



Capital Structure Determinant of Firms Performance: A Case Study of Nigeria Insurance Industry (2013 – 2022)

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Abstract

Research purpose: The study covers the investigation into the major determinant of capital structure using Toda Yamamoto (Augmented VAR model) and standard VAR and VECM for the effects of capital structure on the insurance firm's performance.

Methodology: Based on the aforementioned, a purposive random sampling method of each component part of the insurance industry totalling four across this spectrum was gathered; General Insurance (NEM Insurance), non-general (life) (African Alliance Insurance), Composite Insurance (AXA Mansard), and Reinsurance Company (Continental Reinsurance) categories were selected as the study sample frame with an extracted data from their respective approved audited financials online, spanning from 2013 to 2022. The study try to investigate the role of five (5) INSURANCE characteristics items i.e. Risk premium, Tax ,Asset tangibility, Size and Reserves on Capital structure and then its effects on the firm's performance.

Findings: The study revealed that risk premium, Tax and Asset tangibility has a negative relationship with the capital structure with high statistical significance except for Asset tangibility. While Reserves and Size exhibit a significant positive relationship. The findings on the effects of capital structure on insurance company performance on the other hand shows that Liquidity and Capital structure does not matter in the short run and not statistically significant at 5% and 10% intervals except for Risk factor only that's positively related. While in the long run both capital structure and risk factor exhibited a significant positive relationship with insurance firm's performance and liquidity posited a negative significant relationship.

Recommendations: The Researcher thereby recommended an effective and efficient financial planning strategy that will ensure adequate provisioning for reserving and optimal investment allocation that would guarantee other income that could withstand any catastrophe losses for a strong solvency position.

Keywords: *Capital Management, Claims Ratio, Loss Ratio, Liquidity, Risk Premium.*

1.0 Introduction

Corporate organisations all over the world need financing as a lubricant to oil the wheel of their operations as going concerns. They are however faced with various dilemmas in the right choice of optimal mix of such financing via capital combinations called the capital structures. The dilemma is between the internally sourced capitals (Equity) or externally generated capital funds (Debts/debentures). The sole aim of this financing exercise is to ensure that the cost of funds (WACC) are minimised to the barest minimum while



maximising the shareholders wealth and firms' value. Thus, we can say practically that capital structure is the trade-off between the decision mix for Debt and Equity in financing the company operational activities , This financial planning exercise and choice must be based on pragmatic and strategic planning dictate to reduce to the barest minimal any signs of business risk or exposure that could truncate the business going concern. Company's capital structure is seen through a statement of financial position (balance sheet), which is the combination of debt (short and long-term) and the owners' equity (preferred and common stock) (Ali and Ahmed 2021; Ngatno et al. 2021; Sdiq and Abdullah 2022). The balance sheet also contains total assets, which are acquired through equity or debt (Abdullah 2021).. Finding the best mix of financing resources that will maximise return without affecting shareholder interest is known as capital structure decisions (Fatoki, Wafula & Waweru, 2021). We can therefore infer that the firm's capital structure is a catalyst and very germane in ascertaining the long-run survival and sustainability of the firm's existence. Fatoki, Wafula & Waweru, 2021 in their work inferred that capital structure is the search for the best mix of financing resources that maximise returns of the organisation without affecting the shareholder interest. Mutua and Atheru (2020) noted that capital structure is a framework that describes how equity and leverage are used to finance a company's activities in order to maximise shareholder returns given a certain amount of risk.

Giving the recent clamour by the Nigeria Insurance regulator (NAICOM) for recapitalization move by all practising insurer and reinsurers in the country, the major target is the increase in the insurance capitalization /funding to enable them meet up with their obligations as at when due with focus on effective capital structuring and planning. This recapitalization exercise has necessitated the immediate revocation of some insurance licences with some under technical underwriting suspension based on the outcome of the commission risk based audit exercise conducted on those companies. The scenario painted above has degenerated to the drastic reduction in the public confidence in the industry due to failure to meet up with their obligations and promises of paying customers claims and other innovative services. No wonder that the insurance penetration in Nigeria did not exceed 0.5% of the country's population to date compared to other financial sub sectors in Nigeria. The rate of insurance penetration in Nigeria has been regarded as one of the lowest and worst in Africa with a 0.5% penetration rate as of March, 2022. (Augustus and co 2022 Insurance report). It is also worthy to note herewith that Nigeria, the so called giant of Africa insurance rating carried out by NSE report 2019 place Nigeria as 62nd in the world behind South Africa, Kenya, and others. This ranking and grading is done using the aggregate insurance firm's value measured by Total value of Assets, Penetration rate, aggregate gross written premium and others.

According to NAICOM, there are presently 58 insurance companies in Nigeria, which are classified into life and general insurance businesses. However, the Nigerian insurance industry is still struggling with acceptance among the general population, a situation, if reversed, will lead to the growth of premiums and contribute to the gross domestic product (GDP) of the economy.

Despite the challenges, some insurance companies in Nigeria are leading in terms of market capitalization. Market capitalization is the value of a company on the open market or simply, the stock's current price multiplied by the total number of outstanding shares.

Based on the aforementioned scenario of the Nigeria insurance industry vis a vis their regulatory demands for recapitalisation, the researcher intends to examine and investigate the effect of capital structures on the insurance industry net worth/profitability. This is germane in making them more robust and resilient against systemic and business volatility that may be occasioned by business risk emanating from choice of capital structure mix.

