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Determinants of Capital Structure in Nigerian Quoted Composite insurance Companies

By Adaramola Anthony O & Olarewaju Odunayo M

Ekiti State University, Nigeria

Abstract- This study was carried out to examine the major determinant of capital structure of quoted composite insurance companies in Nigeria. A descriptive and explanatory research designed was adopted for this study and the secondary data extracted from the annual report of the purposeful composite insurance was analysed using panel data regression technique. The results revealed that tangibility, growth and Liquidity had a negative impact on the Leverage while Risk, Return on Asset and Size have a positive influenced on Leverage; it was discovered from this study that all the variables identified are statistically significant except Return on Asset and growth; the model was reliable and appropriate for determining capital structure of composite insurance companies; It can be concluded that fixed effect panel regression model was better than the random effect model in determining the capital structure of composite insurance in Nigeria.

Keywords: *composite insurance, tangibility, financial structure.*

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Abstract- This study was carried out to examine the major determinant of capital structure of quoted composite insurance companies in Nigeria. A descriptive and explanatory research designed was adopted for this study and the secondary data extracted from the annual report of the purposeful composite insurance was analysed using panel data regression technique. The results revealed that tangibility, growth and Liquidity had a negative impact on the Leverage while Risk, Return on Asset and Size have a positive influenced on Leverage; it was discovered from this study that all the variables identified are statistically significant except Return on Asset and growth; the model was reliable and appropriate for determining capital structure of composite insurance companies; It can be concluded that fixed effect panel regression model was better than the random effect model in determining the capital structure of composite insurance in Nigeria. Thus, the study recommended that management of insurance industry and the regulatory authority in Nigeria should set up a more favourable financial structure to enhance the sustainability of the industry.

Keywords: composite insurance, tangibility, financial structure.

I. Introduction

Business activity either profit or non-profit oriented has to be financed before it can exist. Without finance, either primary or secondary, the business cannot perform its functions effectively. A business activity has three main primary sources; the first is the sales of ordinary shares, the second is the proceeds from operating activities and the third is out-sourcing, that is borrowing from financial institutions either interest bearing or non- interest bearing. Irrespective of a business set-up, the managing team should reason together to conclude on the optimal mix of both in-source and out-source of funds. This reasoning together prompts the capital structure theory and according to Abor (2005), capital structure decisions plays a significant role in financial performance of a firm and to decide is always a problem for any company.

The inception of capital structure theory could be traced to the Modigliani and Miller (1958) in a seminar paper delivered. Since then, the capital structure of a company has received a great attention which has improved the performances of these companies. Capital structure simply means the ways by which a company finances its overall operations and growth by using diverse sources of funds. It is also a mix of debt (short term and long term) and equity (common and preferred). The level of risk in a company can be best measured by its capital structure. The nature of insurance business is to protect their clients or depositors as the need arises via minimisation of losses. Therefore, as it is established that capital structure plays a cogent role in performances of a firm, it is necessary to dig deep into the factors that actually determines the mixture of diverse sources of finance in an organisation, but for the purpose of this study, insurance business will be the pivot case study. An insurance business is a business that is characterised with trading with the deposits received from the clients but before they can start any business activity, there must be capital to start up with and this capital have to be properly structured. Capital structure is very important in insurance business because there must be proper combination of all the funds accruing to the company so as to avoid excessive debt in the company. Thus, this study will examine the firm-level factors determining the capital structure in the context of Nigerian insurance companies.

a) Gap In Literature

Quite a number of studies had been done on insurance business, most especially their capital structure from various dimensions. This includes: Velnampy and Niresh (2012) in Srilanka; Mehari and Aemiro (2013) in Ethiopia; Bayeh (2013) in Ethiopia; Kingsley (2013) in Ghana; Al bulena, Skender, Vlora and Edona (2014) in Kosovo; Ogbulu and Emeni (2012) in Nigeria to mention a few. Thus, this study stands different by examining the capital structure of selected composite insurance business listed on the Nigerian Stock Exchange focusing on only the endogenous (internal) factors and incorporate size as a variable which is measured differently in this study as a natural logarithm of total asset of these companies. Also, all these factors will be critically examined by pooling all the insurance companies together and a post estimation test will be conducted to establish the estimations in which the conclusions will be based.

