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IMPACT OF CLAIMS SETTLEMENT ON PROFITABILITY OF GENERAL INSURANCE COMPANIES IN NIGERIA: A STUDY OF SELECTED LISTED GENERAL INSURANCE COMPANIES

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Abstract: *This study investigates the impact of claims settlement practices on the profitability of general insurance companies in Nigeria. The study employed an ex post facto research design with the use of twenty (20) years' financial data from 2003 to 2022 from published annual financial reports of five (5) sampled listed non-life insurance companies carrying on insurance business in Nigeria. Hypothesizing the dependent and independent variables with the proxies ROA; and LR, ER; CR. Panel data methods were used with other supporting tests using E-views (version 10) data analysis tool. With a balanced data of 100 observation - five cross-sectional data of 20 years period, the results revealed a negative relationship between the proxies (ER, LR and CR) of the independent variable – Claims settlement practices, as they could only explain to a negligible extent, the changes that occurs in the dependent variable. Premised on the findings, it is recommended that general insurance firms settle genuine claims as prompt as possible while the maintain required underwriting standard to avoid problem of adverse selection engendering possibility of ruin.*

Key words: *Insurance claims, claims management, Insurance fraud, Insurance premium, underwriting profit, Profitability.*

Jel codes: O4

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Introduction

The Nigeria insurance industry despite its enormous potential has witnessed a downturn or even stagnation in its level of activities and penetration into national economy in the previous years due to level of claims in these periods. Several reports have also shown that potential insuring public holds no or low level of confidence about the dealings of the insurance firms operating nationwide hence posing a great threat on the demand of insurance products, level of earnings, profitability thereby translating to lowered contribution to the national economy. The opinion of (Eche, Enwereuzor, Ibeabuchi, Nwite & Ogwo, 1999 in Oyedokun and Gabriel, 2018) that despite the positive roles played by insurance industry in ensuring social and economic development in Nigeria, the industry finds it very difficult to enjoy a good public image, as it is in the perception of the public that the industry are dupes. Hence, it is in the believe of average potential insuring public that the insurance firms only exist to ensure they extort money from them in form of premium but whenever it comes to settlement of claims arising therefrom the losses for which they have collected those premiums, they are usually reluctant.

Insurers attitudes towards claims have caused much public outrage in the past and attracted government attention (Harry 2012). Even in the recent past claims disputes still persist in the Nigerian insurance industry due to unnecessary delays and denial of valid claims by some insurance companies.

In many cases the insurance claim was rejected by the insurance company because the insured or the claimant did not follow certain steps to not provide the required information to the company within the specified period or because some people intentionally cheated. Insurance companies and their representatives. Yusuf and Dansu (2014) state that claims from earlier years usually appear in later years which makes insurance business challenging and profitability very difficult. Though, this could be a challenge to any insurer, who has failed to make necessary provisions for such claims as may be deemed to arise in future in line with the provision of section 20 and 21 of the Insurance Act 2003.

In attempts to correct the impression of this public in order to redeem the right image thereby improving the level at which insurance services get into the hearts of potential insuring public, since to a reasonable extent, the opinion of the insureds on and their loyalty to the insurance companies depends on how insurance firms handle claims put forward by these insureds (Yusuf & Ajemunigbohun, 2016), the insurance companies scramble for any risk or business that come their way by a way of adversely selecting risks that are ordinarily not of acceptable or insurable standard in order that the conceived notion of the potential insuring individuals and businesses about the acclaimed fraudulent practices of insurance firms in order to gear them towards accepting and recommending their services so as to increase their demand vis-à-vis level of income generation and penetration. This has led to most insurance companies having to pay claims leading to some unmanaged situations that exposes the account of those companies to a great risk of safety net.

Yusuf (2010) opines that insurance companies that develop their image/reputation for fair treatment of claims will enhance the demands for their products and as a result, enhance their long-term profitability. This means that the expectation that insurance companies will remain



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viable and well-established in the business of risk taking in the future to continue to meet required regulatory requirement of solvency is dependent on the way they treat their customers during claims. Tseng (2017) observed that insurance companies financials may be threatened claims are not properly managed thereby leading to affected future income as to how premiums flow into the insurers. Therefore, claims settlement, a meaningful process that serves as the end result of an effective claims management, is a very importance determinant that tells on whether an insurer will continue to get businesses underwritten form the willing public, that is, making the insurer, or even having its existing customers express their dissonances to the potential ones, thereby marring the insurance company.

