Capital Structure and Profitability of Insurance Firms in Nigeria

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ABSTRACT

The purpose of the study is to assess the effects of capital structure on the profitability of insurance companies in Nigeria from 2015 to 2021. Exploratory and desk research designs were adopted. Judgmental sampling technique was adopted to select 20 companies from the population as the study sample. Secondary data were sourced and obtained from the annual reports of the respective insurance companies studied, which covered the seven-year period from 2015 to 2021. The study adopted descriptive and inferential approaches to analyse data collected. The descriptive statistics employed are the mean, median, standard deviation skewness and kurtoses. The inferential tool employed was the fixed/random effect panel regression test. The study finds that equity capital and firm size have significant positive effects on both ROA and ROE. On the other hand, debt capital has insignificant negative and significant positive effects on ROA and ROE, respectively, while debt-to-equity ratio has insignificant positive but significant negative effects on ROA and ROE, respectively. Thus, a good mix of equity and debt capital will promote sound business operation and improve performance. Findings of this study will expose insurance industry players to some basic capital structure management issues and challenges. Additionally, findings of the study will have the potential of improving the effectiveness and efficiency of managers of insurance and other firms in the management of capital structure.

Keywords: capital structure, business firms, insurance companies, firm performance, Nigeria.

1.0 INTRODUCTION

Business firms including insurance firms need long term capital for startup operations, research and development, market expansion, training and development, buying of machinery and equipment, building as well as acquiring needed technology. Firms, therefore, need adequate stock of capital to finance these projects and such capital normally comes from owners' contribution known as equity capital and borrowed funds known as debt capital (Alfred, 2007). The combination of equity and debt in addition to preference share capital is defined as capital structure (Modigliani and Miller, 1958). Several studies conducted focused more on volume (not mix) of capital, examination of

the challenges of poor orientation, cultural barriers, negative attitude of people towards insurance, management and inefficiency, among others as the major elements accountable for low productivity of insurance firms in Nigeria. Very little or no specific efforts have been made to examine the influences capital mix has on insurance firms' performance in Nigeria. This work is therefore, an attempt to investigate whether or not there exist relationship between structure of firms' (insurance) capital and their performances in Nigeria from 2009 to 2017.

Insurance firms as key players in finance sector and by the contractual nature of their products and services, require adequate capital base and sound capital structure policies. This is to enable them to establish and maintain optimal capital structure level which always supports smooth and uninterrupted operations. Adequate or optimum debt-equity mix structure is one critical factor for successful operation, improved performance and to attain cooperate goals and objectives in all companies including insurance. The business of insurance in Nigeria, as obtainable in other countries of the world focuses mainly on selling of both life and non-life policies to give protection and coverage to the customer against insured risks. From these transactions, insurers generate funds (premium) in exchange for a promised indemnity and/or compensation to the insured should there be an occurrence of the insured risks while insurance firms seek to increase sales of their policies and total of premium collected at all times. Parts of the premium collected are used for payment of compensation or claims to customers who suffer losses and for investments in various assets. Insurance firms' capability to sell their products, generate reasonable premium, indemnify/compensate and invest parts of their income to make profits is the basis for assessing the performance of insurance firms and this is usually influenced by mix of debt and equity. This study investigated the effects of capital structure on the profitability of insurance firms in Nigeria over the period 2009 to 2017.

1.1   Statement of the Problem

Corporate bodies including insurance companies require adequate volume of capital especially long-term capital. Long term capital requirement in different companies depends on the nature of the firm, the systems of operation, the companies' products, and projections of the future as well as the existence of new investment opportunities. These variables have serious effects on the type and volume of long-term finance mix and alterations. For instance, the core business of insurance involves pooling of risk by selling appropriate insurance policies to customers. The policyholders (customers) therefore, enjoy protection and coverage against the insured risk in consideration of which premium is paid while expecting indemnity and/or compensation if the insured event occurs (Aprekuma, 2002).