Author α: Department of Banking and Finan Ekiti State University, Ado-Ekiti. e-mail: gbengaadaramolaunad@yahoo.com
Author σ: Department of Accounting Ekiti State University, Ado- Ekiti. e-mail: olarewaju_odunayo@yahoo.com

II. Review of Related Literatures

a) Brief History of Insurance Companies in Nigeria

Nigeria, a country endowed with both human and material resources of not less than 140 million populations is a former British colony which shares almost all its political and economic settings from its former colonial heritage. Nigerian society had some forms of social insurance before the introduction of the modern form of insurance. Until 1966, Nigeria copied British parliamentary system of government and up till now, British system still dominates some aspects of the country's socio-economic settings. For instance, the legal practice operating in Nigeria Financial institutions such banks and insurance companies practicing in Nigeria emulate the British style of running their activities. However, the country's progress since independence in 1960 has been undergoing the challenge of long years of military rule, political instability and systemic corruption. Not until 1999, there was an inception of a civilian government after a successful political transition process.

The origins of modern insurance can be traced to both the advent of British trading companies in the region and the subsequent increased inter-regional trade in Nigeria. According to Uche and Chikeleze (2001), increased trade and commerce led to increased activities in shipping and banking, and it later became necessary for some of the foreign firms to internally handle some of their risks. This led to trading companies subsequently granted insurance agency licences by foreign insurance companies, which made it possible for such firms to issue covers and assist in claims' supervision. The first insurance agency in Nigeria came up in 1918 when the Africa and East Trade Companies introduced the Royal Exchange Assurance Agency and it was noticed that there was an initial slow pace of the growth of the insurance industry in the country, particularly between 1921 and 1949 which was traced to adverse effect of the World War II on trading activities both in Nigeria and in the United Kingdom. As soon as the war ended, NICON (1994) concluded that business activities gradually picked up again, and insurance industry in Nigeria began to record tremendous growth and efficiency. In 1958, the first indigenous insurance company, the African Insurance Company Limited, was established. At independence, only four of the then existing 25 firms in existence were indigenous, but by 1976, the number of indigenous companies surpassed that of the foreign companies in Nigeria. Gradually, till date, insurance business in Nigeria has been well established and different reforms (recapitalisation and reconsolidation) have been made to solidify their activities.

b) Empirical Review

Bayeh (2013) employs panel regression model in the study of firm level factors on Capital Structure in Ethiopian Insurance Companies. The results revealed that growth, profitability and age of the firm have significant influence on Ethiopian insurance companies' capital structure while, liquidity and business risk were also significant for long term debt and total debt ratio respectively. Similarly, Kingsley (2013) employed panel regression model in examining the capital structure of insurance companies in Ghana with financial statements of twelve insurance companies covering the period, 2002-2007 and found that both the pecking order and static trade-off theories are important factors explaining the capital structure of Ghanaian insurance companies. Firm size, profitability and growth were the statistically significant factors and indicated that, large insurance companies tend to utilize more debt in building their capital structure. This can be traced to the fact that they can diversify and have minimal probability of bankruptcy. Negative relationship between profitability and leverage also indicates that profitable insurance companies prefer internal sources of finance to external sources, hence less debt in their capital structure. However, the positive relationship between growth and leverage shows that growing insurance companies mostly depend on debt to enhance their growth. Velnampy and Niresh (2012) attempted to investigate the relationship between capital structure and profitability or returns of ten quoted banks in Srilanka covering 2002 to 2009. The data was analyzed by using both descriptive and inferential statistics where correlation analysis was used to find out the association between the variables. They found out in their results of the analysis that, there is a negative association between capital structure and profitability except the association between debt to equity and return on equity. Similarly, Mehari and Aemiro (2013), investigated insurance companies in Ethiopia by examining the impact of firm-level characteristics (size, leverage, tangibility, Loss ratio (risk), growth in writing premium, liquidity and age) on their performances. Return on assets (ROA) was used as a key indicator of insurance company's performance and also used as dependent variable while age of company, size of the company, growth in writing premium, liquidity, leverage and loss ratio are independent variables. The study was specifically on 9 insurance companies for the period 2005- 2010. The results of regression analysis revealed that size, tangibility and leverage are statistically significant and positively related with return on asset; however, loss ratio (risk) is statistically significant and negatively related with ROA. Thus, size, Loss ratio (risk), tangibility and leverage are cogent determinants of performance of insurance companies in Ethiopia. But, growth in writing premium, insurers' age and liquidity have statistically insignificant relationship with ROA which stands as the performance measure.

