Impact of Reinsurance Underwriting Operations on Assets Management of Insurance Companies in Nigeria

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Abstract: **This study examined the impact of reinsurance underwriting operations on assets management of insurance companies in Nigeria. The research design employed was an ex-post facto research design. A census of all the 58 insurance and reinsurance companies listed on the Nigerian Insurers' Association (NIA) and National Insurance Commission (NAICOM) as at 2018 was taken. Data for the study were collected from the annual publications of the Nigerian insurance digest and National Insurance Commission for 10 years' period 2009-2018. Panel data model was applied. Hypotheses of the study were tested at 5% significant level. Regression results revealed that reinsurance underwriting operations (Risk Retention Ratio and Reinsurance Dependent Ratio) have significant impact on assets management (return on assets) of insurance companies in Nigeria. The findings support the prediction of resource based view theory. The study recommends among others, that regulatory bodies and shareholders in the Nigerian insurance industry should put in place apposite mechanisms that will ensure effective underwriting practices considering indispensability of reinsurance in assets management.**

Keywords: **Assets Management, Reinsurance Underwriting, Risk, Firm Size, Firm Age**

I. INTRODUCTION

Reinsurance is a major financial activity which affords direct insurance companies, by facilitating a wider distribution of risks at worldwide level, in order to have a higher underwriting capacity and provide insurance cover aimed at reducing underwriters' capital costs. Reinsurance can be regarded as insurance of the insurer.

Oyekanmi (2016) sees reinsurance as the business of insuring an insurance company against suffering too great a loss from their insurance operations. Reinsurance can also be referred to as means of transferring the whole or part of liability of an insurance company to another insurer on a given insurance which they may have accepted. The author further said that reinsurance is the ceding of risks already accepted by an insurance company to another insurer called reinsurer. The means by which insurer lay off or pass on part of their liability to another insurer on a given insurance which they have accepted is called reinsurance. Reinsurance is a transfer of risk already insured by the direct insurer to the reinsurance company by paying reinsurance premium as consideration.

Insurance companies underwrite the risk of other companies but to mitigate their own risk, these insurance companies use reinsurance (Iqbal, Rehman & Shahzad, 2014). According to Casteris (2005), what distinguishes the insurance industry from other industries is that it operates on an inverse cycle. Therefore, insurance companies need to form an expectation about the future before risks can be accepted (Lelyveld, Liedorp & Kampman, 2009). This is however hinged on the fact that if too much risks are accepted, premium received may be insufficient to cover the required pay outs which may lead to financial distress. Consequently, insurance companies often transfer whole or part of their risks to another carrier called reinsurer (Obalola & Abbas, 2018). The importance of reinsurance in the insurance business cycle cannot be overemphasized. The benefits of reinsurance include increased capacity, technical expertise, allocation of risks and limitation of financial distress (Lloyds, 2019).

Reinsurance, according to International Association of Insurance Supervisors (IAIS) (2012) is an insurance contract between one insurer (reinsurer) and another insurer (cedant) to indemnify against losses on one or more contracts issued by the cedant in exchange for a consideration. Reinsurance contract is that based on insurer by considering specific premium transferred insured risk to second company while against primary insurer is responsible (Hoshangi,1966). It is an act of risk transfer where primary insurer cedes whole or part of the insured risks to Reinsurance Company for consideration known as premium, arrangement of which the insured is not privy. Kanbiro and Ayneshet (2019) harangued that the purpose of reinsurance is to reduce financial cost to insurance companies arising from the potential occurrence of specified insurance claims, enhancing innovation, competition and efficiency.

According to Reinsurance Advisory Board (2015), reinsurance provides a mechanism for insurers to reduce their underwriting risk across a broad range of non-life and life business classes. It thereby enables insurers to strengthen their own solvency and expand their capacity to absorb different types of business and customer risk, both catastrophic and non-catastrophic. In addition, reinsurance helps insurers to reduce the volatility of their earnings, accompanied by

positive effects on capital costs, which insurers can pass on to policyholders, for example in the form of lower prices.

Reinsurance companies take over the risks mostly based on a contract (insurance policy), in special cases following the law, from insurance companies. Covering large risks, insurance companies usually diversify risks among several subjects, which means that they reinsure a certain amount of risks. According to Cipra (2004), the task of reinsurance is not to remove or to reduce a damage occurred but to reduce the technical risk of an insurer by spreading the insured sum so that in case of insured event the payments of primary insurer and reinsurer do not affect the financial stability of the primary insurer. The reinsurance does not reduce the extent of damage but makes it more economically acceptable for insurance companies and their financial results more stable. Therefore, it is known as a vertical distribution of risk.