For this purpose, insurers have had to cough out some claims irrespective of its legitimacy or legality in order that image of the sector be regained. This necessitates need to embark on this study, “impact of claims settlement on profitability of general insurance companies using data from published records of insurance firms in the Nigerian insurance market. For instance, the National Insurance commission just withdrew the licences of another two prominent insurance firms -Niger Insurance PLC and Standard Alliance Insurance PLC on the ground of insolvency cum failure to maintain the minimum capital requirement as required by the regulator and of course incapacity to settle genuine claims as they arose from the businesses they undertook and the body has given warning that more insurance companies will be liquidated to bring effectiveness to the Nigerian insurance market (NAICOM reports, 2022). The remaining parts of this paper cover the review of literature, methodology of the study, data analyses, interpretations and discussion of findings and conclusion as well as recommendations therefrom.

Review of literature

Conceptual review

Concept of profitability

According to Yusuf and Dansu (2014), profit is a crucial factor in determining an organization's overall financial performance. It serves as the primary justification for the sustained existence and continuity of for-profit business organizations. Ayele (2012) defines profit as the significant difference between the total cash inflow from all business operations and the inclusion of the firm's assets, and the total expenditure on managing the entire portfolios of both owned and owed assets of any business organization. It is the measure by which the financial healthiness of a firm is determined. For example, a firm that generates enough profit to fulfill its promises to

financiers, regulators, and other stake holding entities will attract additional investors, resulting in rapid growth in capital base, business coast, and a higher market share.

On the other hand, profitability is the assessment of profit in relation to the size of the business. It evaluates how efficiently the business utilizes its resources to generate profit, specifically the rate of return on investment. Unlike profit, profitability is a relative measure that provides insight into the success or failure of a business entity. It primarily focuses on the rate of return expected on financial investment or the size of the return, compared to what could have been achieved from an alternative investment (Evans, 2017).

Measurement of profitability

In recent times, financial ratios have been established and utilized as indicators of a company's financial performance, as acknowledged by Al-Shami (2008) and Malik (2011). Besides Return on Assets (ROA), Return on Equity (ROE), return on capital employed, and Return on Invested Capital (ROIC), there are additional ratios to take into consideration. However, insurance companies in Nigeria are currently facing the challenge of escalating claim expenses, which have significantly impacted insurance profitability, as reported by Vanguard (2017). According to Thachappily (2009), profitability ratios serve as a means of assessing the margins and returns, including gross profit, net profit, ROA, ROE, and ROCE. Moreover, he elucidates that the return on resources employed can be categorized into three types: ROA, ROCE. To ascertain the strengths and weaknesses of a company, it is imperative to regularly compute financial ratios. Therefore, ratio analysis is a tool that expands the evaluation of companies beyond just focusing on profit and liquidity of insurers.

Insurance companies are typically evaluated based on net premiums earned, underwriting profitability, turnover, returns on investment, and return on equity (Greene and Segal, 2013). Profit performance measures can be classified alongside investment performance measures. A company's profits not only provide dividends and growth for investors and managers but also ensure security against insolvency for policyholders (Yusuf and Dansu, 2014). Recognizing that profit is just one of the elements used to determine the profitability of a business concern, Al-Shami (2008) and Malik (2011) suggested that various financial ratios have been used and agreed upon as reliable indicators for assessing the profitability of any company. These ratios encompass Return on Assets (ROA), Return on Equity (ROE), Return on Invested Capital (ROIC), Earnings Per Share (EPS), Operating Ratio, Gross Profit Ratio, Return on Net Worth, and Book per Share, among others.

Theoretical review

The Fraud triangle theory

In order to enhance comprehension regarding the resemblances and disparities between the Fraud Triangle Theory and the Fraud Triangle Model, it is imperative to commence with Cressey's FTT (1950). The examination of fraud was initiated by criminologist Donald Cressey in 1950, who posited that every human action possesses a rationale. In his investigation, he directed attention towards the motivating factors behind individuals' breach of trust by



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inquiring into the reasons behind fraudulent behavior. During a five-month research study, he conducted interviews with 250 individuals who were classified as criminals based on two criteria: (i) their initial acceptance of trust responsibilities in good faith, and (ii) their subsequent violation of those responsibilities due to external circumstances. According to his findings, three factors (namely pressure, opportunity, and rationalization) need to be present for an offense to take place.