Al bulena, Skender, Vlora and Edona (2014), analyzed the determinants of capital structure among insurance companies in Kosovo, based on a data retrieved from 11 insurance companies during the years 2009-2012. Debt ratio was taken as a dependent variable whereas company size, growth, life, non-current assets and liquidity ratio were taken as independent variables. The result of the regression model shows that these variables are in direct relationship with the debt ratio. In the study of Naser and Krassimir (2011), the critical firm- specific factors that managers should consider when setting their "best" capital structure were analysed. Multiple linear regression analysis using SPSS was employed. Each explanatory variable along with the dependent variable is measured separately for a sample of insurance companies operating in Bahrain for the period of 2005-2009. A strong relationship was established between firm characteristics, such as; tangibility of assets, profitability, firm size, revenue growth, liquidity and debt ratio which is the observed capital structure, although not all variables are statistically significant. Contrarily, Sritharan (2014) employed a pooled ordinary least square regression to analyze the determinants of the capital structure of 28 quoted Banks, Finance & Insurance Companies in Colombo Stock Exchange for the period of 2008-2012 and further evidence of the capital structure theories. The results reflect the real nature of the Sri Lankan corporate environment. The study suggests that some of the insights from modern finance theory of capital structure are moveable to Sri Lanka meaning, certain firm-specific factors that are relevant for explaining capital structure in developed economies are also relevant in Sri Lanka, a less developed country. Statistical results showed that tangibility, profitability, growth, and liquidity are negatively related to the debt ratio, while size has a positive nexus. Non-debt tax shield is not significantly related to the debt ratio. Furthermore, these results are consistent with the predictions of the capital structure theory such as; trade-off theory, pecking order theory and agency theory. It thereby provides help in understanding of financing reactions of Sri Lankan firms.

Sharif, Naeem and Khan (2012), investigated that factors identified in developed countries which are attributed as imperative ones to attain optimal capital structure, provide compelling justifications for capital structure decisions in insurance companies of Pakistan. Empirical exploration of factors, that drives optimal capital structure apply on panel data of 31 insurance firms from 2004 to 2009. Two panel data estimation techniques; fixed effects and random effects were specifically used. Haussmann's post estimation test was performed in order to test appropriate model for the study. The outcomes of study affirm that, profitability, age and earnings volatility has indirect relationship with leverage and was significant. Liquidity also maintain inverse relationship with debt ratio but insignificant. Alternatively, size and growth opportunities have direct relationship with leverage but only size is significant. These outcomes are in line with theoretical theories such as pecking order theory and trade off theory. Likewise, a similar study in Nigeria by Ogbulu and Emeni (2012), hypothesized that there is no relationship between gearing (capital structure) and the size, growth, profitability, tangibility and age of a firm. Using a cross-sectional survey data from 110 firms listed on the Nigerian stock exchange and analysis of data by the OLS method, it was found that size has a positive and significant effect on capital structure while, age has a negative and significant influence. Tangibility, growth of a firm and profitability, on the other hand, do not have any significant impact on the capital structure of firms in Nigeria. Lastly, Naveed, Zulfqar and Ishfaq (2010) studied the life insurance sector of Pakistan and the result of OLS regression model indicates that size, profitability, risk, liquidity and age are important determinants of capital structure of life insurance companies.