According to Jana and Eva (2015), several insurance companies' transactional items are affected by reinsurance operations which in turn affect their financial performances. These items include the items of assets of the balance sheet, such as deposits resulting from active reinsurance and receivables from reinsurance operations, and also items of liabilities of the balance sheet, which include deposits resulting from passive reinsurance and liabilities from reinsurance operations, and also various types of technical provisions which include participation of reinsurers. The balance sheet in total and hence the equity of insurance companies belongs to the affected values. Significant items in the profit and loss statement regarding the technical accounts for non-life and life insurance are also directly affected by the reinsurance operations. Particularly premiums ceded to reinsurers, commissions from reinsurers and reinsurers share on the relevant technical provisions are the affected items within these two essential parts of the profit and loss statement. The reinsurance operations affect the profit of a commercial insurance company following its financial statements.

In assessing assets management of insurance companies in Nigeria, the rise in disposable income, digitalization and automation of insurance services, a growing middle class, better adherence to operational guidelines by market players and innovative service delivery will enable the industry to achieve increased profitability and market penetration. The growth in the industry was buoyed by its investment income which rose to ₦65.88 billion in 2017 compared to ₦45.32 billion in 2016 representing 45.37% increase. The Nigerian Insurance industry remained resilient, recording a significant increase in the volume of business underwritten in the year 2017. The premium production stood at ₦365.06 billion compared to ₦315.96 billion in 2016, representing a percentage increase of 15.53%. The average annual growth rate of the Nigerian insurance sector in the between 2008 and 2018 is 14.29%. Non-life insurance premium income grew by 7.43% while Life insurance business recorded significant feats with a premium growth rate of 27.64% (Linkage Insurance Plc, 2018).

According to the Punch (2019), the total assets of the Nigerian insurance industry rose to ₦1.263trillion as at the end of year 2018 while the liabilities and equities of the sector stood at ₦645billion in 2018. The insurance industry's gross premium rose by 22 per cent to ₦315billion in the third quarter of 2018, from ₦258billion in the corresponding period of 2017. It added that the gross claim's figure rose by 30 per cent to ₦143billion in 2018 from over the ₦110billion reported for the same period in 2017.

Nigerian insurance industry is facing crucial problems that persistently led to their winding-up (Ogbuji & Ogunyomi, 2014). A lot of firms within insurance industry in Nigeria have closed down, some relocated while others are operating far below installation capacity. Achieving optimum level is not an easy task. It involves the ability of an insurance company to pay obligation as at when due as well as maintaining not too much and too little assets (Brigham & Houston, 2007). Insurance companies' assets include underwriting premium which is measured in term of underwriting capacity vis-à-vis company's risk retention.

Reinsurance underwriting operations are operationalized by many authors (such as Brigham & Houston, 2007; Cummins & Weiss, 2012; Aduloju & Ajemunighohun, 2017; Soye & Adeyemo, 2017; Adebowale & Adebayo, 2018) using different variables such as premium ratio, retention ratio, reinsurance dependence ratio, local reinsurer to foreign reinsurer ratio, and reinsurance dependence ratio. This study however operationalized reinsurance underwriting operations using Risk Retention Ratio (RRR) and Reinsurance Dependence Ratio (RDR).

Risk retention ratio is the ratio which indicates the percentage of the accepted risks retained by the insurer. It measures the risks intake capacity of an insurance company before ceding to Reinsurance Company. This ratio should be reasonable enough because if higher than 50% it is an indication of lower underwriting capacity (Soye & Adeyemo, 2017). Reinsurance dependent ratio gives information on reinsurance operation by technically unveiling the rate at which reinsured assets is measured based on ceded premium. The higher the reinsurance dependence ratio, the higher the demand for reinsurance (Soye & Adeyemo, 2018).

Assets management entails the process of planning and executing various activities put in plce by underwriters to ensure that insurance companies assets are not underutilized, that is optimally used to generate expected returns. The indicator measuring assets management used in this study is return on assets.

Return on assets (ROA) measures the profitability of all financial resources invested in a firm regardless of the sources of the fund. It is imperative to state that the return on assets is an effective measure of fundamental business operations, it

takes into account income statement as well as assets required to run the organization. ROA is very useful to investors as it gives insight on how a particular insurance company can convert its resources (money) into net income. It is also significant as it tells the extent to which an insurance company uses the resources at its disposal to earn income (Adebowale & Adebayo, 2018).

Insurance companies are aware of the impact of reinsurance on their return on assets but the insurance industry as a whole is inattentive of the impact of such practice on it. The companies in the insurance industry need to determining the fact of whether the industry has the benefit of improved profits by using reinsurance or undergoing from its negative characteristics. Insurance industry is extremely important for the survival of all industries; any trouble that could lead to financial distress and losses of insurance industry is very detrimental to the whole economy. Thus, assets management of an insurer is affected by its reinsurance strategies.