1.1 Objectives

To examine the determinants of capital structure on firms Performance (Insurance Industry)

To investigate the determinant of capital structure in the insurance company To examine the effect of capital structure on Insurance company profitability To examine the moderating role of liquidity and Risk on firms net worth/profitability.

1.2 Research Hypothesis

Ho 1; There are no major determinant of capital structure in the insurance industry Ho 2: Capital structure does not have any significant effects on the firm profitability Ho 3: Liquidity cash flow and insurance risk does not play any role in determining profitability

2.0 Theoretical Framework

Modigliani and Miller (1958) argue that any changes in the current proportions of debt and equity cannot affect the value of the firm, which means no capital structure is better or worse, and firm values remain irrelevant to different levels of leverage. This in essence means that capital structure or combination or mix between various alternatives does not have any effect on firms' value or performance. MM later in 1963 reviewed the previous stance with further simulation of interest rate against tax effects and this yielded a healthy cash flow position for better operational activities. It's upon this premise that MM postulates that the firm's value is now positively related to financial leverage, which implies that corporations are fully capable of maximising their values by raising their debt levels in trade-off against equity options.

Kraus and Litzenberger (1973) initiated another theory known as Trade-Off theory, this they postulated that capital structure is a financial decision whereby a firm tried to give up between the tax benefit of debts option to finance their capital against the costs of financial distress they may incur as a reason of debt burden or over hanged. This therefore means that firms must strive very hard to set a defined optimum mix that will provide sufficient and necessary support for their various businesses to create value and profitability.

Jensen and Meckling (1976), and Myers (1977) focuses on the fundamentals of corporate governance on a firm's capital structure with emphasis on the key stakeholders; Management, Board and the creditors. This however creates a conflict within and among varying stakeholder's interest within the corporate entity called agency conflict. These conflicts are in two fold; 1) Agency conflict between Shareholders and management which is internal (this



focuses on ownership structure and intended consequences i.e. where management are face with lesser debt burden and owns higher equity, they are open to higher freedom to pursue low risk – low return investments with acquisition of assets for expansion rather than strategic growth just to boost their ego or reputation thereby creating an agency cost of equity for each actions taken thereby affecting firms value. On the contrary, if the ownership is skewed to debt, it is believed that this will propel the management to drive productivity higher for better yield to cover its debt financing by investing in higher returns projects that would increase firms' value). 2) Agency conflict or problem within external factors – Shareholder and Creditors ...conflict arises due to conflicting risk attitude and interest by the two investors in the firm. The aftermath of this may lead to bankruptcy with high preference for leverage.

2.1. Conceptual Framework

Al-Thuneibat (2018) examined the relationships between capital structure, firm ownership structure and the performance of firms in Jordan. The findings confirm that there exist a positive relationship among these variables, meaning that capital structure affects a firm's performance and ownership. While on the other hand, Maina and Ishmail (2014) examined the impact of capital structure on the performance of firms listed on the Nairobi Stock Exchange (NSE). The result of the analysis showed that capital structure had a strong negative relationship with the performance of firms. Mwangi et al. (2014) however threw more insight with their study which confirmed that firms' leverage has an inverse relationship with both return on equity and return on assets.

2.1.1. Capital Structure

There is an argument that the ownership structure of a firm would affect the extent to which capital structure would influence a firm's performance. In fact, Vu et al. (2018) and Elmagrhi et al. (2018) contend that firms managed by owners would have the best capital mix and would eventually reap their benefits. This suggests that the choice of a specific capital structure would have minimal effects on firms' performance unless specific characteristics of management prevail. Therefore, Migliori et al. (2018) argue that firms managed by owners would make a better choice on capital structure than those managed by individuals who are not owners. The paradox is that Modigliani and Miller's (1958) theory, which is supported by Cheng et al. (2010), maintains that capital structure is irrelevant to the financial performance of firms. However, studies such as Maina and Ishmail (2014), Suardi and Noor (2015), Akomeah et al. (2018) and Nguyen (2019) contradict this position by demonstrating that capital structure influences the performance of a firm Since capital structure has been perceived to influence firm's value, firms must then decide the equity-debt mix that maximises firm's value.

The selection of optimal capital structure is an important strategic financial decision for every finance manager. A capital structure that reduces cost and maximizes a firm's value is what



has been termed an “optimal capital structure.” An optimal capital structure can be said to have been achieved when the weighted average cost of capital (WACC) is at its minimum (Udobi-Owoloja, et al, 2020). Capital structure optimality has to do with finding the right balance between debt and equity. An equilibrium where the cost of debt is at minimum and benefit of equity is at maximum has been considered as an optimal structure. Capital structure is essentially concerned with how the firm decides to divide its cash flows into two broad components, a fixed component that is earmarked to meet the obligations toward debt capital and a residual component that belongs to equity shareholders (Appiadjei, 2014).