III. Methodology

The data used for the study are secondary in nature. They are obtained from annual reports and accounts of the six (8) purposively selected composite insurance companies. A panel data of the total eight (8)quoted composite insurance companies covering a period of seven (7) years was employed due to the fluctuations in getting the data published accordingly.

a) Choice Of Explanatory Variables

i. *Profitability*

Firm's performance plays a crucial role in determining its capital structure. This can be better confirmed by the pecking order theory, which states that firms desires internal sources of finance to external sources of finance. Titman & Wessels (1988) concluded that holding all variables constant, firms with higher returns would maintain relatively lower debt ratio since they generate such funds from internal sources.

ii. *Size*

Size is also an important determinant of firm's capital structure. This study will measure size of insurance companies by the natural logarithm of their total asset. The larger firms tend to have lower variances of earning that enables them to tolerate high debt ratio due to their capacity to diversify. Smaller firms tend towards a lower debt ratio due to their costly asymmetric information from lenders. Therefore, a positive relationship is expected between size and capital structure of the selected firms under this study.

iii. *Tangibility*

The tangibility of a firms' asset also plays a germane role in determining its capital structure and in this research paper, a positive relationship is expected between tangibility and capital structure. According to Harris & Raviv (1991), the tangibility of a firm's assets results from the firm's liquidation value. Therefore, firms that invest heavily in tangible assets tend to have higher leverage since they will borrow at lower interest rates if their debt is secured with such assets as commensurate collateral.

iv. *Growth*

Pecking order theory postulates that, growing firms usually search out for external funds to maintain their growth because as they are expanding, there is tendency for them to exhaust all their internally generated funds. Firms, whose larger proportion of their market value is accounted for by growth opportunity, will surely be involved in huge debt as a means of financing. Therefore, growth is expected to positively relate to firms' leverage.

v. *Risk*

The risk level of a firm can never be overlooked in examining the determinants of its capital structure. In this research paper, the risk of insurance firms will be measured by the proportion of claims paid from the net premium earned per time. Following Abor & Biekpe (2005), a positive relationship is expected to lie between risk level and leverage of insurance companies.

vi. *Liquidity*

There has been a discrepancy in the findings of various researchers who have worked on the link between liquidity and capital structure, while some find positive effect, others found a negative relationship. Liquidity is seen as the blood flowing through the living system of any organisation and insurance is not an exception. Following the trade of theory, liquid firms possess more equity and trade with less debt.

b) Model Specification

Generally, the model is;

$$Y_{it} = \beta_0 + \Sigma \beta_i Z_{it} + \epsilon_{it} \quad (1)$$

The functional form;

$$LEV = f(ROA, TANG, RISK, LIQ, SIZ, GRO) \quad (2)$$

Explicitly, the model is in the form;

$$LEV = {}_{it}\beta_0 + \beta_1 ROA_{it} + \beta_2 TANG_{it} + \beta_3 RISK_{it} + \beta_4 LIQ_{it} + \beta_5 SIZ_{it} + \beta_6 GRO_{it} + \epsilon_{it} \quad (3)$$

i = number of insurance companies = 8
t = number of years = 7

ROA: RETURN ON ASSET = $\frac{\text{Profit after Tax}}{\text{Total Asset}}$

TANG: TANGIBILITY = $\frac{\text{Fixed Asset}}{\text{Total Asset}}$

RISK: RISK LEVEL = $\frac{\text{Claims Paid}}{\text{Net Premium Earned}}$

LIQ: LIQUIDITY = $\frac{\text{Current Asset}}{\text{Current Liability}}$

SIZ: SIZE = Natural logarithm of total asset

GRO: GROWTH = $\frac{\text{Gross Written Premium}_{(t)} - \text{Gross Written Premium}_{(t-1)}}{\text{Gross Written Premium}_{(t-1)}}$