The work intends to proffer remedies to the problem of high interest rates arising from high leverage and immoderate cost of equity which arises as a result of unattractive assets and lack of flexibility in restrictive debt covenants which have high potency of frustrating the availability, flow and cost of funds and thereby reducing the profitability of insurance firms in Nigeria as observed over the years. Profitability as used here is expressed

as return on assets (ROA) and return on equity (ROE). Again, researchers have not given enough attention to the effects mix of debt and equity as on performance of insurance firms in Nigeria. Therefore, this work aims at determining the influences exerted by mix of capital on the profitability of insurance firms in Nigeria within the period under review (2009 to 2017).

1.2   Objectives of the Study

The general objective of this work is to assess the effects of capital structure on the profitability of insurance companies in Nigeria from 2015 to 2021. Specific objectives include:

i.   Ascertain the extent of the effect of debt ratio on the profitability of insurance companies in Nigeria.
ii. Assess the extent to which debt-to-equity ratio in its entirety affects the profitability of insurance firms in Nigeria.
iii. Examine the moderating effect of size of the organisation on relationship between capital structure and profitability of insurance firms in Nigeria.

1.3   Research Questions

i.   What is the extent of the effect of debt ratio on the profitability of insurance firms in Nigeria?
ii. To what extent does debt-to-equity ratio affect the profitability of insurance firms in Nigeria?
iii. To what extent does firm size moderate the relationship between capital structure and profitability of insurance firms in Nigeria

1.4   Research Hypotheses

The following research hypotheses were formulated to direct the study:

i.   There is no significant effect of debt ratio on the profitability of insurance firms in Nigeria.
ii. There is no significant effect of ratio of debt to equity on the profitability of insurance firms in Nigeria.
iii. There is no significant effect of company size on moderating the relationship between capital structure and profitability of insurance firms in Nigeria

2.0   LITERATURE REVIEW

2.1   Theoretical Framework

Modigliani and Miller Theory (Modigliani and Miller: 1958)
This theory is also referred to as the Relevant and Irrelevant theory or Modigliani and Miller (MM) proposition, it was propounded in 1958. This theory demonstrated that based

on certain underlying assumptions, capital structure does not affect company's value. The assumptions put up by this theory included that capital market is presumed to be perfect in Modigliani and Miller's world, where all parties have unrestricted access to stream of information; transaction cost, bankruptcy cost and taxation do not exist and based on this, the way a firm decides to finance its projects does not matter, and internal and external funds can be perfectly replaced. Jensen and Meckling (1976) proposed that optimum debt point in capital structure should be that combination which minimises the agency costs that originates from the different interest of managers with owners and lenders

Capital Structure

The term capital structure refers to the proportionate combination of debt and equity which a firm employs to fund its long-term operations. It is concerned with long term financing decisions in which a firm chooses to finance its long-term investments either through the use of equity or debt or both. Bansel and Mito (2002) studied capital structure choices and their impact on 17 companies operating in Europe. A survey study design was used. In the primary analysis, financial flexibility, credit rating and tax benefits of debt are the most important factors influencing debt policy, so that earnings per share are the key factors considered when issuing shares. The facts also confirm that interest rate levels and stock prices are important factors to consider in choosing the timing of debt and equity issues. Finally, risk hedging considerations were identified as an important factor affecting the choice of debt maturity and capital raising time.

According to Alfred (2007), the capital structure of an entity means the composition of equity and debt in a firm's capital. Mix of debt and equity fund is different from financing structure. As viewed by Pandey (1999), a firm's financial structure is made up of diverse channels which a company uses to finance its operations and/or activities, while capital structure refers to the proportional mixture of long-term debt and equity. In other words, while financing structure could include both brief term and elongated term debts, capital structure excludes short-term credit (Inanga and Ajayi 1999). Oluwalye, Kolapo and Aji (2021) investigated the impact of capital structure on the performance of listed life insurance companies in Nigeria from 2010 to 2019. In the companies sampled, using the error correction model (ECM) and the Granger causality test, we find that although debt and equity have a negative effect on ROA, there is a non-significant one-way causal relationship between capital adequacy ratio and ROA. Gundu (2021) investigated the impact of capital structure and performance of hybrid insurer in Nigeria. This study evaluated the impact of debt-to-equity ratio and debt-to-asset ratio on return on equity for hybrid insurers. Using the data of seven composite insurance companies from 2015 to 2019 and the OLS regression technique of the pooled panel, this study showed that the negative effect of debt-to-asset ratio on ROE have a positive effect.