Moreover, capital structure combination is considered as a critical and strategic decision that has historically been observed to be puzzling (Kumar, Colombage & Rao, 2017). A firm that decides they should optimise their capital structure by changing the mix of debt and equity has a few options to effect this change as methods of recapitalization include:

1. Issue debt and repurchase equity-issue debt and repurchase equity = higher debt over equity
2. Issue debt and pay a large dividend to equity investors- issue debt with higher dividend thus increasing debt over equity again
3. Issue equity and repay debt- raise new shares to offset old debts = not advisable because of cost implications on equity higher cost

Equity financing is when a business offers ownership holdings to raise money. Debt investors receive a certain string of cash flow in the form of interest, as opposed to equity investors, who may or may not see returns on their investments:

2.1.3 Proposed Determinant of Capital Structure in the insurance industry

The Optimal Capital structure of every organisation is anchored in the corporate financial planning strategy of the company. It should however be noted here that the financial decision or choice of appropriate mix is dependent on some factors or determinants or drivers that play host to the trade-off between the firm debt-equity mix. The peculiarity of the insurance industry in the country makes their behavioural and choice of capital structure mix different from other categories of industry in Nigeria. Meyer (2021) in his study also stressed the peculiarity of insurance companies as a business model in risk taking and transfer based on collection of token considerations called Premium. He however, emphasised the existence of gaps and uncertainty between the premium collected and the quantum of claims the insurance company may eventually pay. In the case of any catastrophic loss or mishap, the insurance is meant to pay far and beyond the premium collected and the claims reserve, hence the need for a fall back on the capital of the company.

Given the aforementioned fundamentals of insurance company business flows and dynamics, it is therefore expected that the determining factor of the optimal capital mix or structure of any insurance company shall take into consideration some of these burning issues vis a vis regulatory demands on the same. Meyers (2021) further identified the following as the determining factor of insurance company capital structure; Risk premium, security loading or profit, Reserves, underwriting cycles, cost of regulations and interest income on the accumulated premiums.

The aforementioned factors typically set the insurance industry strictly apart from other industries in terms of capital structure determinants. Brigham and Daves (2004), opined that a firm's capital structure (leverage) increases with fixed assets and firm size. And Rajan & Zingales, (1995), on the other hand stated that capital structure decreases due to volatility, advertising expenditure, the probability of bankruptcy, profitability and the uniqueness of the product. Oppong-Boakye, Appiah and Afolabi (2013), investigated the determinant of capital structure with 33 companies in Ghana ,using Six factors of profitability, assets' tangibility, size of firm, Business risk, growth and tax were examined. The results revealed that leverage has a positive relationship with profitability, assets tangibility, size, business risk on one hand; but a negative Relationship was observed with growth and tax on the other hand. Launie (1977) on the other hand inferred that insurance enterprises and capital structure estimation of the cost of equity capital differs entirely with other financial or corporate counterparts due the imputed cost of the unearned premium named quasi-debt and difficult to quantify.

2.1.4 Firm Performance and Insurance Industry

As we all know, the insurance industry is the overall catalyst of risk collation, pooling and sharing to ensure that other firms are well positioned and retain their firms' value. Thus, it should be viewed as a special industry with peculiar characteristics and patterns of financing which also may have an indirect effect on their capital structure of debt–equity compared to other industries. Given this peculiar nature and characteristic, it will be interesting to know and phantom the optimal mix of capital combinations that could sustain an insurance company in the face of very and uncertain catastrophic risks or claims that are far and above the insurance liability reserves and provisions.

Worthy of note also is the nature of the insurance company computation and understanding of the firm's value based on the fact this industry is mainly a personalised and emotionally driven market system. This is notwithstanding the fact that it is more or less like a perfect competition with a structured price based on the set tariff of premium calculation. It is, however, driven by personal connection and public opinion driven by two factors; ability to meet immediate claims obligation and each firm's gross written premium. The poor penetration level and acceptability of the insurance industry in Nigeria is another deciding factor that makes equity less attractive to debt in this market. This has, however , reduced the influx of investors and the use of market capitalization of outstanding shares as the firm's value rather than the use of profitability and gross written premium that are common as the proxy for firms' value for the insurance industry.

Debt investors take less risk because they have the first claim on the assets of the business in the event of bankruptcy. For this reason, they accept a lower rate of return and, thus, the firm has a lower cost of capital when it issues debt compared to equity.

Equity investors take more risk, as they only receive the residual value after debt investors have been repaid. In exchange for this risk, investors expect a higher rate of return and, therefore, the implied cost of equity is greater than that of debt.



2.2 Empirical Literature Review

Bala and Abatcha (2020), investigated the determinant of capital structure of all the listed insurance companies in Nigeria between 2006 and 2018 using a panel data analysis. The findings show that firm size has a positive but insignificant relationship with capital structure while Age and growth of the firm has a positively significant relationship. It was however noted that Asset tangibility and Risk has both negative and positive relationship respectively but not statistically significant.

Onaolapo, Kajola and Nwidobie (2015) examined the determinants of corporate capital structure of thirty-five firms listed on the NSE between 2006 and 2012. Results revealed that the three leverage ratios total leverage ratio, long-term leverage ratio and short-term leverage ratio are negatively and significantly related to profitability. Firm size and asset tangibility are, however, positively and significantly related with leverage proxies.

Adaramola and Olarewaju (2015) examined the determinant of capital structure of quoted composite insurance companies in Nigeria using descriptive research designed. 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 influence on leverage; it was discovered from this study that all the variables identified are statistically significant except ROA and growth; the model was reliable and appropriate for determining capital structure of composite insurance companies.