The central objective is to know the impact of reinsurance underwriting operations on assets management of insurance companies in Nigeria. Specifically, the study is hinged on the following objectives:

i. To examine the impact of reinsurance dependent ratio on return on assets of insurance companies in Nigeria
ii. To investigate the impact of risk retention ratio on return on assets of insurance companies in Nigeria

The study hypothesized that reinsurance dependent ratio and risk retention ratio have no significant impact on assets of insurance companies in Nigeria.

II. LITERATURE REVIEW

Conceptual Review

Reinsurance Underwriting Operation

Underwriting is the assessment of hazards attributed to the subject matter of insurance, and to determine whether the risk in question associated with the subject matter is to be accepted or rejected (Soye & Adeyemo, 2018). Bressan (2018) defined underwriting as a process whereby the underwriter analyzes, accept or reject risks for insurance (reinsurance) businesses; this process also involves assessing, classifying and selecting the insurable and non-insurable risks, setting the insurance periods, terms and conditions as well as liability limits and calculating the premium rates. The underwriter can also make use of past relevant risk data that can provide relevant information to the statistical possibility of certain type of risk.

An insurance underwriter is a professional that has the ability to understand the risks to which the underwritten object is exposed to before accepting it. This ability can be achieved through both theoretical studies applied to the risk, and the result of years of experience dealing with similar risks and paying claims on those exposures (Macedo, 2009).

Reinsurer underwrites businesses under reinsurance arrangement based on the accepted risks and the terms and conditions of the existing policy already inserted by the primary insurer under treaty reinsurance where cession and acceptance are mandatory and compulsory. However, under facultative reinsurance arrangement, reinsurer has the right to reject proposed ceded risk from the insurer if reinsurer is not satisfied with the condition at which the risk was accepted from the insured *ab initio*. Whenever reinsurer accepts risks from the reinsured, the premium representing the proportion of the sum insured ceded to the reinsurer is paid to the reinsurer. However, the reinsured received commission in return for the risk ceded to the reinsurer. This commission is known as overriding commission which constitutes income to the reinsured. In this study, risk retention ratio (RRR) of insurance companies and reinsurance dependent ratio (RDR) are proxies used to operationalize underwriting operations of a reinsurance company.

Assets Management

According to Akhilesh (2021), assets management is the practice of increasing total wealth over tine by acquiring, maintaining, and trading investments that have the potential to grow in value. The central goal of asset management is to maximize the value of an investment portfolio over time while maintaining an acceptable level of risk. Insurance companies' assets are classified into admitted, invested and non-admitted assets.

Under statutory accounting, some assets have no value. Admitted assets of insurance companies are assets permitted by state law to be included in the company's financial statements, usually the balance sheet. These assets often include mortgage, account receivable, stocks and bonds. The assets must be liquid and available to pay claims when necessary. Non-admitted assets are assets that have no value to fulfill policyholder obligations and cannot easily be converted to cash. Non admitted assets include office furniture, prepaid expenses, and fixtures. Insurers are primarily concerned with whether they are financially capable of paying out their claims. Excluding non-admitted assets gives insurers a clearer picture as to whether this responsibility is compromised or possible (Laura, 2021).

Effective management of assets can be captioned on how much the assets yield while performing risk underwriting and claims settlement mandates of insurance company which can be measured as an integral part of overall financial performance of an insurance company. In determining the yield of assets via-a-via reinsurance underwriting operations, this study used return on assets (ROA).

Return on assets (ROA) shows percentage of profit a company earns to its total assets. ROA gives an idea as to how efficient management is at using its assets. Thus, ROA is considered as a measure of efficiency (Yusuf & Dansu, 2018). A firm with high ROA means that the company is good at translating assets into profit. ROA is generally seen as a stable financial

performance ratio, an increasing ROA is evidence that a firm generate more profitability while decreasing ROA is an evidence that a firm generates less profitability (Obonyo, 2016). ROA is obtained by dividing net income with total assets. Total assets are the summation of both current and non-current assets as indicated in the financial statement of an organization.

Firm Size

There are many measurements used by various scholars on firm's size. Vithessonthi and Tongurai (2015) used medium of total assets as proxy for firm's size. Nason, Mckelvie and Lumpkin (2015) used organizational size as measurement of firm's size. Researchers like Almalli (2015) and Majundar (1997) used natural logarithm of sales as proxy for firm's size. Kanji (2017) used natural logarithm of total asset as proxy for firm's size. Size of the firm to a large extent affects performance. Penrose (1959) assert that characteristics like diverse ability, ability to produce in large qualities and formalization of procedure are some of the advantages of large firms over small firms. Firm size is an inherent firm's characteristic influencing profitability. This study adopts natural logarithm of total assets as proxy for firm size.

