

Firm Specifics and Capital Structure of the Selected Insurance Firms in Nigeria

¹Byuan, Mathias Terwase, **A b s t r a c t**

²Osoba, B Samson,

³Udu, Ama Aka,

⁴Abdullahi, Shehu Araga

& ⁵Tyohen T. James

^{1,2,3,4&5} Faculty of Management

Sciences

National Open University of

Nigeria

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This study examines the effect of firms specific on the capital structure of quoted insurance firms in Nigeria. The study adopts an ex-post facto research design. The data were collected from the sampled insurance firms' annual reports from (1992 to 2022). This study measures firm capital structure using financial leverage. The study employs multiple regression techniques for analysis with STATA version 17. The result of the random regression model was favored by the Hausman Specification Test. It was revealed that that profitability has a significant and positive impact on the capital structure of listed insurance firms in Nigeria. The study as well concluded that firm liquidity insignificantly impacts the capital structure of the selected insurance firms in Nigeria. The study concluded that firm size insignificantly and negatively impacts the capital structure of the selected insurance firms in Nigeria. Thus, the study recommends among others that larger firms should take advantage of economies of scale in their operations. This can reduce operational costs, leading to increased profitability and better capital structure management. By efficiently utilizing resources, larger firms can negotiate better terms with suppliers and service providers, thereby improving their financial stability.

Corresponding Author:

Byuan, Mathias Terwase

Background to the Study

The views regarding capital structure vary among scholars; the circumstances and characteristics of firms differ in each case and many firm characteristics including but not limited to firm size, firm growth, profitability, earning volatility, non-debt tax shield, firms' liquidity among others have been identified as factors that determine firms' capital structure. In choosing the capital structure of a firm, it is imperative to consider the different factors that can be controlled to optimize the value of a firm. All firms have to analyze capital structure properly to obtain optimal capital structure in implementing financing decisions, otherwise firms will face various financial problems, such as bankruptcy and financial distress among others. Hence, the firm which has high leverage needs to make an efficient capital mixture of debt and equity to minimize cost and maximize the net profit that maximizes the value of the firm.

One of the important aspects of firm capital structure which this study will investigate is profitability; which is regarded as the measure of economic triumph attained by a firm in association to the capital invested. Mostly highly profitable firms do not rely excessively on external funding for its development, as profitability has a negative effect on leverage (Marete, 2015). Lipson and Mortal (2009) asserted that more liquid firms are more financed by its internal resources and are therefore less leveraged. According to Anderson (2002), firms with high liquid assets prefer a high degree of long-term leverage without changing the structure of their liquid assets.

In consideration of the corporate income tax, the higher the effective tax rate, the more savings from debt interest deduction. Thus, companies which face high tax rates may choose higher leverages to increase business values. Debt generates higher profits because of the interest tax credit. Accordingly, this tax credit effect is called the debt tax shield. Miller (1977), however, asserted that excessive leverage not only has the tax credit effect but also has the risk of a financial crisis; therefore, enterprises should weigh their debt levels and maintain the optimal capital structure.

The size of the company is a factor that influences capital structure and many studies have developed in this area. Large firms are likely to be more diversified and less likely to fail than small firms. They can lower cost of capital and may avoid bankruptcy. So, it is expected that the small firms and private firms will have lower debt levels meanwhile the large and listed firms will have higher debt levels. Firm size is considered prominent among the major determining factors of capital structure which plays a vital role in evaluating the liaison enjoyed by firms within and outside firms' operating domain. One of the major issues encountered by fund managers today is not just the difficulty in the procurement of funds but also the challenges associated with meaningful deployment of such funds to generate maximum returns. Sources of funds are generally the same across all businesses but then one wonders why is it that some businesses do better than others? If the logic that efficient financial planning leads outstanding performance is a viable business idea, then why is it that some companies still fail to achieve success even with ample funds and the right business idea? The above debate implies that there is

something about the financial success of business beyond great ideas and availability of funds.

