurance Company's net profit.

In line with Natalia & Riwayati's (2022) conclusion that the underwriting ratio had a significantly beneficial influence on insurance profit, the outcome demonstrated a significant positive effect of underwriting risk on NICON Insurance Limited's profitability. Additional results indicated that premium income had a significant positive impact on NICON Insurance Limited's profitability, supporting the conclusions of Hissiyah & Meylianingrum (2023), Riwayati & Natalia (2022), and Adeel et al. (2022) that premium income has a significant positive impact on insurance companies' profitability.

5.0 Synopsis and Conclusion

The synopsis is shown below:

Total assets have a major positive impact on NICON Insurance Limited's profitability in Nigeria.

The overall number of claims paid has no discernible impact on NICON Insurance Limited's profitability.

Underwriting risk has a major beneficial impact on NICON Insurance Limited's profitability.

NICON Insurance Limited's profitability is significantly enhanced by premium income.

The study's conclusions indicate that underwriting risk has a favourable and significant impact on NICON Insurance Limited's profitability in Nigeria.

5.1 Suggestions

The study's conclusions lead to the following policy recommendations:

To prevent catastrophic losses that could negatively impact NICON Insurance Limited's profitability, it is necessary to properly assess underwriting risks and the company's ability to retain risk during the underwriting process.

For NICON Insurance Limited to be profitable over the long term, any excess premium income after claim payouts should be reinvested.

For NICON Insurance Limited to become more profitable, better asset and liability management is required.

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Appendix II
Unit Root Test
Table 3: Unit Root Test Results

Null Hypothesis: D(ROA) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-6.181529	0.0001
Test critical values:	1% level	-3.886751	
	5% level	-3.052169	
	10% level	-2.666593	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 17

Null Hypothesis: D(TOA) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.605672	0.0000
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 18

Null Hypothesis: D(TCP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.097124	0.0008
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

*MacKinnon (1996) one-sided p-values.

Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 18

Null Hypothesis: D(UBR) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.541985	0.0028
Test critical values:	1% level	-3.886751	
	5% level	-3.052169	
	10% level	-2.666593	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 17

Null Hypothesis: D(PRI,2) has a unit root
Exogenous: Constant
Lag Length: 1 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.047062	0.0012
Test critical values:	1% level	-3.920350	
	5% level	-3.065585	
	10% level	-2.673459	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 16

Null Hypothesis: D(SIZ) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=2)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.299754	0.0041
Test critical values:	1% level	-3.857386	
	5% level	-3.040391	
	10% level	-2.660551	

*MacKinnon (1996) one-sided p-values.
Warning: Probabilities and critical values calculated for 20 observations
and may not be accurate for a sample size of 18

Appendix III
Diagnostic Tests

Table 10: Diagnostic Test Results for Hypothesis I

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.443866	Prob. F(4,13)	0.0990
Obs*R-squared	8.584206	Prob. Chi-Square(4)	0.0724

Heteroskedasticity Test: White

F-statistic	1.484465	Prob. F(9,9)	0.2828
Obs*R-squared	11.35248	Prob. Chi-Square(9)	0.2523
Scaled explained SS	12.56624	Prob. Chi-Square(9)	0.1832