Firm Age

There are numerous indicators of performance. The relationship between a company's age and performance has been investigated by many researchers (Choi, 2010; Mehari & Aemiro, 2013; Xie, 2010; Burca & Batrinco, 2014; Kramaric *et al.*, 2017) but early empirical studies on firm dynamics looked at firm size but not firm age. Interest in firm age has begun to grow, as some studies included age as an explanatory variable in regressions that investigate differences in firm performance. According to Kramaric *et al.* (2017), as firms get older, the weight of external financial sources steadily decreases while the equity ratio steadily becomes a more important financial source. The correlation analysis shows its coefficients remain negative for older firms, suggesting that firm growth remains an erratic process even for experienced firms. As used by Kramaric *et al* (2017), this study uses number of years of a company from date of incorporation as proxy for firm's age.

Theoretical Review

Resource Based View Theory

This theory explains the ability of a firm to cut a competitive edge for itself through efficient utilization of resources. (Mahoney & Pandian, 1992). They argue that this is possible when firms manage their resources in such a unique way that its peers cannot imitate, hence creating a competitive barrier. In order to have a sustainable competitive advantage, firms must make sure that its unique resources cannot be mimicked by competitors.

Barney (1991) proposes a framework of determining the competitiveness of resources owned by firms: VRIN criteria. That is, resources must be Valuable, Rare, In-imitable and Non substitutable. According to the resource based theory, a firm's resources which cannot be duplicated by other firms will result to superior performance over the competitors. Over time completion may learn to develop resources similar to the unique resources owned by firm hence the need for firms to continually innovate and reengineer its resources in order to remain competitive to meet future needs of its customers.

Makadok (2001) explains the thin difference between the term resources and capabilities. He defines a firm's capabilities as the special types of resources, specifically those which are specific to it, are non-transferable and embedded to the organization. The sole function of these resources is to enhance the productivity of its other resources. The resource based view has generated a lot of interest from various management researchers and there is an extensive literature on the same. By insurance companies embracing re-insurance programs, they gain a competitive advantage due to improved financial soundness which results from risk spreading. Insurance companies are therefore able to compensate policy holders comfortably, when insured risks occur. As supported by Obonyo (2016), to reap maximum competitive advantage, insurance firms are expected to craft their reinsurance programmes for various classes of insurance in a manner appropriate to unique characteristics of their underwriting book towards managing their assets efficiently.

Empirical Review

Adebowale and Adebayo (2018) studied the effect of reinsurance utilization on financial and non-financial performance of non-life insurance companies in Nigeria. By using log transformation regression to measure the effect on financial performance measured by return on assets and content analysis to measure the effect on non-financial analysis, the study found a significant relationship between reinsurance utilization and performance of non-life insurance companies in Nigeria. The study also stated the importance of non-financial performance indicators like customers' satisfaction, claims management procedures, time lag. The present study considered both life and non-life insurance companies in Nigeria.

In another study, Lee (2014) examined the firm-specific factors and macroeconomics that affect the profitability of Taiwanese property-liability insurance companies. The study covers the period from 1999 to 2009; measured profitability by operating ratio and ROA and used auto regressive distribution lag (ARDL) for analysis. The findings of the study showed that underwriting risk, reinsurance usage, input cost, return on investment, and a member of a financial holdings group affect operating ratio and ROA significantly. Also, the study shows that there is significant relationship between economic growth rate and operating ratio. The result further shows that the market share has a negative significant effect on operating ratio, while financial leverage negatively significant correlated with ROA. Finally, firm size, firm

growth, diversification, and inflation rates are not significantly correlated with operating ratio and ROA of Taiwanese property-liability insurance companies. Meanwhile, this study adds ROE to ROA used in Lee (2014) as proxy of profitability. Both studies failed to examine in details the risk underwriting capacity relationship between reinsurance and insurance companies that has influence on profitability.

Burcă and Bătrînca (2014b) analyzed the determinants of the demand for reinsurance in the Romanian insurance market. Using autoregressive distribution lag (ARDL), the study determined some indicators such as the return on total assets ratio, company size, age of the company, financial leverage, growth of gross written premiums, underwriting risk, solvency margin, taxes and group affiliation, the amount of reinsurance purchased, and Diversification, the study concluded that the determinants of the demand for reinsurance in the Romanian insurance market are the return on total assets (ROA) ratio, company size, number of years since the company operates in the Romanian insurance market and the financial leverage in insurance. The present study used panel data to evaluate the relationship between reinsurance operations and insurance companies' assets management from Nigeria context.