There exist various factors that are related to capital structure that must be considered in choosing an optimal capital structure target. Many firms are not able to identify the best capital structure for maximizing their profits due to lack of proper forecasting regarding the factors such as firm size, firm ownership, firm growth, profitability, earning volatility, non-debt tax shield, firms' liquidity among others which are related to capital structure. Firms have different capital structure techniques for optimizing shareholder's wealth, therefore, copious research has been conducted on the capital structure to explain the variation of firms' capital structure over time with contradictory findings (Gul, *et al.*, 2012).

The empirical works have shown that some of the studies such as (Ebrahim & Maral, 2016; Euphrasia, 2014; Hashini & Ayanthi, 2018; Hoshang & Hossein, 2017; Mahnazmahdavi, Mokhtarbaseri, Afshin & Hamideh, 2013; Morteza, Mehdi & Gholamreza, 2019; Mostafa, ELbekpashy & Khairy, 2018; Saber, Shahryar & Shaban, 2012) used a statistical tool of ordinary least square regression technique for the panel data instead of panel regression technique as postulated by Hausman (1978) which affect the reliability of the findings. In a related development, the empirical works have also shown that most of the studies such as (Biswajit & Kailash, 2020; Saira, 2019; Morteza, Mehdi & Gholamreza, 2019) carried out in recent times of 2019/2020 regarding the impact of firm characteristics on capital structure decision making in Nigeria and other countries of the world were not current in the data used for the analysis as all the data were within 2017 and earlier.

Furthermore, these kind of studies conducted in Nigeria in this area were very scanty while most of these studies (Biswajit & Kailash, 2020; Euphrasia, 2014; Dejan, *et al.*, 2013; Haslindar & Tajul, 2011; Janthorn & Navee, 2015; Lina, Fengju Iqbal & Akther, 2020; Mahnazmahdavi, *et al.*, 2013; Morteza, Mehdi and Gholamreza, 2019; Mostafa, *et al.*, 2018; Nyanamba, *et al.*, 2013; Saira, 2019; Siti & Hassan, 2015) were done in other countries of the world. These gaps in literature call for further study in this area which necessitated this study on the impact of firm characteristics on capital structure decision making of quoted financial firms in Nigeria, in order to update the data up to 2019, use panel regression technique, and add to the scanty literature in this area in Nigeria.

The discussion on the proposition of Modigliani and Miller about capital structure relevancy and irrelevance have sparkle debate amongst many researches as the theories have led to contradicting decision and results. Despite the contradictions, businesses still crave for the need to optimize their debt-equity mix, firms still need to choose the level of debt or equity that has an impact on the value of a firm, ensure sustainability and stability of industrial firm in a competitive and volatile business environment, hence the need for this research. Furthermore, among all the literature reviewed in this study, there is hardly few or paucity of literatures using firms' characteristic variables on capital structure on listed insurance firms in Nigeria.

Statement of the Hypotheses

- Ho₁: Firm profitability has no significant effect on capital structure of listed insurance firms in Nigeria
- Ho₂: Firm liquidity has no significant effect on capital structure of listed insurance firms in Nigeria.
- Ho₃: Firm size has no significant effect on capital structure of listed insurance firms in Nigeria.

Literature Review

Concept of Capital Structure

A company's capital structure determines how its operations and expansion are financed. To maximize a company's profits and distribute a larger portion of those gains to its equity shareholders, management needs to determine the firm's financial needs and then raise those needs from a variety of sources in proportions that make the most sense. Because it serves as the cornerstone of capital structure theory, the Modigliani and Miller (M&M) theorem has widespread acceptance. Recognized as a framework, it aids businesses in gaining focus and purpose in their operations. It is the driving force behind a free-market economy and the foundation of a democratic society. According to Simon and Afolabi (2011), this is a company's financial performance. Decisions on financing are crucial to a company's continued existence and expansion, so it's important to focus management attention where it will do the most good for shareholders. Therefore, the choice about capital structure is one of the useful management instruments for controlling the cost of capital. Finding the optimal capital structure in terms of risks and return payout for shareholders is a major focus of responsible corporate governance and management.