Gauge of Performance

Malik (2011) used various indicators to evaluate the company's financial performance, such as return on equity (ROE), return on assets (ROA), return on capital

employed (ROCE) and return on investment (ROI). All these indicators clearly showed the efficiency and skill of an organization's management, but it varies from company to company.

i. **Return on Assets (ROA):** This represents the profit that can be earned by investing naira in a company's assets. It shows the ability of a company's management to generate returns from its financial employment and real investment (Naceur, 2003).
ii. **Return on Equity:** This also indicates the percentage return earned by the original capital invested in the bank. It shows management's ability to use shareholders' funds to generate profits. This also reveals the income from the bank's investors. Salawu (2009) investigated the influence of the capital structure on profitability of listed firms in Nigeria employing desk research design. Secondary data were collected from 1990 to 2004 from the selected Annual Report. The Ordinary Least Squares (OLS) model, Fixed Effect Model (FEM) and Random Effect Model (REM) were adopted for data analysis. The findings show that performance was directly related with short-term debt and owners fund but inversely related with long-term debt. The study suggested that Nigerian firms depend more on external financing.

Salawu (2007) examined the main issues in choosing appropriate amounts of debt and equity in the Nigerian banking industry and the factors influencing bank leverage. In this study, the multiple regression approach that covers 10 deposit banks was used. The study showed that profitability, ownership and management structure, growth and opportunity, issuance costs and tax economics associated with debt are key factors affecting corporate leverage for most money houses. Ogbulu and Emeni (2012) studied the determinants of capital structure in an emerging economy like Nigeria. Employing a cross-sectional survey data from 110 quoted firms using OLS method of data analysis, the study revealed that firm's size has a direct relationship with corporate leverage while how old a firm is, has adverse association with leverage. It further shows that tangibility, growth of a firm, and profitability, do not have any noteworthy impact on the capital structure of firms in Nigeria.

Capital Structure and Firm Performance
According to Bevan and Danbolt (1999), the market-to-book index is an estimate that assesses the extent of growth openings that are accessible to firms. Myers (1977) contends that, because of information asymmetries, firms that have high gearing tend to possess the propensity to take advantage of positive net present value investment openings. He further opined that firms with several growth options could possibly have low gearing ratios. According to Stohs and Mauer (1996), the association between growth options and leverage may differ for short and long-term categories of debt. Debt capital has been identified as a central element determining organisation's performance. Debt funding is occasionally beneficial to the shareholders' return on their investment because of the tax shield gains that it accords. Thus, these firms have preference for debt capital because of

its associated tax shield benefit (Abate, 2012). As maintained by Adams and Buckle (2000) which suggests that insurance firms with high debt capital levels have improved operative performance than those with minimal debt capital. Likewise, a free cash flow premise Jensen (1986) developed hypothesised that high financial leverage can raise a firm's functioning performance because it helps managers to create cash flows that will enable them to make good their debt obligations to fixed claimants.

Droubets and Fix (2003) used Swiss data to study leverage predictions for exchange and custom models. Drubts and Fix's work showed that the conflict between exchange theory and pecking order theory was not resolved. They observed that organisations with abundant investment opportunities use less debt, thus lending credence to both the trade-off theory and the mixed variation of the pecking order model. In favour of the pecking order hypothesis, but against the exchange hypothesis, more durable firms use less leverage. We also find that Swiss firms tend to maintain target leverage ratios.