Mehari and Aemiro (2013) examined the impact of firm-specific factors (size of the company, leverage, tangibility of assets, loss ratio, growth in writing premium, liquidity, and age of the company) on the ROA of nine Ethiopian insurance companies during the period from 2005 to 2010. The study adopted ex-post facto research design and OLS for analysis. According to the findings of the study, the financial performance of Ethiopian insurance companies is significantly influenced by the size of the company, tangibility of assets, and leverage positively, while loss ratio significantly influenced financial performance negatively. The results also show that the age of the company, growth in writing premium, and liquidity are not significantly correlated with financial performance. The current study evaluates the impact of reinsurance operations on assets management of Nigerian insurance companies between 2009 and 2018.

In addition, Aduloju and Ajemunigbohun (2017) studied reinsurance and performance of the ceding companies: Nigerian insurance industry experience. The objective of the study was to investigate the relationship between reinsurance and underwriting profit, gross premium income, and financial stability of insurance companies in Nigeria. The study adopted mixed research approach. According to them, the ratio of ceded reinsurance and reinsurance recoverable to policyholder's surplus are the usual measures of reinsurance utilization. Surplus refers to equity capital, while "recoverable' represent funds owed by reinsurers to insurance companies. By using questionnaire, they found a significantly positive relationship between Reinsurance capacity and gross written premium, a significantly positive relationship between reinsurance capacity and profitability of insurance companies and a significant relationship between reinsurance capacity and financial stability of insurance companies in Nigeria. The current study adds to time scope of the study.

Furthermore, Cummins *et al*. (2012) studied the determinants of reinsurance counterparty relationships and the linkage between these relationships and insurer financial performance, in the U.S. property liability (P-L) insurance industry, using regression analysis, with reinsurance counterparty relationship as dependent variable by using three measures (utilization, exposure, degree of concentration) and firm characteristics as independent variables, and measure the impact of reinsurance counterparty relationships on primary insurer financial performance (ROA and ROE), and frontier efficiency analysis to estimate cost, revenue, and profit efficiency)and measure efficiency utilizing data envelopment analysis (DEA), there are a negative relationship between firm size and reinsurance Utilization, insurers that write a higher portion of business in riskier lines will purchase more reinsurance, a positive relationship between firm size and reinsurance concentration, reinsurance utilization is positively related to all types of efficiency, ROE and ROE, whether utilization is measured by premiums ceded or recoverable. The present study considers reinsurance operations in Nigeria as it affects assets management of insurance companies in Nigeria.

III. METHODOLOGY

Research Design

This study adopts *ex-post facto* design. Longitudinal panel data were used over a period of time to determine the impact of reinsurance underwriting operations on assets management of insurance companies in Nigeria. This is suitable for the work given that it is based on an already completed event and the researcher is meant to analyze the outcomes of the already completed event and draw reasonable conclusions (Nwaiwu, 2017).

A descriptive study was used in this study because it helps to reduce bias and maximize the reliability of the data collected. According to Walliman (2011) descriptive study tries to look at things so as to ascertain what the norm, that is, is what can be foretold to happen once more beneath the same circumstances.

Sources and Nature of Data

Data for this study were sourced from secondary data because of convenience, accuracy and reliability. Therefore, data for this study were strictly extracted from the financial statements of listed insurance companies for 2009-2018 as published by the Nigeria Insurers' Association (NIA) and National Insurance Commission (NAICOM). The justification for the use of secondary data in this research is that; it was available which is entirely appropriate and wholly adequate to draw conclusions and answer the question or solve the problem raised in this study.

Population and Sample Size

The population of the study constitutes a total of 58 insurance and reinsurance companies operating in the Nigerian insurance market as at December, 2018 which comprises 13 specialist life companies, 27 non-life companies, 14 composite companies, 2 Takaful insurance companies and 2 Reinsurance companies listed on the Insurance Digest of the Nigeria Insurers' Association (NIA) and as indicated on the insurance companies balance sheets of the National Insurance Commission (NAICOM) as at 31st December, 2018. A total number of 34 insurance companies that have transacted insurance business continually and published financial data from December, 2009 up to December, 2018 were sampled for this study.