Osasere and Osagie(2022) in their study of capital structures and values in Nigeria with focus on the heterogeneity of industries analysed a sample of varying industries in Nigeria with leverage ratio, equity ratio and interest expense as capital structure while market capitalization as firm value. The findings show a rather shocking observation that leverage and equity ratio has a high significant positive relationship while interest expense as a component of capital structure has a negative significant relationship, which however shows that capital structure has an overall positive effects on firms' value using panel pooled least square model.

Mishelle (2021), carried out a study to examine the relationship between capital structure and firm value in East African countries and how managerial ownership influences this relationship. Sixty-five (65) listed firms in East Africa were selected for the study. The study employed a GMM estimation technique. The evidence showed that leverage has a significantly negative impact on the value of firms in East Africa, suggesting that higher debt would result in a decrease of firm value. The implication of this result is that firms can increase their value by reducing their leverage level. Moreover, the study found that managerial ownership had an inverse and significant impact on the relationship between leverage and firm value.

Puspitasari and Wiagustini (2019) study was undertaken to examine and analyse about how the influence of capital structure and firm growth on firm value with profitability as a mediator. The population of this study is a sub Sector Company of food and beverage registered in Indonesia stock exchange over the period of 2015-2017 applying a path analysis technique via the SPSS. The finding of the study showed that the capital structure and firm



growth has positive influence on profitability and firm value, profitability has positive influence on firm value.

Sanni et al (2019), in their study investigated the effects of capital structure on insurance industry profitability using a sample size of 15 listed insurance companies applying an OLS multiple regression analysis. It was observed that short-term debt has a negative and significant effect on the profitability of listed insurance firms in Nigeria while long-term debt and premium growth have positive and significant effect on profitability of listed insurance firms in Nigeria.

Tarsono, Ardhetta, and Amriyani (2019) carry out a research study on the effect of claims ratio, net premium growth and risk based capital on life insurance performance. The study discovered that Net Premium Growth and Claim Ratio do not significantly influence financial performance while Risk Based Capital has a negative effect on the financial performance of Life Insurance Company.

Oyedokun and Gabriel (2018), in their research study assess the effects of claims management on profitability of listed insurance companies in Nigeria using SPSS statistical tool with a multiple regression analysis to analyse claims ratio on other expenses and related cost on insurance company performance. The study noted that performance has a negative relationship with claims ratio and net claims management while exhibiting a direct relationship with expense ratio.

2.3 Gaps in literature

The Researcher discovered that most studies on the insurance industry forgot that insurance is a pool of risk by using business risk as the proxy for risk in the capital structure analysis. Insurance companies as the risk carriers of other industries for a token called premium in exchange for future compensation is thus bewildered with risk in the form of claims ratio which the research factored in the model for ease of analysis. Review of various literatures on the subject also shows that most of the previous researchers have not explored the value addition attributable to lag and lead which form part of the VAR estimation model, Toda Yamamoto and VECM employed in this study for broader insight and addition to existing knowledge bank on the subject.

3.0 Research Methodology

3.0.1—Design

The researcher adopted an ex-post facto research design by extracting variables and data from the selected company published audited accounts.

3.1—Population

The study covers all licensed and registered 58 insurance companies in Nigeria as at the time of this study. This population covers all components of the insurance industry i.e. General Insurance, Life insurance, Composite and Re-insurance. The scope of the study covers 10 years between 2013 to 2022.

3.2—Sample & sampling technique

The Researcher adopted a purposive random sampling techniques based on the selection criteria which cut across all the segment/component of the insurance industry. The researcher selected NEM as representative for General Insurance, African Alliance for Life insurance, AXA mansard for composite and Continental Re for re-insurance. This is done to ensure equal and true representation of the whole insurance industry. The selection of General insurance and composite insurance are guided by the top five insurance companies in terms of market capitalization, according to Nigerian Exchange (NGX) publication as at 31st October 2022.

3.3—Sources of data

The data sources are mainly secondary from the published audited accounts of the selected sample frame hoisted in their various online portals.

3.4—Reliability

The reliability of the data is attested by the approval of various regulatory authority and external auditors before been published for public consumption.

3.5—Validity

This is valid based on its public acceptance and influence on their market capitalization and values

3.6—Model description & justification

The Model formulations were in two fold , one for the effects of capital structure on insurance company profitability and the other is the determinant of capital structure in the insurance firm.

Model 1 Determinant of Capital structure in the Insurance Company based on the researcher understanding of the insurance industry in Nigeria and the major literature review extract, the model construction shall be based on purposive factor selection from the two research study by Meyers (2021) where six(6) factors were adopted as the determinant of capital structure (Risk Premium, Profit, Reserves , Regulation cost , and interest income) and that of Oppong-Boalaye, Appiah & Afolabi(2015) with five(5) factor analysis namely Asset tangibility, Growth, Liquidity, ROA and size.

Based on the two scholars, the researchers conducted a critical analysis of the factors presented under the literature reviewed and adopted the following related factors as the investigative parameters for this study. The itemised five (5) factors by the researcher for this study are; Tax, Risk Premium, Asset Tangibility, Size and Reserves.

Tax – we adopted the company income tax from the audited financials of selected companies for this purpose based on the argument that it's the inducement factor for the preferability of debt to equity mix in the capital structure financial planning.

