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Article

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Underwriting Capacity and Financial Performance on Non-Life Insurance Companies in Nigeria

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Abstract

Insurance business model is uniquely different from other financial institutions. This is because its operation relies on the projection of expected future risk (claims cost) before risk can be accepted. Hence, performance this role rests on the available underwriting capacity before risk can be assumed. Cumulative underwriting capacity of insurance companies in Nigeria seems weak compared to the quantum of gross premium generated. This is evident in their inability to assume larger unexpected risks especially in energy and aviation market. Therefore, the aim of this study is to examine the impact of joint underwriting capacity variables on the financial performance of non-life insurance companies in Nigeria. The study adopted correlational research design. A census of forty-one (41) non-life insurance companies operating in Nigeria as at December, 2019 were used for the study. The study made use of aggregate annual reports of all the forty-one companies operating in Nigeria over a ten year period of 2008 to 2017. The study used reserve, reinsurance utilisation and shareholders' fund as underwriting capacity variables while solvency, liquidity and profitability (ROA) were used as indicators of financial performance. The study revealed that underwriting capacity variables (reserves, reinsurance utilisation and shareholders' fund) jointly have significant impact on the financial performance of non life insurance companies in Nigeria with a p-value of 0.0054. However, the individual check of the variables showed reserve has no significant influence on the financial performance. This implies an insurance company will want to avoid depleting its reserve since it is statutory and highly regulated. The study therefore recommended that non-life insurance companies in Nigeria must strive to constantly increase their financial capabilities and strategize their underwriting tentacles when assuming risk from insuring public.

1. Introduction

Insurance has been proposed by many risk management scholars as the driving force of modern risk management technique which seeks to discover the source from which risk may emanate, and then evaluate its subsequent impact on an organisation or individual (Rejda & McNamara, 2013; Loomba, 2014). Ability to seek insurance protection by individuals and organisations serves as an effective way of risk transfer, creation of common pool, equitable premium, and generation of invisible earnings (Dionne & Triski, 2008; Oluoma, 2014). Operation of insurance business model is uniquely different from other financial intermediation businesses. Unlike these other financial intermediation businesses, insurance business relies on the formation of an expectation of future risks before they can be accepted (Lelyveld *et al*., 2011; Abass & Obalola, 2018). The performance of these expectations among other functions depends solely on financial security mechanism adopted by and the availability of underwriting capacity to assume the risks transferred. Therefore, the inverse cycle nature of insurance business rests on underwriting capabilities, investment and ability to pay claims (Lelyveld, et al, 2011; Kamau, 2013). Consequently, effective underwriting may lead to increase in investment and subsequently lead to predictable claims trend which may help an insurance company to arrive at a more profitable operation. Therefore, a relationship may exist between underwriting capacity of an insurance company and its profitability level.

1.1. Statement of the problem

Despite the importance of underwriting capacity to the operations of insurance business, Nigerian insurance companies seems not to give enough priority to it. This is evident in their inability to assume larger unexpected risks due to poor underwriting capacity. Hence, some of them had voluntarily raise capital either through private or public placement. For example, in 2018, twenty five (25) out of fifty eight (58) registered insurance companies in Nigeria voluntarily sought for recapitalisation process due to their inability to play in high risk market especially in the energy and aviation sectors. Inadequate capacity had further been observed by the nation's regulatory body, National Insurance Commission (NAICOM). The regulatory body issued a directive mandating all insurance companies (life, non-life and reinsurance)

operating in Nigeria to recapitalise before the end of third quarter of 2020. Consequently, frequent use of reinsurance protection by Nigerian insurance companies had been sharply traced to poor underwriting capacity orchestrated by reduction in financial performance indicators (Obalola & Abass, 2016). In bridging this gap, most non-life insurance companies spend huge amount of money on reinsurance premium; a monetary exchange for risk transferred. Reinsurance premium serves a cash outflow which further depletes their profitability. For instance, total premium written by non-life companies in Nigeria in 2014 amounted to $1.8 billion out of which $1.2 billion was ceded to reinsurance companies as reinsurance premium representing 67% in reinsurance premium (Nigerian Insurance Digest, 2015). The significant use of reinsurance protection may not be unconnected to poor underwriting capacity of non-life insurance companies in Nigeria. Though, some of the previous studies like Kamau (2013) and Mayers and Smith (1990) had looked at single variable as indicator of underwriting capacity. Less effort had been geared towards looking at combinations of variables with a view to ascertaining their level of contributions on underwriting capacity vis-a-vis financial performance. This research therefore seeks to fill this void. The aim of this study is to examine the impact of joint underwriting capacity variables on the financial performance of Non-life insurance companies in Nigeria.