Model specification and Prior Expectation

The model used for this study was adapted with modification from Soye and Adeyemo (2017):

$$ROA_{it} = \alpha + \beta_1 (RRR_{it}) + \beta_2 (RDR_{it}) + \beta_3 (FA_{it}) + \beta_4 (FS_{it}) + \square_{it}$$

Where:

ROA_{it} = Return on assets of company *i* at time *t*
RRR_{it} = Risk retention ratio of company *i* at time *t*
RDR_{it} = Reinsurance dependence ratio of company *i* at time *t*
FS_{it} = Firm size of company *i* at time *t*
FA_{it} = Firm age of company *i* at time *t*
α = Constant term
$\beta_{1, 2....4}$ = Coefficient
$\square$ = Composite error term

Techniques of Data Analysis

Data for this study were analyzed using multiple regression analysis. Multiple regression examines the relationship between a single outcome measure and several predictors or independent variables. The multiple linear regression model is an extension of a simple linear regression model that incorporates two or more explanatory (independent) variables in a prediction equation for a response (dependent) variable. In this study, the statistical analysis used consisted of percentage analysis, descriptive analysis, correlation analysis and regression analysis. In addition, robustness test was carried out in order to identify and solve the common problems that may occur in estimating location, scale and regression parameters.

Also, pre and post estimate diagnostic tests was carried out. The pre-estimation diagnostic test used in this study included multicollinearity test and normality test while the post estimation diagnostic test was autocorrelation test. The hypotheses of the study were tested at 5% level of significance using Hausman test to choose appropriate model to use between pool OLS, fixed effect and random effect models. The analysis was conducted using Stata 13.0 and E-view 10.0 statistical packages.

IV. DATA PRESENTATION, ANALYSIS AND RESULTS

Data Presentation

This study examined the impact of reinsurance underwriting operations on assets management of insurance companies in Nigeria for the period, 2009 to 2018. Out of 58 registered insurance and reinsurance companies in Nigeria as at 2018, the study analyzed data from 34 companies representing 63% who qualified under the filtering criteria. This rate is adequate as it is above the recommended 50% (Mugenda & Mugenda, 1999).

Table 1. Descriptive Statistics of The Variables Used For The Study

	ROA	RDR	RRR	FS	FA
Mean	0.01894	0.104586	0.765661	7.018549	30.50
Median	0.025256	0.07487	0.794078	6.973981	27.00
Maximum	0.20755	0.53335	0.999855	8.495222	60.00
Minimum	-0.598337	1.35E-05	0.294188	6.006545	1.00
Std. Dev.	0.074752	0.10656	0.171044	0.35921	16.15
Skewness	-2.433105	1.57924	-0.630808	0.875334	0.10
Kurtosis	18.93009	5.428476	2.567907	4.903863	1.83
Jarque-Bera	3930.509	224.8744	25.19372	94.76841	19.99
Probability	0	0	0.000003	0	0.00
Sum	6.439663	35.5592	260.3248	2386.307	10370.00
Sum Sq. Dev.	1.894273	3.849348	9.917784	43.74174	88425.00
Observations	340	340	340	340	340.00

Source: E-View 10.0 Output, 2022

Table 1 indicates that the average value of return on assets is 0.0189418 with a standard deviation of 0.074752. The minimum and maximum values stood at -0.583 and .2076 respectively. This means for every ₦1 invested in the assets, the insurance companies generated a return of ₦0.02. The positive value of return on assets indicates that on average, insurance companies are profitable, though some operate at loss as shown by negative minimum value of return on assets.

Considering the risk retention ratio of insurance companies in Nigeria, the average value is 0.7656588 while the standard deviation, minimum value and maximum value stood at 0.1710447, 0.2942 and 0.9999 respectively. This implies that on the average, Nigerian insurance companies retain 77% of their insured risks while the minimum and maximum retained risk is 29% and 99% respectively.

Furthermore, the average value of reinsurance dependence ratio is 0.1045862 with a standard deviation of 0.106558. The maximum and minimum values stood at 0.5334 and 0.00e-05 respectively. This implies that on the average, Nigerian insurance companies have 10% dependence on reinsurance companies for their business transaction. The maximum and

minimum value of 0.5334 and 0.00e-05 indicates that at most 53% of insurer insured risks are ceded to reinsurer while infinitesimal minimum figure indicates that reinsurance of risk is practically impossible by one of the companies.

In measuring dispersion of the variables, the highest and lowest values are reinsurance dependent ratio and return on equity with 1.579253 and -17.1007 skewness values respectively. The skewness high negative value of the variable shows the data distribution is negatively skewed.

Looking at the peakedness of the distribution, return on equity and return on assets have the highest kurtosis values of 307.8752 and 18.92723 respectively while firm age and reinsurance commission ratio with corresponding kurtosis value of 1.830156 and 1.706094 record the lowest in the distribution. This implies that data distribution is leptokurtic.