Risk Premium- This is the price of the risk covered by the insurance company. It is the revenue realised from business of risk covered. As major revenue contribution of the insurance company, it is believed that its volatility and changes has a tremendous impact on the capital structure mix to be adopted by the company. This is identified in the model as the Gross written premium (GWP).

Tangible Assets- This is the proportion of the total fixed assets that could be available for debt structuring and borrowing by intended debt investors. Thus, remain one of the factors for checkmating possible debt-equity mix at all times. For the purpose of this research, the ratio of fixed assets over Total assets was captured.

Firms' Size – This as a parameter used by intended investors for their willingness to come aboard in terms of Asset sizes and others. The log of the Total assets was employed for this purpose.

Reserves – This is the regulatory demand against claims obligations as a contingency plan for any catastrophic losses or exposures. Thus, the researcher adopted the contingency reserve component of the balance sheet as in the audited financial statement.

Capital Structure - Debt –equity ratio shall be our data and proxy for the capital structure mix. The equity value in use here is the shareholder funds as at the time of the audited financials of each year per company.

3.6.1 Model 2 Effects of Capital structure on insurance companies

Based on the peculiarity of the insurance industry and the importance of capitalization drive for their existence, the researcher adopted the MM theory model as postulated by Modigliani and Miller (1958) to investigate the effects of capital structure on insurance company performance. Firm Profitability =F (debt burden, distress effect (RISK) and other financial decisions). FP= Capital Structure, Risk, Liquidity (cash flow).

Financial performance /firm value = Profit after tax/shareholders' funds (ROE) Capital structure = Debt/equity ratio (DBEQ)

Risk= Claims/loss ratio against previous studies adopting business risk (RISK) Liquidity /cash flow= liability /Total assets (LIQ)

Firms' Profitability = Return on Equity (ROE)

Capital Structure = Debt/Equity (DBEQ) , Debt/Asset(DBAS)

Cash flows = Liquidity (Total Liability /Total Asset)=LIQ

Moderator= Risk = Claims/loss ratio (This is the major financial exposure and leakages for most insurance companies determined by effective underwriting and reservation.

3.7—Data analytical technique

The researcher adopted Panel VAR and VECM statistical analysis to account for the effects of lags against current and previous year's financial decisions on financial performance after carrying out all required diagnosis and residual tests for data mining and suitability for model two(The effects of capital structure on firms performance). The researcher on the other hand



adopted the Toda Yamamoto statistical model (Augmented VAR model) to estimate the significance and causality of each selected variable in determining the major factors that influence capital structure in Model one (1). The application of the Toda Yamamoto model was based on the outcome of the variable unit root statistics with various order $I(0)$, $I(1)$ and $I(2)$ respectively.

4.0—Data presentation & description

This section shall deal with the two models formulated in our model descriptions above in analysing our findings on the determinant of capital structure vis a vis the effects of capital structure on firms performance,

4.1 Model 1 – Determinant of Capital Structure in the Insurance industry The model tries to determine the major determinant or determining factors for insurance industry capital structure mix based on their peculiarity and related literature review.

Table 1- VARIABLES UNIT ROOTS

VARIABLES	I(0)	I(1)	I(2)	ORDER
DEBEQUI	NA	OK	NA	I(1)
INGWP	NA	NA	OK	I(2)
INRESERVE	NA	OK	NA	I(1)
INSIZE	NA	NA	OK	I(2)
INTAX	NA	OK	NA	I(1)
TANGIBLE ASSET	OK	NA	NA	I(0)

Sources: Extract from Eviews 11

Based on the various integrating order of the above variables in Table (1) , the researcher applied the most appropriate statistical model for the analysis of the model ,using Toda Yamamoto statistical granger causality augmented adjusted VAR model with the outcome of the result presented below in Table 2.

Table 2 ... Toda Yamamoto Results estimates

TODA YAMAMOTO AUGMENTED VAR RESULT				
VARIABLES (DEBEQUI)	COEFFICIENT	SD	T-STAT	REMARKS



CONSTANT	3.878	1.047	3.703	SIGNIFICANT SIGNIFICANT SIGNIFICANT NOT SIGNIFICANT SIGNIFICANT SIGNIFICANT
INRESERVE (-3)	0.471	0.227	2.074	
INGWP (-3)	-1.498	0.248	-6.0393	
INTAX(-3)	-0.145	0.5	-2.872	
TANGIBLE ASSET (-3)	-0.533	0.482	-1.106	
DEBEQUI(-3)	0.415	0.118	3.525	
INSIZE(-3)	0.509	0.29	1.754	
R SQUARE	0.945			

Sources: Extract from the Eviews 11 estimates in Appendix

Lag length = 1 and the dmax=2 , therefore the total leads and lags is 3(-3)

The findings show that the listed factors (Reserves , Risk Premium, Tax , Firm's Size and Previous Leverage (DEBEQUI) condition) are statistically significant in determining the insurance company capital structure except for Tangible Assets.

Reserves parameter shows that there exists a positive relationship with the capital structure. This means that the higher the reserves the higher the capital structure mix and adjustment between debt and equity by 47% with leverage.

Risk premium (INGWP) on the other hand depicts a negative relationship with the capital structure with a higher value of -1.498(150%) and statistically significant. This means that an increasing change in the insurance company risk premium by 1 unit will lead to a corresponding decrease in the company leverage or capital structure because of the availability of adequate cash flow and vice versa in the long run.