Therefore, majority of issues regarding dispute in claims settlement by a typical insurance company arises from fraudulent activities of internal forces engendered by the move to turn down genuine claims, the position of insurer serves as the opportunity it has to perpetuate this fraud while being justified by self-infused clauses irrelevant to the substance of the claims. On the other hand, individual claimants put forth claims without substantial ground, seizing the effort of insurers to redeem the image of the industry as an opportunity with the justifications that insurance companies are financially capable.

The stakeholder theory

The stakeholder theory emerged as a result of extensive research in the field of organizational management, focusing on strategic organizational planning, systems theory, corporate social responsibility, and organizational theory. In their study, Strand and Freeman (2015) analyze the development of the stakeholder concept, with a specific emphasis on the contributions made by Scandinavian researchers in its early stages. To enable managers to comprehend complex business challenges and effectively run businesses in a manner that serves the best interests of all stakeholders involved in the existence, survival, and continuity of the business, researchers have conducted thorough investigations and experimented with various theories to assess their applicability in enterprise management. One such theory is the stakeholder theory, as defined by Freeman (2008), which identifies stakeholders as crucial groups essential for the survival and success of an enterprise.

Therefore, it is necessary to apply the principles, provisions, and guidelines of stakeholder theory to the insurance industry due to its highly regulated, competitive, and subscription-based nature. Since the birth, existence, and even products of insurance are subject to certain laws and regulations, this description is required, as the death of any insurance undertaking must adhere to these laws and regulations. By creating a level of competition, firms can exploit it to gain competitive advantages over competitors in the industry. For its operation to be legal and lucrative, however, the business requires a large amount of capital, thus the need to source investors, and nonetheless, its essence relies on the number of subscriptions it can generate over and over again over the years. Therefore, every insurance company needs to apply the dictates of stakeholder theory in the governance of the firm and in the conduction of the

business operation as the interest of all parties, owning one form of interest in the firm should be put to heart and protected as a result. This is enough as a factor to keep the business running or otherwise ruined.

Empirical review

According to Daniel (2013), one of the factors contributing to the limited adoption of insurance services and dissatisfaction among customers in the country is the prolonged settlement of claims by insurance companies. The insurance industry relies heavily on trust, yet it is plagued by fraudulent activities perpetrated by various entities within the Nigerian insurance sector. The study also discovered that the primary causes of the industry's underperformance are the non-payment and delayed payment of claims. Insurance companies that prioritize the prompt settlement of customers' claims will earn favorable reputations, leading to increased business opportunities and client acquisition. As long as the Nigerian insurance industry demonstrates its commitment to addressing legitimate claims in a timely manner, it will continue to grow and thrive. Conversely, insurers that engage in poor claims handling practices will face catastrophic consequences for their business.

Lalithchanadra and Kumari (2015), posits that the aspects of claims management can be viewed from a general perspective. These aspects encompass four important areas: claims settlement, detection of claims fraud, cost reduction in settling genuine claims (thus making the settlement of claims more economical), and implementing measures to prevent legal actions in the claims management process. Based on this deduction, it can be concluded that the primary focus and objective of every claims management process established by insurers should be claims settlement or payment. Consequently, a reputable insurance company will not engage in manipulating the entitlement of an insured claimant, thereby avoiding repudiation of claims that could have otherwise been settled under the contract.

Hailegebreal (2016) discovered that profitability was indirectly but significantly influenced by technical provision, leverage, and underwriting risk when assessing an insurer's performance. Conversely, an increase in an insurer's premium income, as well as its ability to fulfill both short-term and long-term financial obligations, had a positive correlation with profitability. Additionally, Hailegebreal's study revealed that factors such as company size, re-insurance dependency, and asset tangibility had no significant impact on an insurance company's profitability.

Basaula (2017) study did not obtain the same results, as the same source of data was used by administering three hundred ninety-one (391), copies of questionnaires to respondents and subjecting them to regression analysis using SPSS and Excel to find out that most respondents showed neutrality to claims settlement but the result thereof showed that if claims are settled as and when due, insurance business will grow as a result of customer satisfaction, which will result in a higher level of loyalty.