Ahmed, Naveed and Usman, (2011) argued that if companies are highly leveraged or have much debt levels in their books, it may result to risk of insolvency if they cannot meet their maturing debts, and this could impede their future access to credit from lenders. Chen (2004) held that debt capital above the optimal level could trigger more risk and reduce organisation's worth. Similarly, insurer's risk may rise when leverage level increases. Scholarly works on leverage confirmed that firms' worth will rise to optimal level as debt level moves up and then declines if more debt is added beyond that optimal point (Abate, 2012). Sani, Mohammed, Fawad and Chibazor (2019) investigated the effect of fund structure on the profitability of listed insurance companies in Nigeria. Specifically, they examined the impact of short-term and long-term debt on profitability. This study used data from 15 non-life insurers in the period 2013-2017 and was analysed using multiple least squares regression techniques. The results show that short-term debt has a large negative effect on profitability, while long-term debt has a large positive effect. Habib, Khan and Wazir (2016) investigated the relationship between debt capital and profitability of non-financial sector companies in Pakistan from 2003 to 2012. Asset ratios affect asset returns. Using random effects regression, this study showed significant but negative effects of short-term, long-term and total debt on profitability

3.0   METHODOLOGY

3.1   Research Design

Exploratory and desk research designs were adopted. This was used for preliminary investigation to establish the basis of the investigation, sources and availability of research materials or literature. The desk research design was employed based on the nature of the research problem and the type of data required in the work. The population of the study is made up of all the active insurance firms quoted in Nigeria stock exchange. Presently, there are 23 insurance companies listed on the Nigeria Exchange Group. Judgmental sampling technique was adopted to select 20 companies from the population as the study sample.

This method made it possible for the unit suited for the study based on data availability and the purpose of the study to be selected.

3.2 Data Collection Method

Secondary data were sourced and obtained from the annual reports of the respective insurance companies studied, which covered the seven-year period from 2015 to 2021.

Conceptual Model

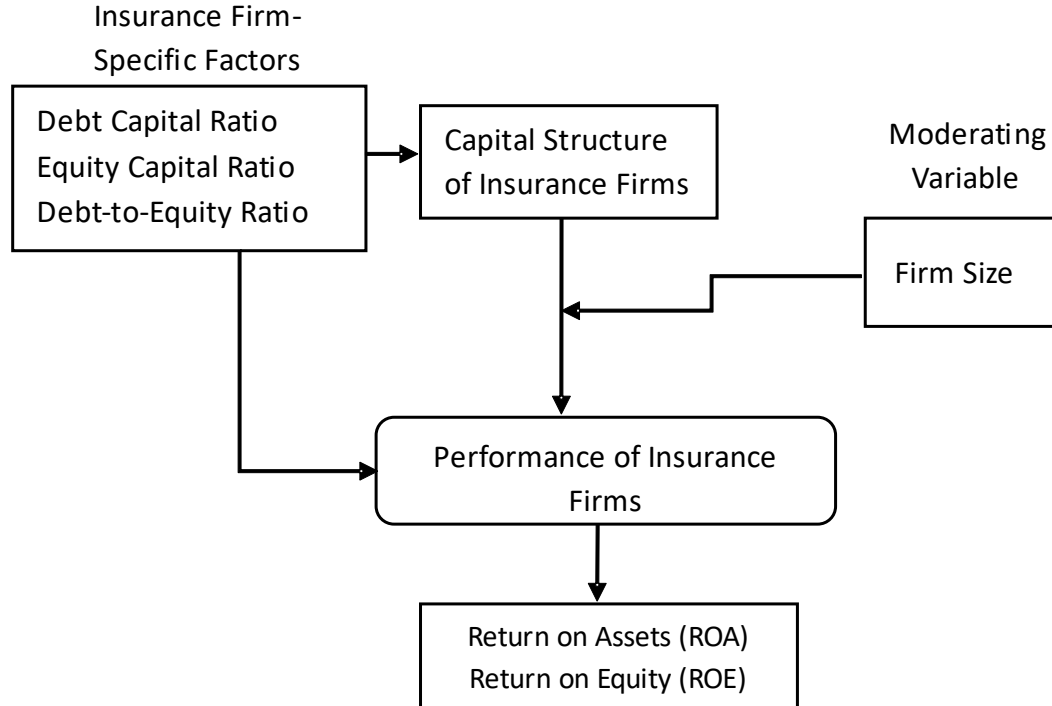The conceptual framework developed for this study is given in the diagram below:

Figure 1: Conceptual model for Capital Structure and Insurance Firms Performance in Nigeria

Source: Researchers' Compilation (2023)

Model Specification

Models presented below were developed from the hypotheses formulated. These models are presented in functional form, as follows:

$$PROF = f(DBT, EQT, DTE) \dots\dots\dots\dots\dots\dots\dots\dots Equation\ 1$$

Incorporating two proxies of profitability and a moderating variable, the model is further expanded into two econometric models, as shown in Equations 2 and 3.

$$ROAit = \alpha_0 + \alpha_1 DBT_{it} + \alpha_2 EQT_{it} + \alpha_3 DTE_{it} + \alpha_4 FSIZEi_t + \varepsilon_{it}$$

$$ROEit = \beta_0 + \beta_1 DBT_{it} + \beta_2 EQT_{it} + \beta_3 DTE_{it} + \beta_4 FSIZE_{it} + \varepsilon_{it}$$

Where: PROF = Profitability
ROA = Return on assets
ROE = Return on equity
DBT = Debt capital Ratio
EQT = Equity capital ratio
DTE= Debt-to-equity ratio
FSIZE = Firm Size
α_0, β_0 = constants
α_0-α_0, β_1-β_4 = Coefficient of the independent variables

Method of Data Analysis

The data collected for this work were presented in tables and analysed descriptively and inferentially. The descriptive statistics employed were the mean, median, standard deviation skewness and kurtoses among others. The inferential tool employed was the fixed/random effect panel regression test. Fixed or random effect test is chosen by applying the Hausman's Test. The decision rule is to adopt the fixed effect regression if the probability value of the Hausman's Chi-square is less than or equal to 0.05, otherwise the random effect regression should be adapted. On the other hand, the decision rule, as pertaining the research hypotheses, is to reject the null hypothesis if the probability value of the t-statistic is less than or equal to 0.05, otherwise accept.

Presentation of Results

Table 1: Descriptive Statistics

	DBT	EQT	DTE	FSIZE	ROA	ROE
Mean	3.024811	30.27193	4.743251	23.54275	-0.464201	7.553866
Median	0.000000	51.24538	0.000000	23.63759	2.547312	5.398843
Maximum	37.74655	100.0000	130.0769	26.00309	16.28116	1316.667
Minimum	0.000000	-460.4848	-282.4694	21.29650	-72.20056	-1213.520
Std. Dev.	7.715889	96.42700	37.04595	0.908959	11.31103	155.7209
Skewness	2.948571	-3.794125	-3.005059	-0.219757	-3.334837	0.831777
Kurtosis	10.94367	17.30514	32.00626	3.785836	18.28672	63.64618
Jarque-Bera	570.9558	1529.608	5118.662	4.729145	1622.649	21470.91
Probability	0.000000	0.000000	0.000000	0.093989	0.000000	0.000000
Sum	423.4736	4238.070	664.0552	3295.986	-64.98819	1057.541
Sum Sq. Dev.	8275.358	1292445.	190763.9	114.8427	17783.58	3370613.
Observations	140	140	140	140	140	140

Source: Researcher's Computation with Eviews 10

Table 2: Correlation Matrix

	DBT	EQT	DTE	FSIZE	ROA	ROE
DBT	1.000000					
EQT	0.034603	1.000000				
DTE	0.492195	0.044800	1.000000			
FSIZE	-0.006771	0.390779	-0.003533	1.000000		
ROA	-0.048477	0.717838	0.060238	0.454955	1.000000	
ROE	0.000008	-0.018452	-0.142805	0.039278	0.033007	1.000000