In view of the above, the hypothesis to be addressed in this study is:

$H_{o1:}$ *There is no joint significant impact of underwriting capacity variables on financial performance of non-life insurance companies in Nigeria.*

2. Literature review

2.1. Concept of underwriting capacity

Survival of insurance companies has been largely traced to their capacity to accept, retain or outright rejection of risk presented by a proposed policyholder. Capacity to underwrite is the financial ability of an insurer to determine the limit of its risk shouldering (Soye & Adeyemo, 2018). Hence, underwriting capacity according to Kerman (2012) demonstrates the maximum liability that an insurance company is willing to assume from its underwriting activities. Though, there is no general consensus on the major indicators of underwriting capacity, recent research trends lean towards reserves, shareholders' fund and reinsurance utilisation (Mayers & Smith, 1990; Baur & Donogue, 2004; Cummins *et al.;* 2012; Kerman, 2012). Reserve limits are established by regulatory agencies as set of an amount that must be set aside by insurers. It accounts for certain percent of the total present value of in-force for business portfolio less the present value of future premiums to be received plus interest (Society of Claims Professionals, 2009). The need for reserve as key determinant for underwriting capacity according to Faculty and Institute of Actuaries (1997) include ensuring financial soundness, adequate pricing to cater for future claims cost, and determine insurer's net worth and retention level. On the other hand, Shareholders' funds according to Kerman (2012) are assets of a policyholder-owned insurance company minus its liabilities. Shareholders' fund is made up of capital which gives a company continuity of ownership. It is measured by the risk of insolvency of an insurance company. More importantly, Robbin (2004) asserts that shareholders' fund is an indicator used by insurance regulator to identify insurer that needs more attention due to financial weakness or over-reliance on reinsurance. Reinsurance utilisation however stabilizes insurance companies' operations (Veprauskaite & Sherris, 2012). Other specific benefits of reinsurance are stabilization, protection against catastrophic loss, spread of risks and stability of profits (Loomba, 2014; Rejda, 2013). On a flip side, Froot (2001) suggests that reinsurance may be expensive on the long run especially when an insurance company is experiencing inadequate capacity. This view is further supported by Baur and Donogue (2004), Cummins *et al.* (2012), Iqbal, Rehman & Shahzad (2014), and Abass & Obalola (2018). The authors at various outcomes of their studies revealed that reinsurance utilisation may lead to high transaction cost, increases bankruptcy costs, and reduces underwriting efficiency. Hence, the decision to reinsure according to Outreville (2006) can be seen as a specialized form of risk finance due to constraint on underwriting capacity and capital management function.

2.2. Concept of financial performance

Financial performance refers to the degree of overall financial health of an organisation over a given period of time (Bhunia, Mukhuti & Roy 2011). According to Campbell (2007), it involves a distinct process that determines the efficiency and performance of firm's management as reflected in the financial records and reports. Generally, financial performance of business organisation is measured with the use of financial ratios. Abate (2012) defines financial ratios as a class of financial metrics that are used to assess a business' ability to generate earnings as compared to its expenses and other relevant costs incurred during a specific period of time. Most widely used financial performance metrics in insurance business are profitability, liquidity, solvency, premium growth rate, leverage, operational efficiency, Return on Invested Capital (ROIC) (Malik, 2011; Delen *et al.,* 2013; Turley & Robbins 2015). This study however conceptualizes financial performance to include liquidity, profitability and solvency (Malik, 2011; Lee & Lee, 2012; Iqbal *et al.*, 2014).