Firms' Characteristics

Profitability is a strong indicator of the performance of management in managing the company, size of a company's profitability can be assessed by various kinds such as operating income, net income, return on investment/assets, and the rate of return on owner's equity. The effect of profitability on leverage has long been argued (Harris & Raviv, 1991; Rajan & Zingales, 1995; Booth, 2001), but results have been inconsistent. More profitable firms not only have a lower cost of bankruptcy and financial distress but also seem to have efficient management. Moreover, in firms with high profitability, the use of debt as a monitoring mechanism is more likely to solve the free cash flow problem (Jensen, 1986). Thus, profitable firms use more debt financing. However, the pecking order theory indicates that firms should choose internal cash flows as the first option for financing, before considering external financing. More profitable firms should retain more of their earnings to invest in new projects, but less profitable firms will resort to debt financing. This negative impact of profitability on the debt level may be challenged by the presence of large investment (Booth, 2001).

Robert (1997) revealed that the ratio of profitability or profitability ratio shows the company's success in generating profits. The static trade-off theory was supported by the

study of Serrasqueiro (2011) and Abor (2005) that a positive relationship exists between a company's profitability and capital structure. The studies explained that it is easy for companies that are doing better and profitable to source for fund via debt financing from financial institutions compared to firms that are doing otherwise. However, with Pecking Order Theory, highly profitable firms prefer financing through the use of an internal source of fund compare to external financing. Therefore, in the words of Jensen and Meckling (1976), profitable companies prefer using debt financing to minimize agency cost and its incidences, which will, in turn, improve profitability. This indicates that debt financing could lead to higher profit-making.

Liquidity ratios show how solvent a company is, a company will not become insolvent overnight, and deterioration in these ratios is an indication of insolvency. If a company is unable to renew its short-term liabilities, there would be a danger of insolvency unless the company can realize a sufficient amount of its current assets into cash. A current ratio of 2:1 is regarded to be indicative that a company is reasonably well protected against the danger of insolvency through sufficient liquidity. Liquidity is the ability of a company to meet its demand for funds (Biety, 2003). Liquidity management means ensuring that a company maintains sufficient cash and liquid assets to satisfy the interest of suppliers and creditors. Liquidity management involves a daily analysis and detailed estimation of the size and timing of cash flows and outflows within a particular accounting period. A business organization should have a formal liquidity policy that is developed and written by the officials with the assistance of management. The policy should be reviewed and revised as needed, not less than a year and the policy should also be flexible, so that managers may react quickly to any unforeseen events (Omolehinwa, 2006).

Liquidity ratio is the ratio used to measure a company's ability to pay the debt if the short-term loan has matured. Saarani and shahadan (2013) stated that there is a negative influence between liquidity with capital structure. This means that if the company has good liquidity, the company will avoid debt. Shahadan and Saarani (2013) found that liquidity showed a significant negative relationship with the leverage ratio of Malaysian SMEs. Krasauskaite and Hirth (2011) reached the same conclusion when they tested the leverage decisions of SMEs in the Baltic countries. On the other hand, Marete (2015) demonstrated that SMEs that keep higher liquidity levels are depending fundamentally on long term debt to finance their growth, whereas the correlation matrix showed a negative relationship between the short-term leverage and liquidity. Non-debt tax shields are the substitute for tax shields on debt financing (Dangelo & Masulis, 1980). All things being equal, firms with higher non-debt tax shields are expected to have less debt financing in its capital structure. This inverse relationship has been supported by many empirical findings.

Empirical Review

Ferriswara et al (2024) examines the relationship between Islamic corporate governance, firm characteristics on capital structure and financial performance in Islamic Commercial Banks. The data analysis technique uses Partial Least Square (PLS), with structural

equations (SEM) based on components or variants, on annual data from 2017 to 2021. The findings show that three determinants significantly affect the financial performance of the five hypotheses proposed. Islamic corporate governance has a significant effect on financial performance in a negative direction, and a significant positive effect on capital structure. Firm characteristic has no significant effect on capital structure and financial performance. Capital structure factors influence financial performance.

Chukwunwike et al (2024) examines how female board presence moderates the relationship between firm characteristics and capital structure of non-finance companies listed in Nigeria. The study covers a period of ten years from 2012 to 2021 using data obtained from Machame ratios database. A sample size of sixty non-finance listed firms were used. Using Stata version 14, the OLS pooled regression, diagnostic and robustness tests are carried out. result shows that larger board size of big and small non-finance firms in Nigeria tend to reduce their capital structure. Similarly, independence of the board of directors of big non-finance firms in Nigeria tend to reduce their capital structure. However, the board independence of smaller non-finance firms tends to increase their debt to asset ratio insignificantly. Again, the outcome shows that having a female director on a large board significantly decreases the level of leverage of the smaller firms in the sample. The study also shows that having a female director on an independent board significantly increases the debt-to-asset ratio of the bigger firms in the sample. The study recommends at least one female director on a large board, increase in firms share capital and a review of the policies on female board members.