Gap in literature



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There have been several studies on the same and/or similar area of findings. However, these previous studies were conducted in the past decade and only considered data trend for five, six, ten and maximum of fifteen years. As a result, no study has been conducted to examine recent and post-Coronavirus pandemic operational results and annual reports of insurance companies in Nigeria, so as to ensure a reasonable degree of recency in their analyses and results, they must be applicable to the current situation of the Nigerian insurance industry.

Therefore, this work will make use of data from annual reports of General Nigerian insurance companies for twenty (20) years spanning from 2003 to 2022 as a way to fill the vacuum identified in the work of other great researchers, namely, data derived from reports for a longer period of time than those considered by previous studies and in addition, recent reports from insurers will be incorporated to address current issues in the Nigerian insurance industry to even out the problem of usefulness.

Methodology

This study put to use an ex post facto research design that involves the use of secondary data for the analysis of the variables of study. Data were obtained from the Nigerian Insurers Association digest and online sources covering the period of 20 years between 2003 and 2022. The study only included five (5) chosen Nigerian insurance companies, headquartered in Lagos State - Guinea Insurance Plc, Mutual Benefit Assurance Plc, Consolidated Hallmark Insurance Plc, Prestige Assurance Plc, and Sunu Insurance Plc (formerly known as Equity Insurance) that provided audited financial statements for the specified period of under review. These selected insurance companies, based on the current listing of 22 insurance companies on the Nigerian stock exchange, are considered to represent the top general insurance companies in Nigeria. According to Amadi (2005), inferences can be made from a population sample of 0.05. The design employed is such such a systematic finding that the independent variables put to use cannot in anyway be influenced or controlled by the researcher as they are fundamentally static (Appah, 2020). The data so gathered were analysed using the correlation analysis and panel-based estimation method that involves multiple or pooled ordinary least square regression analysis, fixed effect analysis, random effect analysis in conjunction with some post estimation tests like the F-test and the Hausman test as used by (appah, 2020; Sani, 2022 Ka’oje & Musa, 2022).

Objectives of the study

The aim of this study is to examine the impact of claims settlement on profitability of general insurance companies using data from published records of insurance firms in the Nigerian insurance market. The specific objectives are:

- i. To examine if there is any significance relationship between expense, loss and claims settlement ratios combined and return on asset of general insurance companies in Nigeria.
- ii. To examine whether the expense, loss and claims settlement ratios combined has any significant effect on return of assets of a general insurance company in Nigeria.

Model

This finding can therefore be explained by the following models: $Y = f(X)$, hence, Profitability = $f(\text{claims settlement})$.

$$ROA = \alpha + \beta_1(ER) + \beta_2(LR) + \beta_3(CR) + \mu$$

Where, ROA means return on asset, ER means expenses ratio, LR means loss ratio, CR means claims settlement ratio

Data analysis, interpretation and discussion of findings

Correlation matrix

Table 1: Correlation matrix for research hypothesis

	ROA	ER	LR	CSR
ROA	1.000000	-0.042867	-0.170313	-0.174969
ER	-0.042867	1.000000	0.079375	0.103648
LR	-0.170313	0.079375	1.000000	0.990420
CSR	-0.174969	0.103648	0.990420	1.000000

Sources: Researcher's computation, 2023.

Based on the correlation results presented in table 1, we can conclude that there is a negative correlation between return on assets and expense ratio of -0.042867, which is considered a weak correlation. As a result, the correlation coefficient between return on assets and loss ratio is also negatively correlated to the tune of -0.170313, which can also be considered a very weak correlation coefficient, while the table also indicated that the return on assets and claims settlement ratio are negatively correlated to the tune of -0.174969, which is considered a very weak correlation coefficient. Based on the correlation statistics presented above in table 1, it is evident that there is a dominant opposite movement between the dependent variable, return on assets, and all of the independent variables in this study, namely the expense ratio, the loss ratio, and the claims settlement ratio among the insurance firms sampled and over the duration of the study. Therefore, where return on assets increases over time, expense ratio, loss ratio and claims settlement ratio have to fall.