The term liquidity measures the ability of insurance companies to fulfil their immediate commitments to policyholders and other creditors without increase in profits on underwriting and investment activities and/or liquidate financial assets (Ayele, 2012). It is mostly significant for non-life insurance companies due to the nature of business (Obalola & Abass, 2016). Unlike life insurance business that deals with accumulation of funds for over period of time, non-life insurance business is on a year basis (Turney & Robins, 2015). Liquidity ensures that an insurance company has enough short-term assets to cover its immediate liabilities (claims costs) (Barney, 1991). Profitability however is the ability of a given investment to earn a return from its use (Tulsian, 2014). In measuring profitability of an organisation, profitability ratios are mostly adopted. According to Kabajeh, Al Nu'aimat, Dahmash (2012), profitability ratios measure earning capacity of firm, and are considered as indicators for an organisation's growth, success and control. Several authors have suggested various profitability ratios, for the purpose of this study, ROA is adopted. ROA gives an organisation an idea on how efficient management is using its assets to generate earnings (Bambang et al., 2012). ROA measures net income generated by all assets, after labour has been compensated but before interest payments, divided by total assets. Solvency according to Asemeit (2014) gives an indication of a firm's ability to repay all its indebtedness by selling all of its assets. Solvency from insurance point of view depends on whether sufficient technical reserves have been set up for the obligations entered into and whether an insurance company has adequate capital as security (Kansal, 2004). It shows how much risk is being retained by an insurance company relative to the financial resources available to it (Iqbal et al., 2014). Though, solvency can be viewed from management and regulatory perspectives, Fazzolari (2009) opines that solvency of an insurance company is closely connected to evaluation of liabilities, assets, level of premium of long term policies and reinsurance. Solvency of insurance companies according to Hoerger, Sloan and Hassan (2009) can be tested through random fluctuation of claims, losses of investment, fluctuation of claims, losses of investment, fluctuation of the basic probabilities of claims and their trends and miscellaneous risks like catastrophic losses.
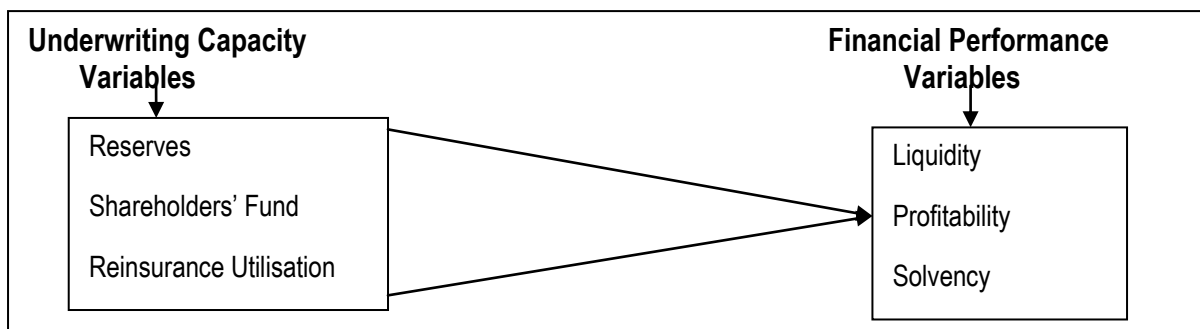

Figure 1. Conceptual Framework

2.3. Theoretical review

This study is hinged on ruin theory. Ruin theory is concerned with the study of stochastic processes that represent the time evolution of a surplus of a stylized non-life insurance company (Gerber & Loisel, 2012). The theory describes an insurance company who experiences two opposing cash flows: incoming cash premiums and outgoing claims. In an event when the capital becomes negative, one can conclude that ruin occurs. Thus, a high probability of ruin indicates instability in reserves, shareholders' fund and reinsurance or the insurer should attract extra working capital (Kass et al., 2009). The probability of ruin is denoted by ψ (u) which assumes that the annual premium and the claims process remain unchanged. The probability is a useful management tool that serves as an indication of the soundness of the insurer's combination of premiums and claims process in relation to the available initial capital (Mayers & Smith, 1990; Kass et al., 2009).

2.4. Empirical review

Soye & Adeyemo (2018) examine underwriting capacity and income of insurance companies; a case study of Nigeria. Objective of the study is to investigate how underwriting capacity affect income of insurance companies in Nigeria. With the aid of ex-post facto research design, the study reveals that underwriting profit (measured with capacity, loading and adequate rating) and earnings asset ratio have significant effect on income of insurance companies in Nigeria. Similarly, Kamau (2014) embark on study titled "the relationship between underwriting profit and investment income for general insurance industry in Kenya". The study used secondary data extracted from the annual financial accounts of all licensed non-life insurance companies in Kenya between 2000 and 2011. The study reveals weak but positive relationship between underwriting profit and investment. The author further suggested that with cautious underwriting process, there is likely to be increase in premium revenue growth and investment income. Relatedly, Hermit & Ben Arab (2012) examine the determinants of frequency and severity of operational losses in Tunisian insurance market. The objective of the study is to

evaluate the determinants of operational losses in insurance companies in Tunisia. With the aid of ordered logit model, the study demonstrates that frequency of operational losses has a significant impact on business-line specific dependence factors like market share (premium/turnover), human factors, variety of insurance activities among others, but no significant impact on profit (underwriting profit/total assets). Jones & Ren (2006) carried out a study on the underwriting cycle and ruin probability. The authors presented a surplus model that reflects the impact of underwriting cycles on insurers' surplus. The model presented included a strategy parameter that indicates how insurer responds to their cycles. The authors suggested Lundberg-type upper bound suitable for comparing insurers' probabilities under different strategies including determination of underwriting capacity.

3. Methodology of research

This study adopted correlational research design. The research design was adopted because it seeks to understand if two or more variables that are related and, if so, in what way. Correlational research design was employed in order to examine the measurement of the varying indicators of both the independent variable and dependent variable as well as assessment of the relationship between these concerned variables. The population of study comprised of forty one (41) Non-life insurance companies in Nigeria as at January, 2019 according to National Insurance Commission (NAICOM), the regulatory body of insurance business in Nigeria. The population will also serve as census for this study. The study used aggregate secondary data obtained from the annual reports of all non-life insurance companies operating in Nigeria between 2008 and 2017. Methods of that analysis adopted were descriptive and multiple linear regression.