IV. Empirical Result

Table 4.1 Descriptive Anlysis

	LEV	RISK	TANG	ROA	LIQ	GROWTH	LOGTA
Mean	0.393982	0.269095	0.327386	0.043375	2.355102	0.313791	17.13390
Median	0.361450	0.250750	0.304750	0.035850	1.735300	0.225200	16.41432
Maximum	0.864100	0.574100	0.675900	0.207600	9.875700	2.834400	22.62004
Minimum	0.083100	-0.640400	0.084400	-0.022300	0.342100	-0.427500	14.91011
Std. Dev.	0.228929	0.182671	0.157102	0.042523	1.955264	0.484046	2.212623

Skewness	0.369648	-1.983783	0.529438	1.596600	2.079059	3.121686	1.644955
Kurtosis	1.980476	12.03349	2.407352	6.367075	7.914484	15.39592	4.562143
Jarque- Bera	3.700635	227.1396	3.435719	50.24535	96.69822	449.4897	30.94887
Probability	0.157187	0.000000	0.179450	0.000000	0.000000	0.000000	0.000000
Sum	22.06300	15.06930	18.33360	2.429000	131.8857	17.57230	959.4983
Sum Sq. Dev.	2.882456	1.835278	1.357460	0.099449	210.2682	12.88652	269.2636
Observations	56	56	56	56	56	56	56
Crosssections	8	8	8	8	8	8	8

Source: Authors' computation (2015) using E-View 7 Statistical package.

The descriptive statistics of data provides information about sample statistics such as mean, median, maximum value and minimum value and the distribution of the sample measured by the skewness, kurtosis and the Jarque-Bera statistics. The Table above reports some descriptive statistics for the eight purposively selected composite insurance firms for a period of seven years covering 2008 - 2014 totalling 56 observations.

Table 4.1 above presents the descriptive statistics of all the variables used in an attempt to examine the determinants of composite insurance firm's capital structure. The Table reveals that the average value for LEV, RISK, TANG, ROA, LIQ, GROWTH, LOGTA of the pooled observations for the period and cross sectional unit covered in the study stood at 0.393982, 0.269095, 0.327386, 0.043375, 2.355102, 0.313791, and 17.13390 respectively. This result shows that LEV has the highest average growth and ROA has the least average growth as a determinant of capital structure in insurance companies. The minimum and maximum values stood at 0.0831 and 0.8641, -0.6404 and 0.5741, 0.0844 and 0.6759, -0.0223 and 0.2076, 0.3421 and 9.8757, -0.4275 and 2.8344, 14.9101 and 22.6200 for LEV, RISK, TANG, ROA, LIQ, GROWTH, LOGTA respectively. The standard deviation of the variables which shows the rate of deviation from the expected growth value for each variable of interest stood at 0.228929, 0.182671, 0.157102, 0.042523, 1.955264, 0.483046 and 2.212623 for LEV, RISK, TANG, ROA, LIQ, GROWTH, LOGTA respectively.

The skewness and kurtosis statistics provide useful information about the symmetry of the probability distribution of various data series as well as the thickness of the tails of these distributions respectively. These two statistics are particularly of great importance since they are used in the computation of Jarque-Bera statistic, which is used in testing for the normality or asymptotic property of a particular series. The statistics in Table 4.1 Clearly shows that LEV, TANG, ROA, LIQ, GROWTH, LOGTA are positively skewed (0.369648, 0.529438, 1.596600, 2.079059, 3.121686, 1.644955) meaning that the distribution have long right tail while RISK is negatively skewed (-1.983783) which implied that the data sets have long left-tails and hence, the risk level tend towards less than the median values (i.e. median > mean).