Table 2: Pooled ordinary least square results

Dependent Variable: Return on assets (ROA)

Method: Panel Least Squares

Date: 04/16/23 Time: 13:07



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Sample: 2003 2022

Periods included: 20

Cross-sections included: 5

Total panel (balanced) observations: 100

Table 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.056469	0.016323	3.459402	0.0008
ER	-0.010851	0.050648	-0.214246	0.8308
LR	0.006298	0.035893	0.175465	0.8611
CSR	-0.008173	0.020088	-0.406860	0.6850
R-squared	0.031543	Mean dependent var		0.050657
Adjusted R-squared	0.001279	S.D. dependent var		0.075125

Using the pooled ordinary least square regression model presented in table 2 above, it was determined that expenses ratio exerts a significant weak negative impact on the return on assets of insurance companies when all heterogeneous factors and indicators affecting the insurance companies sampled in this study are excluded from the model. This effect is depicted by the estimated coefficient of -0.010851 (p-value 0.05 < 0.8308), loss ratio exerts a significant positive impact on the dependent variable, return on investment of the general insurance companies under studied with the coefficient of estimates of 0.006298 (p-value 0.05 < 0.8611), while claims settlement ratio exerts a substantial negative impact on return on assets of the insurance companies being studied as depicted by the coefficient estimates of -0.008173 (p-value 0.05 < 0.6850). According to the reported R-squared value of 0.031543, only about 3.15 percent of the fundamental or systematic variation in the return on assets of selected insurance companies can be explained by expense ratios, loss ratios and claims settlement ratios, but heterogeneous factors across all these firms were not included in the estimated model. It has been shown that the independent variables of the study, Loss, Expenses, and Settlement ratios, are only responsible for 3.15% of any changes in the dependent variable, return of assets (ROA), while other factors are responsible for the remaining 96.85% of changes in the dependent variable. According to the output equation line above, this is similar to the substituted coefficient.

Table 3: Fixed effect estimation

Dependent Variable: Return on Assets (ROA)

Method: Panel Least Squares

Date: 04/18/23 Time: 06:48

Sample: 2003 2022

Periods included: 20

Cross-sections included: 5

Total panel (balanced) observations: 100

Table 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.061962	0.025742	2.407071	0.0181
ER	-0.167178	0.069060	-2.420775	0.0175
LR	0.046508	0.032722	1.421285	0.1586
CSR	-0.030212	0.018247	-1.655664	0.1012
D2	-0.009104	0.021885	-0.415996	0.6784
D3	0.050664	0.022818	2.220331	0.0289
D4	0.032246	0.021984	1.466771	0.1458
D5	0.118650	0.025576	4.639160	0.0000
R-squared	0.277557	Mean dependent var		0.050657
Adjusted R-squared	0.222589	S.D. dependent var		0.075125
S.E. of regression	0.066239	Akaike info criterion		-2.514490
Sum squared resid	0.403654	Schwarz criterion		-2.306076
Log likelihood	133.7245	Hannan-Quinn criter.		-2.430141
F-statistic	5.049391	Durbin-Watson stat		1.372258
Prob(F-statistic)	0.000071			

Sources: Researcher's computation, 2023.

As noted by their low p values, the estimated variables C constant and expense ratio of Guinea insurance PLC, the dummy 3 coefficients of Sovereign trust insurance PLC, and the dummy entry created for Prestige Insurance PLC are significant. On the other hand, the estimated coefficients of loss ratio, claims settlement ratio, dummy value created in respect of Sunu Insurance PLC and dummy value in respect of Consolidated Hallmark insurance PLC tend to be insignificant as their p values are higher than the 0.05 level of significance. Statistically, Guinea Insurance Plc has intercept values of 0.061962, Sunu insurance Plc has intercept values of 0.052858 (0.061962 -0.009104), Sovereign Trust Insurance Plc has intercept values of 0.112626 (0.061962 + 0.050664), Consolidated Hallmark Insurance Plc has intercept values of 0.094208 (0.061962 + 0.032246), and Prestige Assurance Plc has intercept values of 0.180612. It is likely that these differences in intercepts are a result of the different underwriting policies, methods, and management styles of the companies involved.