3.1. Model specification and analytical variables

This study adopted reserves, reinsurance utilisation and shareholders' fund as measures underwriting capacity. Also, the study adopted liquidity, profitability (ROA) and solvency as measures of financial performance.

This study formulates a linear panel model of the following form:

$$FP = f(UC) \tag{1}$$

Where $UC = f(RS, SF, RU, \varepsilon)$ (1a)

$$FP\,(LQ, PT, SV, \varepsilon) \tag{1b}$$

$$FP = \beta_1, \beta_2, \beta_3 + \tag{2}$$

$$= \alpha + RS_i + \beta_1(ROA), RU_i + \beta_2\,(SV), SF_i + \beta_3(LQ)+ \tag{3}$$

Table 1 Definition of variables

Variables		Definitions
Dependent Variables:		
FP	-	Financial Performance
LQ	-	Liquidity
PT	-	Profitability (ROA)
SV	-	Solvency
	-	Error Term
Independent Variables		
UC	-	Underwriting Capacity
RS	-	Reserve
SF	-	Shareholders' Fund
RU	-	Reinsurance Utilisation

4. Data presentation, analysis and interpretation

Table 2. Descriptive Statistics

Year	Underwriting Capacity			Financial Performance		
	Reserves	Reinsurance Utilization	Shareholders' Fund	Solvency	Liquidity	Profitability (roa)
2008	47,848,897	27,505,477	374,902,497	-0.038128043	0.6554	0.14782289
2009	57,578,110	35,528,061	348,244,003	-0.031045002	0.972804	0.31342396
2010	48,732,348	39,179,696	340,980,208	-0.023961961	0.99978	0.2573677
2011	46,098,896	44,800,960	281,937,351	9.51E-08	1	0.31238402
2012	39,643,867	55,479,162	303,507,479	7.893E-07	1	0.30120724
2013	37,156,391	63,652,768	310,821, 536	-0.026732165	0.995763	0.26257136

Year	Underwriting Capacity			Financial Performance		
	Reserves	Reinsurance Utilization	Shareholders' Fund	Solvency	Liquidity	Profitability (roa)
2014	32,514,992	75,331,554	317,960,273	0.000187846	1.000045	0.24172892
2015	40,050,896	75,449,593	343,602,743	-9.40989E-05	0.001	0.22735649
2016	51,923,940	80,838,453	358,629,998	-2.0725E-06	0.001	0.20956817
2017	100,405,146	93,164,292	378,692,856	0.057231032	0.001012	0.20054923

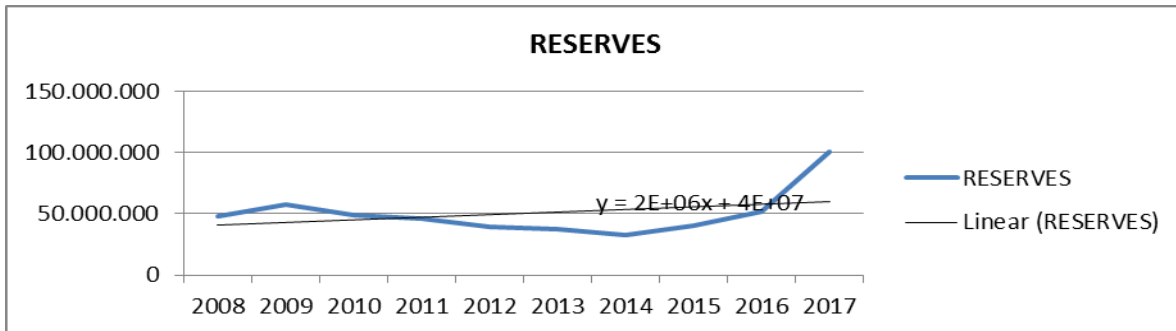*Source:* Audited Annual Reports and NIA Digest (2008-2017)

Figure 2. Aggregate reserves for non-life insurance companies in Nigeria (2008 -2017)
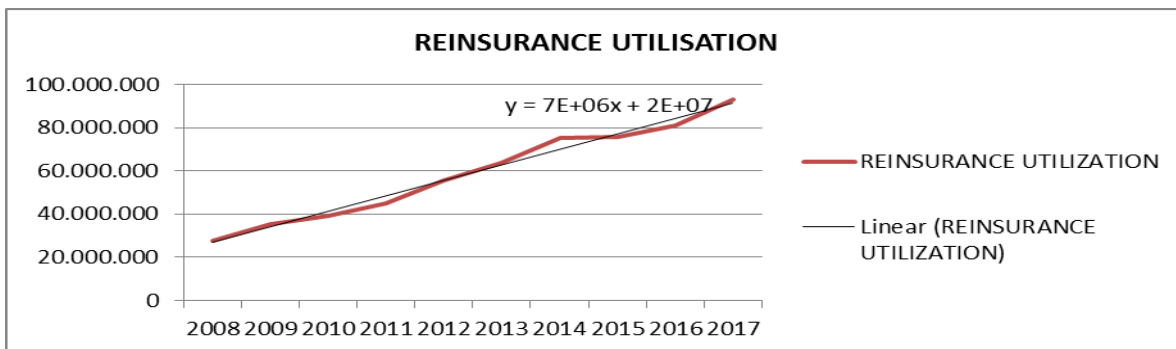