Source: Researcher's Computation with Eviews 10

Table 3: Hausman's Test

	Model			Model 2		
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	5.524115	4	0.2376	9.351201	4	0.0463

Source: Researcher's Computation with Eviews 10

From the descriptive statistics in Table 1, it is revealed that sampled insurance firms utilise 3%, debt capital, 30% equity capital and a debt-to-equity capital ratio of 4.7%, annually. On the other hand, ROA and Roe are -0.46% and 7.55% respectively annually. Their respective standard deviations also indicate that, apart from FSIZE, there are greater variability in all other variables. In terms of skewness and kurtosis, most of the variables are skewed to the left, except DBT and ROE; and are also peaked in their distribution, except FSIZE. The probability value (p-value) of the Jarque-Bera results suggests that only FSIZE is normally distributed whereas all other variables are abnormally distributed.

On the other hand, the correlation matrix in Table 2 reveals that all the independent variables are positively correlated with ROA, except DBT, as well as with ROE, except EQT and DTE. More so, the correlations between the independent variables are all less than 0.5, implying that there are no perfect correlations between the independent variables; which suggest nonexistence of multi co-linearity between the variables.

The Hausman's Test for model selection in Table 3 reveals that the random effect model should be selected for Model 1 while the fixed effect model should be adopted for Model 2; given the Chi-Square p-values of 0.2376 and 0.0463.

International Journal of Insurance, Risk and Management Sciences Vol.1, Issue 1, July, 2023 **Table 3:**

Random Effect Panel Regression Test (Model 1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DBT	-0.160707	0.100822	-1.593976	0.1133
EQT	0.074066	0.008036	9.216921	0.0000
DTE	0.023201	0.020100	1.154295	0.2504
FSIZE	2.583439	0.848213	3.045744	0.0028
C	-63.15153	19.89975	-3.173484	0.0019

Effects Specification

		S.D.	Rho
Cross-section random		1.553962	0.0421
Idiosyncratic random		7.414305	0.9579

Weighted Statistics

R-squared	0.504714	Mean dependent var	-0.405963
Adjusted R-squared	0.490039	S.D. dependent var	10.44094
S.E. of regression	7.456041	Sum squared resid	7504.993
F-statistic	34.39244	Durbin-Watson stat	2.104714
Prob(F-statistic)	0.000000		

Source: Researcher's Computation with Eviews 10

Table 4: Fixed Effect Panel Regression Test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DBT	2.028257	0.518900	3.908766	0.0002
EQT	0.059519	0.027822	2.139278	0.0329
DTE	-0.794401	0.117890	-6.738499	0.0000
FSIZE	4.877153	2.218314	2.198586	0.0274
C	-109.9230	68.99323	-1.593243	0.1138

Effects Specification

Cross-section fixed (dummy variables)

Weighted Statistics

R-squared	0.525636	Mean dependent var	92.74985
Adjusted R-squared	0.431581	S.D. dependent var	195.9820
S.E. of regression	144.7998	Sum squared resid	2432169.
F-statistic	5.588608	Durbin-Watson stat	1.859162
Prob(F-statistic)	0.000000		

Source: Researcher's Computation with Eviews 10

As shown in Table 3, the variation 49% in ROA are determined by changes in the variables captured in the model. The F-statistic and p-value of 34.39 and 0.000, respectively, indicate the model has a very high goodness of fit. Durbin Watson of 2.104 also suggests lack of serial correlation in the model estimate. The t-statistics, however, reveal that only EQT and FSIZE have significant influences on ROA. In the same vein, the result in Table 4 indicates that the regressors determine 43% of the variations in ROE; with the model having a high goodness and not serially correlated, given the F-statistic (p-value) and Durbin Watson of 5.59 and 1.859, respectively. On the other hand, the t-statistics show that all the variables have significant influences on ROE.