Li et al (2024) examined whether or not firm characteristics can help improve momentum profit. They used stocks data from 1965 to 2022 to empirically examine the impact of capital structure on momentum profit. When capital structure is measured either as the ratio of debt to asset or the ratio of liability to asset, we all find out that momentum strategies tend to be more profitable for stocks with large capital structure. Yisau et al (2024) investigated the effect of firm characteristics on financial leverage using industrial goods firms listed in Nigerian Exchange Group. The broad objective of this study was to evaluate the effect of firm characteristics on financial leverage of industrial good firms in Nigeria. The independent variables of the study were firm characteristics which was proxied by firm size, firm profitability, asset tangibility, market value and the composite effect of firm characteristics, while the dependent variable was proxied by financial leverage. Ex-post-facto research design was adopted. The population of the study consisted of thirteen (13) listed industrial goods firms listed on the Nigerian Exchange Group while a sample size of twelve (12) was taken after dropping the firm which did not meet the requirement for inclusion. The data for the study were extracted from the annual reports and accounts of the sampled companies for the years 2013 to 2022. The data were analysed with descriptive statistics, correlation and panel regression. The E-view statistical packages version 10 was used to analyse the data. The result from the Hausmann test statistics reveals that firm size had a negative and non-significant effect on financial leverage of industrial good firms in Nigeria. Furthermore, firm profitability had a positive and significant effect on financial leverage of industrial good firms in

Nigeria, firm asset tangibility recorded a positive non-significant effect on financial leverage of industrial good firms in Nigeria, market value had a negative and non-significant effect on financial leverage of industrial good firms in Nigeria and composite effect of firm characteristics had a significant effect on financial leverage of industrial good firms in Nigeria.

Amahalu and Okudo (2023) examined the nexus between firm characteristics and cash holdings of quoted conglomerates in Nigeria. Six (6) conglomerates constituted the sample size of this study between 2002 and 2021. Ex-Post facto research design was adopted while secondary data were collected from the annual reports and accounts of the sampled conglomerates and analysed using E-Views 9.0 statistical software. The study employed descriptive statistics and inferential statistics using Pearson correlation and Ordinary Least Square (OLS) regression analysis. Cash holding was measured with cash ratio while firm characteristic was measured using firm size, research and development and leverage. Three hypotheses were formulated and statistically tested at 5 per cent level of significance using Panel Least Square Regression (PLS) analysis, granger causality test and hausman test. Findings from the empirical analysis showed that there is a significant negative relationship between firm size cash ratio and; a significant negative relationship between research and development and cash ratio; a significant negative relationship between leverage and cash ratio of conglomerates listed on Nigeria Stock Exchange at 5% level of significance respectively.

Usman and Yahaya (2023) investigates the impact of board characteristics on firm value in Nigeria using 112 sampled NGX listed companies during the financial years 2009–2021. OLS pooled data regression model is applied for testing the hypotheses. In addition, an effort has been made to investigate the overall scope of share price in a broader context through a comprehensive analysis of share price across industry sectors, size and individual company-specific characteristics. The results indicate that board size, board independence and board share ownership have significant effects on firm value in Nigeria. Also, firm listing age and firm size have significant effects on firm value in Nigeria. The study provides evidence of the important role played by board of directors in enhancing share price of the company. It can guide the board of directors to enhance financial disclosures which consequently increases firm value. The analysis provides regulators, educators and investors an insight into the role of board of directors in firm value and thus helps them in improving their decision-making. It provides corporate policy makers some of the necessary inputs to chart the course of board of directors' reforms and their enforcement.