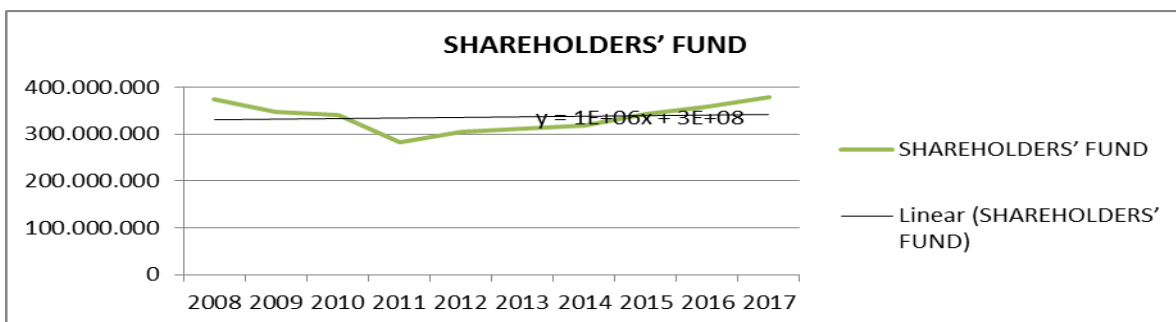*Figure 3*. Aggregate reinsurance utilisation for non-life insurance companies in Nigeria (2008 -2017)

Figure 4. Aggregate shareholders' fund for non-life insurance companies in Nigeria (2008 -2017)
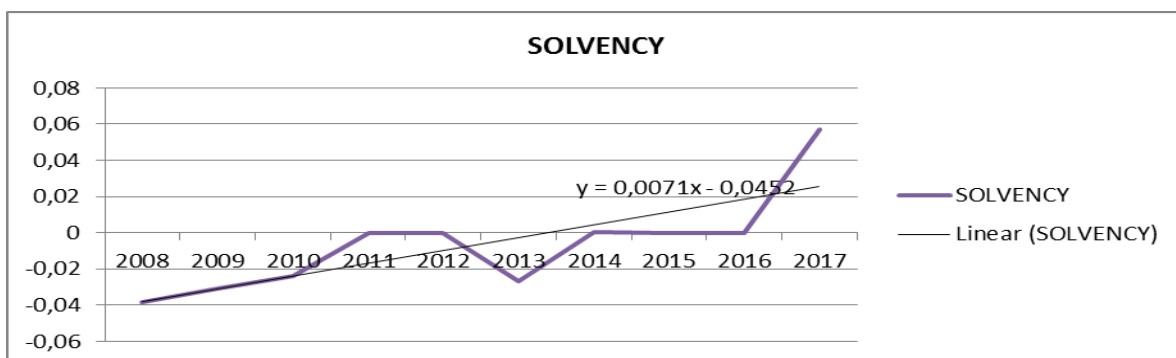
Figure 5. Aggregate solvency for non-life insurance companies in Nigeria (2008 -2017)
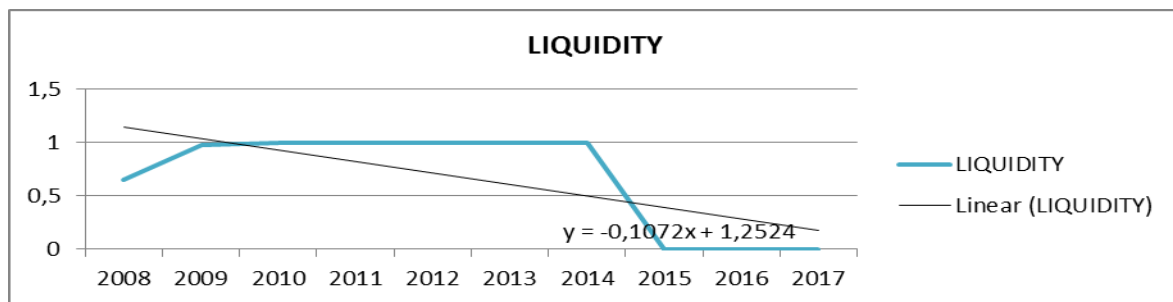