In terms of kurtosis, it measures how fat the tails of the distribution are. The kurtosis statistics obtained for RISK (12.03348), ROA (6.367075), LIQ (7.914484), GROWTH (15.39592) and LOGTA (4.562143) showed that the distribution series for each of the variables was peaked relative to the normal because the statistics were greater than 3.0. Being peaked implied very few observations within the region where the median resided. Whereas, LOGTA (4.562143) is the least peaked compared to GROWTH (15.39592).

On the other hand, Kurtosis statistics for LEV (1.980476) and TANG (2.403349) were less than 3.0, which indicated the extent of flatness (platy- kurtic) of the distribution of the data series relative to normal. Their Jarque-Bera statistics of RISK (227.1386), ROA (50.24535), LIQ (96.69822), GROWTH (449.4897), LOGTA (30.94887) with their probability values less than 0.01 suggested that the null hypothesis of normality in the distributions were rejected, while on the contrary, LEV (3.700635) and TANG (3.435719) have their probability greater than 0.01. Also the sums for the variables are 22.063, 15.069, 18.333, 2.429, 131.885, 17.572 and 959.498 respectively for all the variables examined.

Table 4.2 : Corellation Analysis

	GROWTH	LEV	LIQ	LOG_TA	RISK	ROA	TANG
GROWTH	1.000000						
LEV	0.097093	1.000000					
LIQ	-0.137715	-0.750774	1.000000				
LOG-TA	0.046720	0.163281	-0.174266	1.000000			
RISK	-0.116640	0.354013	-0.234144	0.056897	1.000000		
ROA	-0.048883	-0.020610	-0.096513	-0.078073	0.031406	1.000000	
TANG	0.081121	-0.565190	0.103780	-0.177867	-0.199285	-0.060389	1.000000

Source: Authors' computation (2015) using E-View 7 Statistical package.

Tables 4.2 revealed the correlation between LEV and determinants of capital structure in insurance companies. From the Table, it was observed that there is a weak correlation between GROWTH, LEV, LIQ, LOGTA, RISK, ROA and TANG. However, it was discovered that a negative correlation exists between GROWTH, LIQ, RISK, with none showing evidence of a strong negative correlation. Finding from the result also show that a positive correlation exists between LEV, LOGTA and RISK. While negative relationship exists between LEV, LIQ, TANG and ROA. LIQ has negative relationship with LOGTA, RISK, ROA, but has a positive relationship with TANG. LOGTA shows a certain level a weak positive correlation with RISK, while a weak negative correlation exists between LOGTA, ROA and TANG. Findings further reveal that a weak positive correlation exists between RISK and ROA while a weak negative correlation was discovered between RISK and TANG. Finally, ROA has weak negative correlation with TANG. Thus, negative or positive correlation coefficients reported in Table 4.2 only depict the extent of the linear relationship between pairs of variables used in this paper.

a) Pooled Ols (Common Coefficient)

Table 4.3

Series: Risk Tang Roa Liq Growth Logta

Variable	Coefficient	Standard Error	T-Test Values	Probability
RISK	0.276557	0.106619	2.593871	0.0124*
TANG	-0.465111	0.115850	-4.014755	0.0002*
ROA	-0.122113	0.441646	-0.276496	0.7833
LIQ	-0.063571	0.009817	-6.475248	0.0000*
GROWTH	0.040668	0.040304	1.009024	0.3178
LOGTA	0.035252	0.003499	10.07416	0.0000*

Adjusted R-square= 0.618793, DW = 0.453105

(*) connote rejection at 5% level of significance

Source: Author's computation, 2015 using E-VIEW 7 statistical package.

This estimation places restrictions on the heterogeneity/uniqueness of the cross sectional units by assuming that both the regression coefficient and constant estimates are the same for all cross sectional subjects, over time. In other words, the estimator stacked all the observations without taking into account their cross sectional or time series features, as such; the subject and period related effects were neglected in the estimation.