Tax indicates a negative value of -0.145 (14.5%) against capital structure, meaning that the higher the tax value the lower the leverage level (capital structure mix) of the company. Tangible Assets shows a negative relationship with the capital structure with -0.533 but not statistically significant at 5% level of confidence interval.

Firms Size (Insize) shows a positive relationship value of 0.509 (51%), indicating a proportionate and direct relationship with capital structure –leverage level.

4.1.2 Toda Yamamoto Augmented Granger Causality Output

Table 3 – Toda Yamamoto Granger Causality output

TODA YAMAMOTO AUGMENTED GRANGER CAUSALITY RESULTS

CAUSES

DEPENDENT VARIABLES

VARIABLES DEBEQUI INGWP INTAX TANGIBLE ASSET INSIZE RESERVE
DEBEQUI CAUSED→

INGWP CAUSED → CAUSED→ CAUSED→ INTAX CAUSED→ TANGIBLE ASSET
 CAUSED → CAUSED→ CAUSED→ INSIZE CAUSED → CAUSED→
 RESERVE CAUSED→

Sources: Extract from Eview 11 estimated output in Appendix

From the findings in table 3 , it could be observed that there are unidirectional relationship between variables in fractions as itemised below :

Capital structure components (DEBEQUI) are caused by Risk Premium, Tangible Assets and size of the firms in a unidirectional way and not the other way round. This is in support of the Augmented VAR estimate except for Tangible assets that are not statistically significant in the Toda VAR estimated output.

Risk Premium on the other hand is caused by Tangible assets and Firm size which is in support of practical and true life assertion.

Tax is caused by Capital structure (Leverage) and not the other way round, same with reserves Reserves for catastrophic losses is caused by the changes in the risk premium over time. While the firm Size is caused or influenced by Risk premium, Taxation and Tangible assets.

4.2 Model 2 – Effects of Capital structure on Firm’s Performance Table 4 - Correlation Matrix

INROE INRISK INLIQ INDBEQ INDBAS

INROE 1 -0.1324968... -0.0772211... -0.7666363... 0.06344176...

INRISK -0.1324968... 1 -0.1228865... -0.0145483... -0.1975990...

INLIQ -0.0772211... -0.1228865... 1 0.56824614... 0.84004990...

INDBEQ -0.7666363... -0.0145483... 0.56824614... 1 0.38828355...

INDBAS 0.06344176... -0.1975990... 0.84004990... 0.38828355... 1

Sources : Extract from Eviews estimated output

The correlation matrix above was conducted to confirm the degree of association and inter relationship between the intended variables as an early warning signal for understanding the variable composition. ROE shows a very strong negative relationship with DBEQ and weak negative relationship with LIQ and Risk.

Table 5 Stationary test using ADF

STATIONARITY TEST			
VARIABLE	I(0)	I(1)	REMARKS
INROE	N/A	0.0138	1 DIFF
INRISK	N/A	0.0019	1 DIFF
INLIQ	N/A	0.0055	1 DIFF



INDBEQ	N/A	0.024	1 DIFF
INDBAS	N/A	0.0049	1 DIFF

All the variables are stationary at level one (1 difference)

Sources: Extract from Eview estimated output in Appendix

Table 6 CO-INTEGRATION

JOHASEN COINTEGRATION REPORT		
TYPE TEST	AR COEFF	WEIGHTED STATISTICS
PANEL V-TEST	0.5127	0.9222
PANEL rho-stat	0.9058	0.939
PANEL pp-stat	0	0.004
PANEL ADF	0.0036	0.0751

Sources : Extract from eview estimated output in appendix

Out of eight results ,five (5) which is the majority reference highlight the existence of Cointegration ,which shows there is a long run relationship requiring ECM _Error Correction Model.

The lag criteria selection was two lags using AIC criteria

4.2.1 Data analysis – Effects of Capital Structure on Firm's Performance

The data was analysed using Vector Autoregressive Model (VAR) and Vector Error Correction Model (VECM) based on the outcome of their stationarity and cointegration test as highlighted in section above using eview 12.

Below is the outcome of the output from the estimated output

Table 7 SHORT RUN

SHORTRUN	ROE	RISK
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VARIABLE COEFF

STAT COEFF T-STAT

T

ECM(-1)	-0.848	-2.147	-2.16	-9.407
D(INROE(-1))	0.959	2.204	1.598	6.32

D(INRISK(-1))	0.321	2.679	-0.278	-3.984
D(INLIQ(-1))	-240.73	-0.354	-42.164	-0.107
D(INDBED(-1))	1.275	0.765	3.599	3.717
D(INDBAS(-1))	0.0162	0.0611	-0.287	-1.858
C	-0.0006	-0.006	0.0731	1.197

Sources : Extract from eviiew 12

From the findings above, it could be deduced that only ROE (Firms Performance) and RISK as an exogenous variable the only equation that fulfilled the acceptable criteria for short run estimate with their error correction terms of causal relationship condition having negative coefficient ecm terms, and also significant at 5% confidence interval.

Based on the firms performance (ROE) analysis, it could be deduced from the short-run equation model that previous performance or profitability (Retained earnings) of the insurance firms has a positive (0.959) relationship on the firm's performance or value in the current year, and is also statistically significant at 5% confidence interval. This means that a unit increase in retained earnings or previous year's profit, shall cause 0.99 increase in the current year firm value or performance.