Correlation Matrix

Table 2. Correlation Matrix

	RDR	RRR	FS	FA
RDR	1			
RRR	-0.719205	1		
FS	0.057398	-0.18658	1	
FA	0.059948	-0.086487	0.24202	1

Source: E-View 10.0 Output, 2022

Table 2 presents the correlation matrix of all the explanatory and control variables used in the study and they include: Risk Retention Ratio (RRR) and Risk Dependent Ratio (RDR). While the control variables used in the study are firm size (FS) and firm age (FA).

As shown in table 2, the coefficient of all the variables were less 1.00, meaning that the data for the study is free from multicollinearity as recommended by Brooks (2008) (as cited in Suleiman, 2013). As shown in table 2, the variables with the highest positive correlation are between firm size and firm age and reinsurance dependent ratio and firm age with 24% and 6% relationship respectively.

In the same vein, the variables with highest negative coefficient are established between reinsurance dependent ratio and risk retention ratio, and risk retention ratio and firm size with -72% and -19% respectively.

Stationarity Test for Unit Root

To ensure stationarity of the data series used in the study, the study conducted the Levin-Lin Chu (LLC) panel unit root test. The data series on which this was conducted are: return on assets (ROA), risk retention ratio (RRR), reinsurance dependent ratio (RDR), firm age (FA) and firm size (FS).

Table 3. Levin-Lin Chu (Llc) Panel Unit Root Test

Variables	*Unadjusted Statistic*	*Order of Integration*
ROA	-17.4146	I(0)
RRR	-18.4696	I(0)
RDR	-18.4818	I(0)
FA	-14.4221	I(0)
FS	-21.608	I(0)

Source: Strata 13.0 Output, 2022

The result of stationary of unit root test using LLC illustrated in table 3 indicates that all the variables used for this study are stationary at levels based on order of integration.

Hypothesis Testing

In testing all the two hypotheses of this study, multiple regression model was employed. The tests explain the impact of reinsurance underwriting operations proxies – risk retention ratio, reinsurance dependent ratio, on assets management measured by return on assets using panel data regression analysis for the study.

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Ho_1: reinsurance dependent ratio has no significant impact on return on assets of insurance companies in Nigeria.

Ho_2: risk retention ratio has no significant impact on return on assets of insurance companies in Nigeria.

Data used for testing these hypotheses are risk retention ratio (RRR), reinsurance dependent ratio (RDR) as independent variables while return on assets was used as dependent variable. In addition, two control variables consisting firm size (FS) and firm age (FA) were used. Regression result used in testing hypothesis one and two is presented in table 4.

Table 4. Regression Result Of Risk Retention Ratio, Reinsurance Dependent Ratio (Independent Variable) On Return On Assets (Dependent Variable)

Variable	**Pooled OLS**	**Fixed Effect**	**Random Effect**
	Coefficient	*Coefficient*	*Coefficient*
RDR	0.091593	0.080017	0.091593
	*0.0819	*0.0041	*0.1275
RRR	-0.049613	-0.068341	-0.49613
	*0.1363	*0.0067	*0.0438
FS	0.045371	0.055106	-0.000358
	*0.0001	*0.0067	*0.0023
FA	-0.000358	-0.000281	0.045371
	*0.1478	*0.0023	*0.0016
Hausman Test			
Chi-Sq. Statistic	11.338822		
Prob.	0.023		
Model Summary			
R-squared	0.106384	0.139755	
Adj. R-squared	0.098714	0.105451	
Durbin-Watson Stat.	0.93249	0.943436	
F-statistic	9.970306	4.073991	
Prob (F-statistis)	0.000000	0.000003	

* Represents p-value result tested at 5% significant level
Source: E-view 10.0 Output, 2020 (Appendix D(I))

Table 4 shows the panel data regression result of the effect of reinsurance underwriting operations on return on assets of insurance companies in Nigeria using Pooled OLS, random and fixed effect models. Hausman specification test was employed to choose between random and fixed effect models. The result indicates that fixed effect is preferable (as revealed by Chi^2 of 11.34 with corresponding p-value of 0.02). Thus, the study used the result of fixed effect in table 4 to answer hypothesis one.

The result reveals that number of observations under the study was 340. The regression model indicates that 13.97% of the variations in the dependent variable (return on assets) were explained by variation in the independent variables (risk retention ratio and risk dependent ratio) and control variables (firm size and firm age) as shown in table 4.5. The adjusted R-squared value of 0.1055 demonstrates that 10.55% of the variations in the dependent variables were explained by the regression model. The remaining 89.45% were explained by other factors.

Furthermore, the result of the regression model for testing hypotheses one and two shows that reinsurance dependent ratio and risk retention ratio have statistical significant impact on return on assets of insurance companies in Nigeria as evidenced by the p-value of 0.0041 and 0.0067 respectively. Therefore, the null hypotheses (Ho_1 and Ho_1) which are rejected.