Table 4.3 presents the result of OLS pooled regression conducted to investigate major determinants of capital structure in Insurance companies. The Table further reveals that, variables including Tangibility, Return on Asset and Liquidity exert negative impact on the Leverage as measured by the ratio of Debt to Equity while, Risk, Growth and Size have a positive influence on Leverage. However, attempt to investigate major determinants of capital structure lends credence to tracing which of the determinants exert significant impact. Hence, from Table 4.3 it was discovered that the impact of variables like Risk, Tangibility, Liquidity and log of total asset to be significant while, variables like Return on Asset and Growth. Thus, it could be narrowed down that Risk, Tangibility, Liquidity and Size in terms of logarithm of total asset are major determinants of capital structure in composite insurance firms.

The result presented in Table 4.3 reports an R-square value of about 62%, which connote that about 62% of the systematic variation in Leverage (measured by the ratio of Debt to Total Equity) can be explained jointly by variation in variables such as Risk, Tangibility, Return on Asset, Liquidity, Growth and size.

b) Fixed Effect (Common Coefficient)

Table 4.4 : Series: Risk Tang Roa Liq Growth Logta

Variable	Coefficient	Standard Error	T-Test Values	Probability
C	-1.889525	0.723053	-2.613260	0.0124*
RISK	0.104640	0.052128	2.007362	0.0512*
TANG	-0.308536	0.095923	-3.216505	0.0025*
ROA	0.005965	0.259825	0.022960	0.9818
LIQ	-0.045190	0.009379	-4.818406	0.0000*
GROWTH	-0.016771	0.020638	-0.812598	0.4210
LOGTA	0.144030	0.040117	3.590222	0.0009*

Adjusted R-square= 0.934134, DW = 1.816601, F- Stat = 61.00219,
Prob (F- stat) = 0.000000. (*) connote rejection at 5% level of significance
Source: Author's computation, 2015 using E-VIEW 7 statistical package.

The result of fixed effect (at common coefficient) estimation presented in Table 4.4 reveals the coefficient of each determinant variable alongside the intercept term (heterogeneity effect) corresponding to each cross section. Table 4.4 reveals that, determinants including Tangibility, Liquidity and Growth have negative impact on capital structure of the selected insurance companies measured by leverage while, Risk, Return on Asset and Size have a positive impact on capital structure. Table 4.4 also reveal that, determinants such as Risk, Tangibility, Liquidity and size exert significant impact on Leverage of insurance companies and as such can be taken to be the major determinants of capital structure in the context of Nigeria Composite insurance companies. It is worthy to note that, some of the determinants do not agree with the a priori expectation by sign, for instance, determinants such as Return on Equity, Deposit, Liquidity and Gross Domestic Product contradict the a priori expectation by exerting negative effect on capital structure.

Table 4.4 reports an adjusted R-square value of 93%, F-statistics of 61.002 and probability value of 0.0000. It thus implies that, 93% of the systematic variation in capital structure of insurance companies can be explained by variations in variables such as Risk, Tangibility, Return on Asset, Liquidity, Growth and size. Also, all the explanatory variables are jointly and significantly determine capital structure of composite insurance companies in Nigeria.

c) Random Effect Estimation (Common Coefficient)

Table 4.5 : Series: Risk Tang Roa Liq Growth Logta

Variable	Coefficient	Standard Error	T-Test Values	Probability
C	0.915728	0.075310	12.15944	0.0000*
RISK	0.134610	0.045863	2.935032	0.0051*
TANG	-0.720081	0.052590	-13.69226	0.0000*
ROA	-0.655116	0.189315	-3.460457	0.0011*
LIQ	-0.080736	0.004333	-18.63303	0.0000*
GROWTH	0.024230	0.016838	1.439019	0.1565
LOGTA	-0.006494	0.003733	-1.739510	0.0882

Source: Author's computation, 2015 using E-VIEW 7 statistical package.
Adjusted R-square= 0.811818, DW = 0.876516, F- Stat = 40.54498,
Prob (F- stat) = 0.000000. (*) connote rejection at 5% level of significance

Because of problems inherent in the fixed effect model, such as, loss of degree of freedom as more dummy variables are added to the model, possibility of multi-collinearity, inability of the fixed effect model to track the impact of time-invariant variables, random effect assumes that the heterogeneity is random rather than fixed and that the random effect is incorporated into the error term thus forming a composite error term.