Figure 6. Aggregate liquidity for non-life insurance companies in Nigeria (2008 -2017)
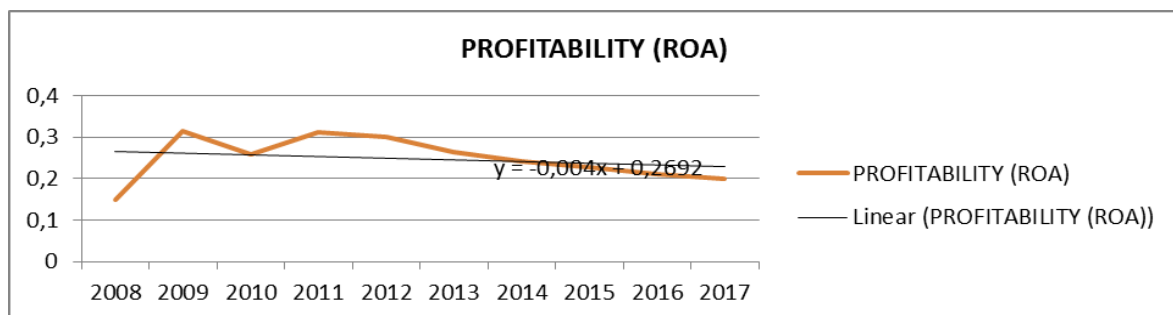

Figure 7. Aggregate profitability (ROA) for non-life insurance companies in Nigeria (2008 -2017)

Table 3. Normality test for the variables using skewness and kurtosis

	N	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Reserves	10	50195348.3000	19147953.72341	2.313	.687	6.228	1.334
Reinsurance Utilisation	10	59093001.6000	21991608.97432	.041	.687	-1.339	1.334
Shareholders' Fund	10	335927894.4000	31655418.28881	-.269	.687	-.851	1.334
Solvency	10	-.0063	.02706	1.369	.687	2.961	1.334
Liquidity	10	.6627	.46853	-.876	.687	-1.403	1.334
Profitability (ROA)	10	.2474	.05352	-.389	.687	-.333	1.334

Source: Computed by the Researcher (2020)

Table 4. Regression Analysis

R²	0.755		
Adjusted R²	0.632	n	10
R	0.869	k	3
Std. Error	0.099	Dep. Var.	Financial Performance

ANOVA table

Source	SS	df	MS	F	p-value
Regression	0.18034343	3	0.06011448	6.15	.0292
Residual	0.05863936	6	0.00977323		
Total	0.23898279	9			

Test of Hypothesis — *confidence interval*

variables	coefficients	std. error	t (df=6)	p-value	95% lower	95% upper	VIF
Intercept	1.6797	0.3954	4.248	.0054	0.7122	2.6472	
Reserves	-0.052	0.000	0.447	.6707	-0.0000	0.00001	1.748
Reinsurance Utilisation	0.011	0.000	2.535	.0444	0.0001	0.00000	1.130
Shareholders' Fund	0.770	0.000	2.701	.0355	-0.0001	-0.000000	1.590
							1.489

Durbin-Watson   = 2.25

4.1. Discussion of findings

Figure 2 shows that there has been a slow upward trend in the reserve of the non-life insurance companies in Nigeria, while figure 3 shows a sharp and steady upward trend in the reinsurance utilisation. Figure 4 shows a zigzag flow in the Shareholders' fund, but on an average a steady upward trend. For the financial performance indicators, figure 5 shows a downward, steady and a few upward points in solvency over the years. Figure 6 however shows a sharp and steady downward trend in the liquidity of the non-life insurance companies in Nigeria while figure 7 shows a sluggish and steady downward trend in the profitability of the non-life insurance companies in Nigeria from 2008 to 2017. The normality test in table 3 reveals that all the variables are normally distributed. This is because none of the skewness value is greater than 3 and the highest kurtosis result obtained is 6.22 which is less than 8. Table 4 signifies that 75.5% of the variance observed in the financial performance is jointly explained by reserve, reinsurance utilisation and shareholders fund. The regression model developed for the hypothesis is significance because F-value calculated ($F_{3,6} = 6.15$) is greater than the tabulated or critical F-value of 4.76. The test of hypothesis presents the p-value of 0.0054. This however implies underwriting capacity variables (reserves, reinsurance utilisation and shareholders' fund) jointly have significant impact on the financial performance of non life insurance companies in Nigeria significantly. This is justified by the work of Kamau (2013). The author posits that insurance companies make underwriting profit, as well as operating activities breakeven, but long term survival should be anchored by their operational ability to generate investment returns and adequate risk pricing through effective underwriting. Hermit and Ben Arab (2012) share similar view, they submit that certain aspects of underwriting capacity have an influence on firm performance. A further examination of individual coefficients of reserves, reinsurance and shareholders fund in the coefficient table 4 shows that reserves is insignificant ($β = 0.052$, $t = 0.447$, $p > 0.05$) in predicting the finical performance of insurance companies while rreinsurance utilisation ($β = 0.011$, $t = -2.535$, $p < 0.05$) and shareholders fund ($β = 0.77$, $t = 2.701$, $p < 0.05$) are significant. The reason for this may not unconnected to the fact that that reserves in highly regulated and depleted reserve might be an invitation to regulators to sanction erred insurance companies.