Also, the following regression equation signifies the relationship between independent (reinsurance dependent ratio and risk retention ratio) and dependent variable (return on assets) as shown in table 4.

$ROA_{it} = -0.315341 - 0.068341\beta_1 + 0.080017\beta_2 - 0.000280\beta_3 + 0.055106\beta_4$

The model one indicates that the Y-intercept is -0.315341 which means that -0.315341 is an autonomous component of return on assets (dependent variable) that is not affected by other variables (both independent and control variables) in this model. The risk retention ratio affects return on assets by -0.068341. This shows that there is a weak negative relationship between risk retention ratio (RRR) and return on assets whereby a N1 increase in risk retention ratio leads to about 7% decrease in ROA and otherwise. The reinsurance dependent ratio affects return on assets by 0.80017. This shows that there is a weak positive relationship between reinsurance dependent ratio (RDR) and return on assets whereby a N1 increase in reinsurance dependent ratio leads to about 8% increase in ROA and otherwise. Looking at the control variable components of this model, firm age (FA) shows a weak negative relationship value of -0.000280 on ROA. This means that a unitary increase in the firm age of insurance company will produce an increase in ROA by less than 0.028%. However, firm size (FS) discloses a weak positive relationship effect on ROA by about 6% (0.055106).

In addition, the results show that all the variables in this model have significant impact on return on assets of Nigerian insurance companies as indicated by their p-values of 0.0067, 0.0041, 0.0023 and 0.0016 for RRR, RDR, FA and FS respectively.

Discussion of Findings

Hypothesis one (Ho_1) test result revealed that that reinsurance dependent ratio have significant effect on asset management of insurance companies in Nigeria (return on assets) of insurance companies in Nigeria. This was evidenced from the p-value of 0.0041 which is < 0.05. Thus, Ho_1 is rejected. This finding supports that of Obonyo (2016) and Oladunni (2021) and prediction of transaction cost theory.

Hypothesis two (Ho_2) test result also revealed a statistical significant relationship between risk retention ratio and asset management of insurance companies in Nigeria. However, coefficients of risk retention ratio (RRR) and firm age (FA) revealed negative relationship with return on assets (ROA). This result supports the prediction of resource based view theory which explained the ability of a firm to cut a competitive edge for itself through efficient utilization of resources. It further revealed that if risk retention ratio (RRR) increases above normal, profitability may be hampered due to catastrophic loss. This finding contradicts the findings of Soye and Adeyemo (2018), Aduloju and Ajemunigbohun (2017) and Shiu (2004). They all found out that risk retention ratio (RRR) has positive relationship with financial performance. This negative relationship implies that if a company retains more risk and hence cedes less risk to reinsurer, it follows that it will bear more losses than reinsurer in case claims occur vice versa.

The fact that there is a negative relationship between risk retention ratio and return on assets of insurance companies shows that priority should be placed by the regulatory bodies such as National Insurance Commission (NAICOM) and Nigeria insurers' Association (NIA) on the standard risk retention level for underwriters transacting insurance business within the Nigerian insurance industry to ensure they maintain adequate risk retention level in order to prevent poor performance in underwriting capacity and claims settlement which could impede efficiency in assets management.

V. CONCLUSION AND RECOMMENDATION

Conclusion

There exists a negative statistical significant relationship between risk retention ratio and assets management of insurance company. That is, when an insurance company retains more premiums, it also takes a proportionally larger share in losses which reduces its net profit that could have provided more return on assets, and vice versa. Reinsurance reduces the amount and ratio of insurance premiums retained and thus reduces the loss exposure of insurance companies and actual losses.

The positive statistical significant impact of reinsurance dependent ratio on assets management of insurance companies indicates that reinsurance dependent ratio contributes positively to effective assets management of insurance companies. It implies that, insurance companies should develop appropriate reinsurance mechanism at mitigating their loss absorption especially when underwriting specially risks.

Recommendations

Based on the findings of the study and review of relevant literature, the following recommendations are offered:

1. Regulatory bodies and other stakeholders in the Nigerian insurance industry should put in place appropriate mechanisms that will ensure effective underwriting and claims management practices. This can be done through automated actuarial evaluation and recommendation of standard retention level which affect reinsurance dependent ratio for different classes of risk, and monitoring of implementation of same. By so doing, profitability would be achieved and thus increase return on assets.
2. Technical staff training and retraining for effective underwriting and claims management practices is also recommended. This is because quality underwriting will result to quality business being written at appropriate reinsurance arrangement when claims surface in order to protect assets of insurance companies.

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