The Risk effects on its part also show a positive significant effects relationship on the firm's value or performance with 0.321 value. This also supported the investment palace adage that the higher the risk, the higher the returns or firm value.

The statistical analysis of Liquidity and Capital structure on the other hand shows a negative and positive relationship respectively with the firm's value and performance, however, they do not matter nor statistically significance in the firms' value or performance in the insurance industry in the short run. All things being equal.

Table 8 Long Run Relationship

LONG RUN		COEFF	T-STAT
INROE		1000	
INRISK(-1)		0.4634	12.8
INLIQ(-1)		-363.75	-4.56
INDBEQ(-1)		1.158	10.112
INDBAS(-1)		0.118	5.605
C		1626.68	

Extract from eviiew 12

The long run equilibrium model shows that capital structure really matters and thus have a positive relationship with the firm's performance or value, which is statistically significant at 5% level of confidence. While liquidity on its part in the long-run shows a negative significant relationship with the firm value or performance. The negative relationship between liquidity and firm's performance/values indicate that, the higher the liquidity position of the firm in terms of excess cash flow, the tendency for idle cash and mismanagement that may hinder firm's performance/values. This argument is in support of the agency cost theory major thrust of higher benefit of debt to equity choice of capital structure.

4.3 Diagnosis Test

Normality test and heteroscedastic test shows that the model and data are free and good fit.

4.3.1. Pairwise Granger Causality test

This tries to show the causal cause effects of each variable and their various directional stand points. From the output of the granger causality test carried out, it was observed as follows; I. that there is a unidirectional causal relationship between Risk and ROE, meaning that only ROE causes RISK and not otherwise

II. Unidirectional causal relationship also between DBAS on DBEQ

III. Observed a bidirectional causal relationship between DBEQ and ROE IV. Also Bidirectional causal relationship between DBEQ and RISK

4.4 Discussion of results & policy implication of findings

It should be noted that it is not adequate enough to determine the effects of capital structure on company performance without first investigating the root cause analysis of the capital structure itself and the evolving characteristics or factors.

Investigation into the determinant of capital structures in the insurance industry shows that the selected factors do determine the capital structure decision of the company. The findings show that risk premium has a strong negative significant effect on the insurance industry capital structure mix in terms of debt/equity swap. This signified that the higher the company risk premium the lower the tendency for an additional debt option. The risk premium in itself is viewed as an accumulated unearned premium which is already a prepayment or partial loan or liability against the insurer. This shows that the higher the risk premium by the insurer, the lower the tendency for more leverage or gearing condition of the firm. This is possible and supported by his unidirectional augmented granger causality test where it was confirmed that Risk premium drove or caused changes in capital structure, firm's size and the insurer reserves for an unforeseen catastrophe losses or claims. This fact was also supported by Launie (1971) in his article where he refers to the unearned risk premium in the insurance company as a reserve which is more like a near debt instrument (quasi-debt).

Insurance information institute (III) (n.d) in their articles view Reserves in two folds; unearned premium and expected loss estimate reserve. The purpose of this reserve under



study is that of estimated loss probability from the policies underwritten by the insurance company, hence is more or less a liability provisioning. It was discovered from the study that reserve has a significant positive relationship with the capital structure of the insurance company. This indicates that a change in the reserves has a direct and proportionate change in the capital structure (Leverage) mix of the insurance company. This was also supported by the work paper presentation by Arata (1983) on reserving for solvency where it was opined that loss reserving plays a significant role in insurance company capital structure by ensuring a consistent and stable solvency status in the face of catastrophe losses rather than running out to increase/ acquire more debt burden which may further increase the company leverage position. Based on the fact that contingency reserve are regulatory and subject to the number of policy versus risk premium collected, thus, the higher the reserve benchmark, the quest by the insurance company to seek for additional funds either via debt or external means to meet the regulatory demand against probability of loss crystallisation in the near future. Hence the positive relationship displayed by the findings.

Firm size as determinant of capital structure posit a significant positive relationship with insurance company capital structure (leverage). This means that the higher the size of the company, the higher the temptation to use their size to attract more debts for increased leverage ratio for further expansion rather than organic growth model from accumulated reserves. This outcome further affirmed the agency cost theory of least cost financing options priority by firms based on opportunity of large size. This findings was in line with Mbonu and Amahalu, (2021) research study on listed Nigeria insurance companies where it was confirmed that firm size exhibited a strong positive relationship with capital structure. The Augmented granger causality test also affirms unidirectional causal effects of firm size to capital structure as a validation of the findings estimated output. This however, was contrary to other findings carried out on insurance companies in the same Nigeria by Abatcha and Bala (2020) which posit that firm size is strongly insignificant to insurance company capital structure.

Tangible assets factors portray an insignificant negative relationship with the (Leverage) capital structure decision, indicating that it does not matter in capital structure financial planning decision making. This assertion was also backed up by Abatcha and Bala (2020). But the study Augmented granger causality on the other hand shows unidirectional causal effect of Asset tangibility on capital structure, meaning it causes changes in capital structure mix decision. This tends to explain that more investment in fixed assets, especially Investment Assets that's earning some income, will guarantee less attention to more debt. The higher the investment in fixed assets, the lower the propensity for more leverage (Capital structure) remix. Tax factor was observed to exhibit a significant negative relationship with the capital structure mix (leverage). This observation is in contrast with the result obtained from the same findings augmented granger causality estimate that revealed that there exists a unidirectional relationship between tax and capital structure, in the sense that Capital structure mix (Leverage) causes Tax to change and not the other way round. This tends to support the assertion made by Andrew (2015) that tax rates do have an impact on firms'



capital structure, but they are subtle or passive in determining the capital structure mix contrary to the MM theory that is the major incentive for high propensity for more debt options in the capital structure mix.