5. Conclusion and recommendations

The study critically examined the impact of joint underwriting capacity variables on the financial performance of Non-life insurance companies in Nigeria for a period of 2008-2017. This study further buttresses that underwriting capacity and investment as major survival backbone of insurance companies. Moreover, financial performance of non-life insurance companies in Nigeria is jointly explained by reserves, reinsurance utilisation and shareholders' fund to the tune of 75%. The test of hypothesis reveals that underwriting capacity variables (reserves, reinsurance utilisation and shareholders' fund) joint influence the financial performance of non life insurance companies in Nigeria significantly. Though, a check of individual variable reveals that reinsurance utilisation and shareholders' fund have significant impacts while reserve has no significant impact. The result of the study is in tandem with the ruin theory adapted for this research. This is because an insurance company might difficulty in cash flow (cash premium and claims costs) through weak underwriting capacity, this might dovetail to financial performance and by implication considered insolvent (ruined). It is therefore recommended that non-life insurance companies in Nigeria must put into cognisance their financial strength and strategize their underwriting tentacles when assuming risk from the public. More importantly, non-life insurance companies in Nigeria must balance between underwriting and their ability to improve financial performance. It is also recommended that non-life constantly increase shareholders' fund and watch the rate at which reinsurance is utilised.

References

Abass, O. A., & Obalola, M. A. (2018). Reinsurance utilisation and performance of non-life business in the Nigerian insurance industry: a mixed method approach. *The Journal of Risk Management and Insurance, 22* (2), 18-30.

Abate, G. A. (2012). Factors affecting profitability of insurance companies in Ethiopia: panel evidence. *Unpublished thesis*, Addis-Ababa University. Retrieved from http://www.etd.aau.edu.et.

Asemeit, O. C. (2014). The effect of risk management on financial performance of insurance companies in Kenya. Research project submitted in partial fulfillment for the award of Master of Science in Finance, The University of Nairobi. Retrieved from http://erepository.uonbi.ac.ke/bitstream/handle/11295/74732/Omasete%20Catherine%20Asemeit

Ayele, D. (2012). Assessment of motor Insurance on financial performance, the case of a wash Insurance Company. *Master's thesis Saint Mary's University*. Addis Ababa.

Bambang, S. E. P., & Andi, K. (2012). The company's policy, firm performance and firm value: an empirical research on Indonesia stock exchange. *American International Journal of Contemporary Research, 2* (12), 30-40.

Barney, J. D. W. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99-120.

Baur, P., & Donoghue, A. B. (2004). *Understanding reinsurance: how reinsurance creates value and manage risk*. Retrieved from https://www.grahambishop.com/documents store.

Bhunia, A., Mukhuti, S. S., & Roy, S. G. (2011). Financial performance analysis-a case study. *Current Research Journal of Social Sciences, 3*(3), 269-275.

Campbell, A. (2007). Bank insolvency and the problem of non-performing loans. *Journal of Banking Regulation, 9*(1), 25-45.

Cummins, J. D., Feng, Z., & Weiss, M. A. (2012). Reinsurance counterparty relationships and firm performance in the U.S. property-liability insurance industry. *Working paper*, Temple University, Philadelphia. Retrieved from http://ssrn.com/abstract=1997444.

Delen, D., Kuzey, C., & Uyar, A. (2013). Measuring firm performance using financial ratios: a decision tree approach. *Journal of Expert System with Applications*, (40), 3970-3983.

Dionne, C., & Triski, T. (2008). On risk management determinants: what really matters? *Working paper*, HEC Montreal. Retrieved from www.scse.ca/scse/congres2004/articles/Triki_Dionne.pdf.

Faculty and Institute of Actuaries (1997). Introduction to Reserving. Retrieved from www.crml-2.pdf-AdobeAcrobatReader.

Fazzolari, D. (2009). *Insurance company solvency-current monitoring measures and proposals for change*. Retrieved from http://www.nldhlaw.com

Froot, K. A. (2001). The market for catastrophe risk: a clinical examination. *Journal of Financial Economics, 60(2-3), 529-571.*

Gerber, H. U., & Loisel, S. (2012). *Why ruin theory should be of interest for insurance practitioners and risk managers nowadays*. Laboratoire de Sciences Actuarielle et Financiere. Retrieved from *https://www.researchgate.net.*

Hermit, W., & Ben Arab, M. (2012). The determinants of frequency and severity of operational losses in Tunisian insurance industry. *The Journal of Risk Finance, 13*(5), 438-475.