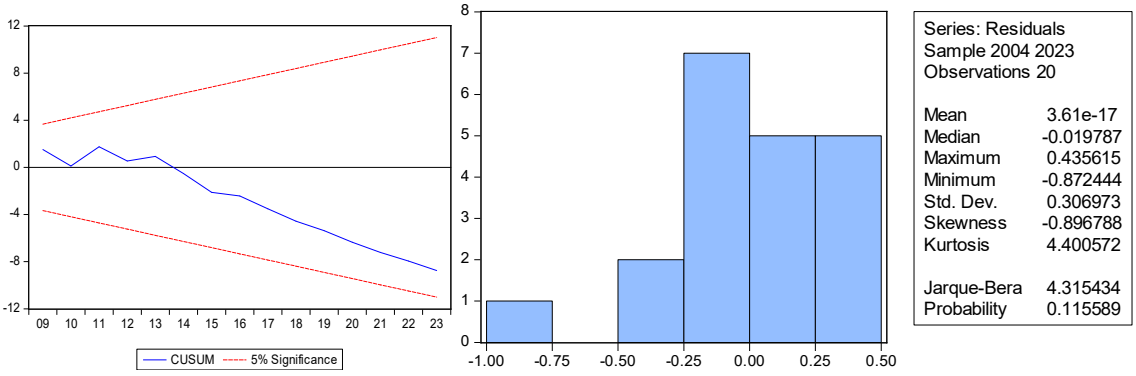

Table 11: Diagnostic Test Results for Hypothesis II

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	2.091257	Prob. F(4,13)	0.1403
Obs*R-squared	7.830580	Prob. Chi-Square(4)	0.0980

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.715842	Prob. F(9,6)	0.6872
Obs*R-squared	8.284557	Prob. Chi-Square(9)	0.5057
Scaled explained SS	0.409567	Prob. Chi-Square(9)	1.0000

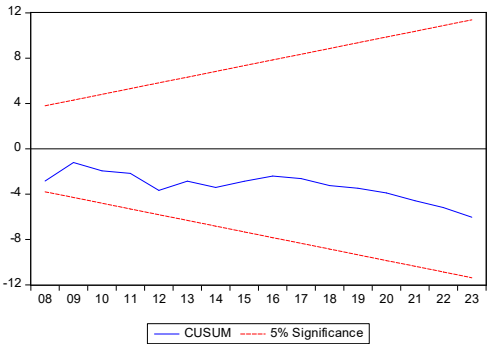

Table 12: Diagnostic Test Results for Hypothesis III

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.809516	Prob. F(2,4)	0.5068
Obs*R-squared	4.610140	Prob. Chi-Square(2)	0.0998

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.640002	Prob. F(9,6)	0.7375
Obs*R-squared	7.836749	Prob. Chi-Square(9)	0.5507
Scaled explained SS	0.892739	Prob. Chi-Square(9)	0.9996

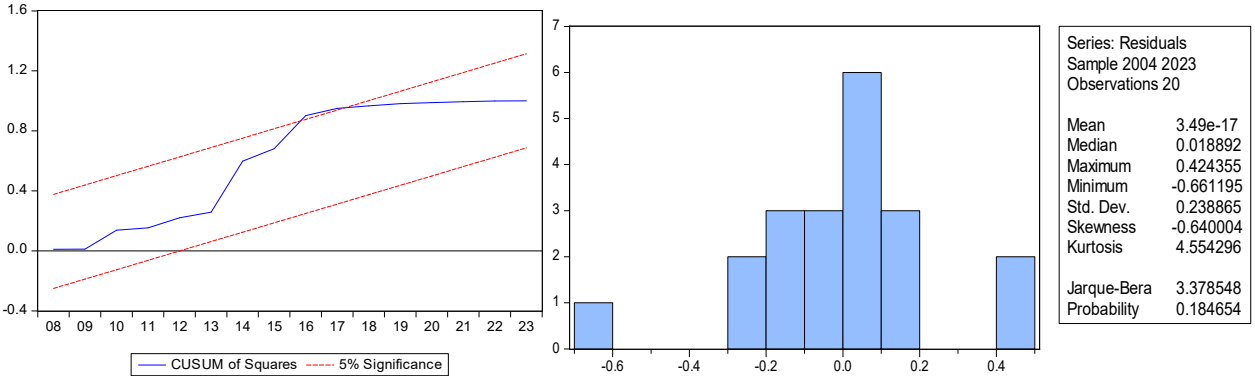

Table 13: Diagnostic Test Results for Hypothesis IV

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	1.903304	Prob. F(4,13)	0.1699
Obs*R-squared	7.386733	Prob. Chi-Square(4)	0.1168

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	3.299962	Prob. F(2,17)	0.0615
Obs*R-squared	5.593174	Prob. Chi-Square(2)	0.0610
Scaled explained SS	8.705324	Prob. Chi-Square(2)	0.0129