The findings from the study on the Effects of Capital structure on Insurance company performance carried out on the Nigerian insurance industry shows that capital structure do not matter or relevant in determining the firms performance in the short run as first postulated by Modigliani and Miller (1958) before further fine tuning. But the result however emphasised that capital structure does have a significant positive effect on the firm value in the long run at a speed of return of 84.8% to equilibrium from the short run period. All things being equal. This argument was further supported by Sanni et al (2019) in their work on the same insurance industry where it was opined that long term debt has a positive significant relationship with the firm's performance. They however, did not specify the period and also subjected the item to short term and long term which is same with short run and long run period as exhibited in the findings. What matter most in the insurance industry at all times either in the short run or long run is the ability of the firm or organisation to retained and plough back the previous year's profitability or performance in the form of retained earnings while monitoring the major catalyst for business driver in the insurance industry called Risk (Claim/loss ratio) toward propelling the firm's value and performance. This, however, was positive to have a strong positive and significant relationship and effects on the firm's value and performance both in the short run and long run period. This is contrary to Oyedokun and Gabriel (2018) observation of negative relationship between claims ratio (risk) and firm's performance in their study of the same Nigeria insurance industry. Given the fact that claims ratio with a proxy for Risk in the technical liabilities of the insurance company is two edged sword that could make or mar the industry if not properly managed to its optimal level. Thus, the findings of positive relationships are right in the sense that the higher the ratio, the higher the industry written premium for profitable investment opportunities. This justification was further buttressed by the bidirectional causal relationship between capital structure and Risk and same with Firms performance. This means that any of these factors can influence each other either positively or negatively, hence the need for optimal and deliberate financial strategic planning for a better mix of capital structure ,risk and firms performance with emphasis on viable utilisation of the retained earnings and risk premium.

The liquidity position of the insurance company posit a negative relationship with the firm's value or performance meaning that higher or excess liquidity could trigger downward trend in the firms values or performance due to temptation of abused and investment in non-attractive ventures or keeping of idle cash or premium collected which was part of the Agency cost theory on conflict between the managers and the shareholders as opined by Jensen and Meckling (1976), and Myers (1977).

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5.0—Conclusion

The research study shows that capital structure though very important but not necessary matters in the short run in driving insurance and firms value, rather, greater emphasis should be subjected to the nature and monitoring of risk vis a vis efficient utilisation of the firm's retained earnings. Thus, in the long run, capital structure could be employed for further business expansion and growth in driving that optimum firm's performance. The challenge here however is the right period or timing for the application of the capital structure and the optimal mix that could yield the desired results required for a higher firm's value or performance. This timing and period are subject to the understanding of the dynamics of the highlighted determinants of capital structure and their various effects in changing the structural mix toward an improved business and organisational performance. Thus, the need for adequate, effective and efficient financial planning and strategy in the application of the optimal mix of the various determining factors highlighted in the findings for the best outcome and performance. It should be noted here that, since those factors (i.e. Reserves, Asset tangibility, Risk premium, Firms Size and Tax) do significantly affect capital structure directly, there is the assertion that they may indirectly impact the insurance firm's performance in the same magnitude and directions if unchecked or properly managed. This study also highlighted the peculiarity of this industry as the carrier of other industry risk, thus a risk treatment option for the company's effective risk management strategy.

5.1—Recommendations

Based on the fall out of the research findings and observations, the researcher recommends as follows to guide policy maker, government and the industries:

- I. Insurance practitioner should ensure efficient financial planning with the adequate and effective utilisation of prior year profitability or performance in form of retained earnings to drive other fee based incomes as reserves and contingency funds for other incomes and preparedness for uncertainty in catastrophe losses against insolvency.
- II. Capital structure though does not matter in the short run but does in the long-run, which signify another capital management approach system for the insurance industry to always choose a long term debt as against short term debt—equity mix in their capital management structure for effective transmission mechanism into the firm's value and performance. This is based on the peculiarity of the industry as a risk carrier and protector of other industry from risk exposure via compensation (Claims settlement)
- III. The insurer should emphasise on an efficient and effective underwriting process with an in-built robust risk management system for effective pricing of all risk that would guarantee a net premium with loss ratio that would translate to higher firm value and higher performance.
- IV. Insurer and financial planners should try as much as possible to employ a tactical cash management (cash flow) for their liquidity position to meet all their current and immediate liabilities as at when due against insolvent situations and strangulation of operational activities.



- V. Insurer as a matter of urgency must initiate a very robust investment culture and mechanism for deploying all or part of the premium collected in a more efficient and optimal level against leakages or keeping of idle or earning assets in the book.
- VI. Insurer as a matter of policy should try as much as possible to develop a detailed and holistic long term strategic plans on organic growth rather than allowing their growth rate pushed them to start unprofitable expansion and extensions via debt/high leverage that could lead to bankruptcy risk and insolvency

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