Hoerger, T. J., Sloan, F. A., & Hassan, M. (1990). Loss volatility, bankruptcy and the demand for reinsurance. *Journal of Risk and Uncertainty*, (3), 221-245.

Iqbal, H. T., Rehman, M. U., & Shahzad, S. J. H. (2014). Analysis of change in profitability due to reinsurance utilization and leverage levels: evidence from non-life insurance sector of Pakistan. *Journal of Independent Studies and Research – Management, Social Sciences and Economics*, 12 (1), 1-13.

Kabajeh, M. A., AL Nu'aimat, M. A., & Dahmash, F. N. (2012). The relationship between the ROA, ROE and ROI Ratios with Jordanian insurance public companies market share prices. *International Journal of Humanities and Social Science*, 2 (11), 115-120.

Kamau, M., H. (2013). The relationship between underwriting profit and investment income for the general insurance industry in Kenya. *A Research Project Submitted in Partial Fulfillment of the requirement for the degree of Master of Business Administration University of Nairobi. Retrieved from http://erepository.uonbi.ac.ke/bitstream/handle/11295/59232/Mwangi_pdf.*

Kansal, P. (2004) Solvency margin in Indian insurance companies, overview. Retrieved from http://www.icai.org/resource_file/11212p1352-54.pdf.

Kass, R., Goovaerts, M., Dhaene, J., & Denuit, M. (2009). *Modern actuarial risk theory* (2nd ed.). Heidelberg, Germany: Springer.

Kerman, T. T. (2012). Impact *of capacity level on reinsurance and cat bond markets.* A thesis submitted to graduate school of applied mathematics of Middle East Technical University in partial fulfilment of the Masters of Science in Actuarial Sciences.

Lee, H. H., & Lee, Chen, Y. (2012). An analysis of reinsurance and firm performance: evidence from the Taiwan property-liability insurance industry. *The Geneva Papers on Risk and Insurance- Issues and Practice,* 37 (3), 467-484.

Lelyveld, I., Leiedorp, D., & Kampam, M. (2011). An empirical assessment of reinsurance risk. *Journal of Financial Stability*, (1), 22-31.

Loomba, J. (2014). *Risk Management and Insurance Planning*. Delhi, India: PHI Learning Private Limited.

Malik, H. (2011). Determinants of insurance companies' profitability: an analysis of insurance sector of Pakistan. *Academic Research International*, *SAVAP International*, 1 (3), 315-321.

Mayers, D., & Smith, C. W. (1990). On the corporate demand for reinsurance: evidence from the reinsurance market. *Journal of Business*, *63*(1), 19-40.

Nigeria Insurance Digest (2015). *Nigeria insurance digest.* Nigerian Insurers Association; Lagos. Nigeria.

Obalola, M. A., & Abass, O. A. (2016). Demand for reinsurance and solvency of insurance business in Nigeria: an empirical analysis. *UNILAG Journal of Humanities, 04*(01), 63-79.

Oluoma, R. O. (2014). Impact of insurance market on economic growth in Nigeria. Unpublished thesis for the award of Ph.D. in Banking and Finance of the University of Nigeria, Enugu Campus. Retrieved from repository.unn.edu.ng:8080/xmlui/…/5369/OLUOMA%20REMIGUS%2006.pdf.

Outreville, J. F. (1998). *Theory and practice of insurance*, (1st ed). New York: USA: Springer Science, Business Media.

Rejda, G. E. (2013). *Principles of Risk Management and Insurance.* (12th ed.) New York, USA: Pearson Education.

Rejda, G. E., & McNamara, (2013). *Principles of Risk Management and Insurance,* (12thed.) New York, USA: Pearson Education Incorporated.

Robbin, I. (2004). The underwriting profit provision.

Society of Claims Professionals (2009). The society of claims professionals. Retrieved from https://www.socp.org.uk/media/10121029/the-society-of-claims-professionals-issue-1-2019.pdf

Soye, Y. A., & Adeyemo, D. L. (2018). Underwriting capacity and income of insurance companies: (a case of Nigeria). *International Journal of Innovative Science and Research Technology, 3* (10), 731-738.

Tulsian, M. (2014). Profitability analysis (a comparative study of SAIL & TATA steel). *Journal of Economics and Finance, 3* (2), 19-22.

Turley, G., & Robbins, G. (2015). *A framework to measure financial performance of Local Governments*. Retrieved from http://www.tandfonline.com/loi/flgs20.

Veprauskaite, E., & Sherris, M. (2012). An analysis of reinsurance optimization in life insurance. Working Paper. Retrieved from http://www.ideals.repec.org/p/asb/wpaper/201204.html.