Table 5: Summary of Hypothesis Test

Hypothesis	Target Variable	t-statistic	Prob.	Decision
There is no significant effect of aggregate debt ratio (DBT) on the profitability of insurance firms in Nigeria.	ROA	-1.593976	0.1133	Accept
	ROE	3.908766	0.0002	Reject
There is no significant effect of totality equity ratio (EQT) on the profitability of insurance firms in Nigeria.	ROA	9.216921	0.0000	Reject
	ROE	2.139278	0.0329	Reject
There is no significant effect of debt-equity ratio (DTE) on the profitability of insurance firms in Nigeria.	ROA	1.154295	0.2504	Accept
	ROE	-6.738499	0.0000	Reject
There is no significant effect of firm size (FSIZE) in moderating the relationship between capital structure and profitability of insurance firms in Nigeria.	ROA	3.045744	0.0028	Reject
	ROE	2.198586	0.0274	Reject

Source: Researcher's Compilation (2023)

4.0 DISCUSSION OF FINDINGS

From the result of the first hypothesis, DBT has t-statistics and p-values (in parenthesis) of -1.594 (0.1133) and 3.909(0.0002) for ROA and ROE, respectively. These imply that DBT has an insignificant negative effect on ROA (in line with a priori) while having a significant positive effect on ROE (a deviation from a priori). The negative effect of debt capital on ROA suggests that increasing levels of debt reduces profitability whereas, on the other hand, rising debt stimulates higher ROE. In the case of the former, the inverse relationship between debt and returns may be due to the increasing interest expenses that accrue from increased use of debt, while on the other hand, the tax shield of debt may provide equity holders with higher returns.

In contrast, the finding of the second hypothesis indicates that EQT has noteworthy positive effects on both ROA and ROE, which is in tandem with a priori expectation; given the t-statistics and p-values of 9.217 (0.0000) and 2.139 (0.0329), respectively. Consequently, upward movement in owners' fund, *ceteris paribus*, results in an increase in profitability. The probable reason for this is that equity provides an interest free source of capital that can propel longer term growth, as earnings can be reinvested in the business.

In the third hypothesis, the results indicate an insignificant positive effect of DTE on ROA but a significant negative influence on ROE (in line with a priori); given the t-statistics and p-values of 1.154 (0.2504) and -6.738 (0.0000), respectively. Thus, a rise in the debt-to-equity ratio could enhance return on assets but reduces returns on equity. Consequently, ROA rises with increased gearing while ROE falls. The probable reason for the negative effect of gearing on ROE is hinged on the fact that higher debt levels will lead to higher interest expenses, which would reduce the returns accruable to the shareholders.

Lastly, firm size (FSIZE) has significant positive effects on both ROA and ROE, which is in tandem with a priori expectation. Thus, increment in size enhances profitability. This is because when the scale of operation is high, the firm is likely to enjoy some scale economies, which could lead to lower operating cost, and therefore higher profitability.

5.0 CONCLUSION

This study aimed at determining the influences exerted by mix of capital on the profitability of insurance firms in Nigeria within the period under review (2009 to 2017). The study specifically sought to ascertain the extent to which debt capital ratio, owners' fund ratio; debt-equity ratio influences profitability as well as the extent to which firm size moderates the corelation between capital structure and performance of insurance firms in Nigeria. The study finds that equity capital and firm size have significant positive effects on both ROA and ROE. On the other hand, debt capital has insignificant negative and significant positive effects on ROA and ROE, respectively, while debt-to-equity ratio has insignificant positive but significant negative effects on ROA and ROE, respectively. Thus, a good mix of equity and debt capital will promote sound business operation and improve performance.

6.0   RECOMMENDATIONS

Consequent upon the findings made herein, the researcher recommends the following:

i.   Insurance firms should exercise so caution in the employment of debt capital, as its result on profitability is mixed. There should be an appropriate debt-equity mix to the end of meeting their claim settlement obligations and enhancing profitability.
ii. Insurance firms should depend more on equity capital in order to enhance and sustain profitability, as it exerts a strong positive influence on both the returns on assets and returns on equity.
iii. The management of insurance firms should also adopt strategies and operating frameworks that can enhance their operating scale, as firm size is also found to positively and significantly stimulate profitability.

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