Table 4: Fixed Effects Estimates (Cross-sectional and Time specific) for hypothesis one

Dependent Variable: ROA

Method: Panel Least Squares

Date: 04/19/23 Time: 07:52

Sample: 2003 2022

Periods included: 20

Cross-sections included: 5

Total panel (balanced) observations: 100

CROSS SECTIONAL SPECIFIC EFFECT	PERIOD SPECIFIC EFFECT
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Variables	Coefficients	Probabilities	Variables	Coefficients	Probabilities
C	0.097933	0.0000	C	0.141701	0.0002
ER	-0.155521	0.0161	ER	-0.014713	0.7546
LR	-0.007551	0.8125	LR	-0.052118	0.1563
CSR	-0.002467	0.8885	CSR	0.021894	0.2826
Effects			Effects		
Guinea insurance Plc	-0.035992	0.0602	2004	-0.001565	0.9728
Sunu insurance Plc	-0.044536	0.0065	2005	0.004232	0.9261
Sovereign trust insurance Plc	0.014515	0.4300	2006	-0.036853	0.4203
Prestige assurance Plc	0.072297	0.0160	2007	-0.041708	0.3627
			2008	-0.067770	0.1417
			2009	-0.109508	0.0186
			2010	-0.088417	0.0558
			2011	-0.124610	0.0076
			2012	-0.066024	0.1502
			2013	-0.122149	0.0089
			2014	-0.113761	0.0145
			2015	-0.089523	0.0530
			2016	-0.154028	0.0023
			2017	-0.094703	0.0410
			2018	-0.108266	0.0197
			2019	-0.150440	0.0014
			2020	-0.113750	0.0145
			2021	-0.061513	0.1803
			2022	-0.098520	0.0339
R-squared	0.587645		R-squared	0.377465	
Adjusted R-squared	0.440778		Adjusted R-squared	0.199598	
F-statistic	4.001221		F-statistic	2.122173	
Prob(F-statistic)	0.000002		Prob(F-statistic)	0.008382	

Sources: Researcher's computation, 2023.

According to table 4, heterogeneity effects across the sampled insurance companies over time are incorporated into the model to estimate the impact of expense ratio, loss ratio, and claims

settlement ratio on return on assets. Cross-sectional effect estimation results revealed that expense ratio exerts a slight significant negative impact on return on assets, with a coefficient estimate of $-0.155521(p=0.0161 < 0.05)$, loss ratio has an insignificant negative impact on the dependent variable to the tune of coefficient estimate of $-0.007551(p=0.8125 > 0.05)$, while claims settlement ratio also exerts an insignificant negative impact on the dependent variable as depicted by the coefficient estimate of $-0.002467(p=0.8885 > 0.05)$. The results for the period effect estimation also revealed that expense ratio has an insignificant negative impact on the return on assets to the tune of the coefficient estimate of $-0.014713(p=0.7546 > 0.05)$, loss ratio has an insignificant negative impact on the dependent variable as depicted by the coefficient estimate of $-0.052118(p=0.1563 > 0.05)$, while claims settlement ratio has exerts a positive but less significant impact on the dependent variable of the study by a coefficient estimate of $0.021894(p=0.2826 > 0.05)$. According to the cross-sectional specific estimate, intercept deviation terms for Guinea insurance Plc are -0.035992 , -0.072297 for Prestige assurance Plc, 0.014515 for Sovereign trust insurance Plc, -0.044536 for Sunu insurance Plc, based on the constant terms, 0.097933 , representing the intercept term for Consolidated hallmark insurance Plc as the reference firm. On the other hand, deviation from the intercept term of the reference period (2003) remained -0.001565 , 0.004232 , -0.036853 , -0.041708 , -0.067770 , -0.109508 , -0.088417 , -0.124610 , -0.066024 , -0.122149 , -0.113761 , -0.089523 , -0.154028 , -0.094703 , -0.108266 , -0.150440 , 0.113750 , -0.061513 and -0.098520 for 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021 and 2022 respectively, where the constant term 0.141701 stands for the reference period, 2003. For the cross-sectional effect and period-specific effect, the adjusted R-squared values were 0.440778 and 0.199598 , respectively. Based on the heterogeneity effect across firms, approximately 44% of the variation in return on assets can be explained by expense ratio, loss ratio, and claim settlement ratio. A heterogeneity effect over time can explain about 20% of the variation in the dependent variable if expense ratio, loss ratio, and claims settlement ratio are taken into account.