In this paper, random effect estimation result presented in Table 4.5 above reveals that determinants such as Liquidity, Tangibility, Return on Asset and log of total asset exert negative impact on leverage, while, only Risk and growth measure influence Leverage positively. The result shows that determinants such as Return on Asset, Risk, Tangibility and Liquidity significantly influence capital structure of insurance companies, though the direction of influence of the likes of Liquidity,

Tangibility, Return on Asset and log of total asset contradicts the a priori expectation. The observed direction of causal-effect relationship between Leverage and the aforementioned determinants can be justified by reasons such as fluctuating economic situations and perpetual reforms in the operations of insurance companies in Nigeria.

Reported in Table 4.5 is an adjusted R-square value of about 81% alongside F-statistics of 40.54 and probability value of 0.0000. Thus, the result shows that about 81% of the systematic variation in capital structure as proxied by Leverage, that is, the ratio of Debt to Equity can be explained by variation in determinants such as Risk, Tangibility, Return on Asset, Liquidity, Growth, Logarithm of Total Asset. F-statistics reported and the corresponding probability value implies that all the included determinants in the model jointly and significantly influence capital structure model and that the model is of a good fit.

d) Post Estimation (Hausman Test)

In an attempt to know the most reliable estimation between the fixed effect estimation and the random effect estimation, Hausman test is conducted to test if there is a substantial difference between the estimates of the fixed effect estimator and that of the random effect estimator. The null hypothesis underlying the test is that, fixed effect estimates do not differ substantially from the random effect estimates. Notably, the test statistics developed by Hausman has an asymptotic chi-square distribution.

Table 4.6 : Hausman Test

Null hypothesis	Chi-square stat	Probability
Difference in coefficient not systematic	95.545258	0.0000*

Author's Computation 2015, using E- View 7 statistical package. denotes significance at 5%*

From the Table above, a chi-square value of 95.545258 alongside a probability value of 0.0000 were revealed. The result shows that there is enough evidence to reject the null hypothesis of no substantial difference between fixed effect and random effect estimates, which might be due to the presence of correlation between the random effects incorporated into the composite error term and one or more of the regressors. Hence, the random effect estimates become inconsistent and as such the fixed effect estimation is preferred and the recommendations and conclusions of this paper shall be based on the findings of Fixed Effect Estimations that is, the major determinants in Nigerian composite insurance firm capital structure are Risk level, Tangibility of asset, Liquidity and the introduced variable-Size, which is measured by the natural Logarithm of total asset.

V. Conclusion and Policy Recommendations

This been the last section of the paper and deals with conclusion and policy recommendation. Thus, four out of the five variables used to measure effect on debt ratio were found to be statistically significant when measuring the impact of companies' debt ratio on insurance industry in Nigeria. Based on the research results, the insurance companies should have a high consideration for asset increase because the size of company is an important factor that has a positive effect on leverage. Risk, Tangibility, Return on Asset, Liquidity, Growth and Size are drivers of optimal capital structure of various insurance companies in Nigeria. Insurance companies should pursue most important capital structure theories like pecking order theory and trade off theory. The study established that fixed effect model is more reliable, appropriate and acceptable for the financial leverage or capital structure of insurance companies in Nigeria. Thus, the study recommended that management of insurance industry and the regulatory authority in Nigeria should set up a more favourable financial structure to enhance their sustainability.

VI. Suggestion for Further Studies on Insurance Companies

This study can open the horizons for forthcoming studies to investigate capital structure theories and not only to critically examine the determinants alone. Also, upcoming studies may also increase the panel size of insurance sector by including more companies and more years' data not even composite insurance firms alone. Lastly, would- be researchers can extend the data to other countries and macroeconomic factors should be included as explanatory and control variables.

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