Random Effect Analyses

Table 5: Random effect estimation for hypothesis one

Dependent Variable: ROA
 Method: Panel EGLS (Cross-section random effects)
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Sample: 2003 2022

Periods included: 20

Cross-sections included: 5

Total panel (balanced) observations: 100

Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.076661	0.020260	3.783911	0.0003
ER	-0.082513	0.057484	-1.435403	0.1544
LR	0.029482	0.032250	0.914172	0.3629
CSR	-0.021068	0.018018	-1.169271	0.2452

Effects Specification		S.D.	Rho
Cross-section random		0.022362	0.1023
Idiosyncratic random		0.066239	0.8977

Weighted Statistics			
R-squared	0.068494	Mean dependent var	0.027972
Adjusted R-squared	0.039384	S.D. dependent var	0.070298
S.E. of regression	0.068900	Sum squared resid	0.455726
F-statistic	2.352960	Durbin-Watson stat	1.176074
Prob(F-statistic)	0.076954		

Unweighted Statistics			
R-squared	0.002885	Mean dependent var	0.050657
Sum squared resid	0.557123	Durbin-Watson stat	0.962027

Sources: Researcher's computation, 2023.

Based on the random effect estimation results presented in table 5, the heterogeneity effect across selected general insurance firms over time period is incorporated into the error term of the model, which indicates that expense ratio has a negative, insignificant impact on return on assets, with a reported coefficient estimate of -0.082513 ($p = 0.1544 > 0.05$). A reported coefficient of 0.029482 for loss ratio also has an insignificant effect on return on assets ($p = 0.3629 > 0.05$), whereas a coefficient estimate for claims settlement ratio is -0.021068 ($p = 0.2452 > 0.05$) which has a negative insignificant impact on return on assets. In weighted statistics, the R-squared value of 0.068494 indicated that the combination of expense ratios, loss ratios, and claims settlement ratios can explain only about 7% of the systematic changes in return on assets.

Hausman test for the random effect of the hypotheses of the study.

Table 6: Hausman test results for random effect of hypothesis one

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	10.868104	3	0.0125

Our Hausman test null hypothesis states that random effect analysis is appropriate for the study, whereas the alternative hypothesis indicates that fixed effect analysis is appropriate. According to Table 6, with a chi squared coefficient of 10.868104 alongside a probability of 0.0125, fixed effect analysis is appropriate for this computation because the p-value is less than 0.05 for this computation.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
ER	-0.167178	-0.082513	0.001465	0.0270
LR	0.046508	0.029482	0.000031	0.0021
CSR	-0.030212	-0.021068	0.000008	0.0015

Sources: Researcher's computation, 2023.

As a result, the p-values for the independent variables are significantly less than 0.05, indicating that they are significant.

POST ESTIMATION TEST RESULTS

HETEROSCEDASTICITY TEST

Table 7: Heteroscedasticity Test (Cross-sectional and Time specific)

	F-statistics	Probability
Cross-sectional	26.4291	0.0001
Time specific	36.01114	0.0000

Source: Researcher's computation, 2023.

The table 7 above presents the results of the heteroscedasticity test conducted with respect to both cross-sectional and period specific effects of the study variables. As reported in the table, the F-statistics values of 26.4291 and 36.01114 with probability values of 0.0001 and 0.0000 for cross-sectional and period specific effects respectively. This means that the measured values are homoscedastic with the probabilities in both cross-sectional and period specific effects are less than p-value of 0.05, we then say the variance in the residual values/error terms tends to be equal.

Conclusion and recommendations



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In line with the objective of the study- to ascertain the nature of relationship between the combination of expense ratio [ER], loss ratio [LR] and claims settlement ratio [CR], and return on assets [ROA] and to also reveal the extent to which the independent variable of the study – claims settlement practices as measured by these indicators influences the dependent variable of the study. It is found from the results above that each of the three indicators of the dependent variable have negative relationship with the dependent variable. Hence, a rise in these indicators means a fall in profitability of any non-life insurance company in Nigeria.

In the same vein, it is realised that the three indicators combined to explain only 3.2 percent of any changes that occurs in the dependent variable of the study as depicted by the R^2 value of 0.031543. therefore, for every 100 percent rise in the return on asset of an insurance company, claims settlement reduces it by 3.2 percent giving other factors not considered in this study to the responsibility of explaining the reason for the remaining 96.8 percent changes. Thus, it paved the way for future researchers to look into other factors that could explain such significant level of changes in the profitability of insurance companies in Nigeria.

As a result, it is recommended that general insurance companies in the Nigeria insurance industry take reasonable caution to ensure that underwriting strategies be devised in a way that problem of adverse selection will be avoided so that claims settlement will not deepen into their asset base that result in the company tending towards probability of ruin or actual business ruin.

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