Mbonu and Amahalu (2021) ascertained the effect of Firm Characteristics on Capital Structure of Insurance Companies Listed on Nigeria Stock Exchange from 2011-2020. Specifically, the study determined the effect of Firm Size, Liquidity and Revenue Growth on Debt-to-Equity Ratio. Purposive sampling technique was employed to select fourteen (14) listed insurance companies in Nigeria. Panel data were used in this study, which were obtained from the annual reports and accounts of sample firms for the periods 2011-2020.

Ex-Post Facto research design was employed. Inferential statistics using Pearson correlation coefficient and Panel least square regression analysis were applied to test the hypotheses of the study. The results showed that Firm Size exerts a significant positive effect on Debt-to-Equity Ratio; Liquidity and Revenue Growth have a significant negative effect on Debt-to-Equity Ratio respectively at 5% level of significance.

Nyabaga and Wepukhulu (2020) examined the effect of firm characteristics on financial performance with a focus on listed banks in the Nairobi Securities Exchange for the period from 2010 to 2018. The bank characteristics examined were: Capital adequacy, leverage, asset quality and bank size. The collected data was analyzed using STATA 11 and this was basically descriptive, correlation and regression analysis. The findings depicted a significant positive effect of capital adequacy on both returns on equity (ROE) and returns on assets (ROA). The findings further indicated a significant negative effect of asset quality on ROE but an insignificant negative effect on ROA. On leverage, the findings indicated a significant positive effect on ROE and an insignificant positive effect on ROA. The findings of this study indicated that bank size has a significant positive effect on both ROE and ROA. This study concluded that capital adequacy and bank size have a significant positive effect on performance. There were mixed findings on the effect of asset quality and leverage on performance. The study recommended that, listed commercial banks should maintain a considerable capital adequacy to be able to effectively absorb losses emanating from economic shocks.

Theoretical Framework

Signaling Theory

Another theory born out of the concept of asymmetric information is "signaling theory". This theory was made popular by Ross (1977). To understand signaling theory let us consider the following examples, one firm where management is very positive about the firm's future earnings prospects (Firm A) and another where management is very negative about the firm's future earnings prospects (Firm B).

Firm A, when faced with an investment decision will consider whether to proceed with equity or debt financing. New issues of equity can be considerably expensive with the issue costs involved and as outlined in the pecking order theory, is not favoured by management as it conveys to investors the notion that the shares are undervalued. Also, firm A's management is confident about the future earnings of the firm and its financial health and the servicing of increased debt is of little concern. If Firm A proceeds to make use of debt financing, it is likely that ordinary investors will interpret this as a signal from management that they believe that the share is undervalued and the future earnings prospects are favourable.

Conversely, Firm B when faced with the same investment decision may approach the matter in a different light. As the future earnings prospects are not promising and the likelihood of losses is high, taking on additional debt might be too much of a strain on cash flow. Rather, they might consider equity financing as the most viable option. A larger

number of investors mean more people to apportion the losses too. Markets may read this as a signal from management that the shares are overvalued and as a result, the share price may drop. Investors view the actions of management as a signal regarding the status of the firm and a transfer of information. Ross (1977) argued that the value of a firm will increase with the addition of leverage as the increased leverage causes the market's perception of the firm's value to improve. Ross (1977) also stated that the increase in leverage can be a costly signal for a firm. A good firm would adopt a higher debt ratio than a poor firm as the manager of a good firm would be confident of the future prospects of the good firm due to insider information of the good firm's future prospects and its ability to safely service higher debt payments.

Tsai (2008) made an important criticism of Ross's model by stating that the main reason for the undervaluation arises as the market's valuation of future prospects is lower than the true value rather than the signaling of the equity issue as argued by Ross. Also, there is an incentive for managers of large corporations to convey signals such that the value of the firm would increase, but may not always convey the correct message to the market regarding the firms' prospects, but rather convey messages to the managers' benefit. This growth via the signal would enable them to cash up their shares at a higher value (Gwatidzo, 2008). The signaling theory is, however, a poor predictor of actual behaviour. It suggests that firms with increased leverage will realize an increase in value when studies have shown that too much debt can lead to decreases in value due to the high costs of financial distress. It also suggests that newer firms with high prospects should use more debt, but actually it is mature firms that make use of increased leverage (Ghosh, Cai & Fosberg, 2008).

Agency Cost Theory

In modern corporations, there is a separation of ownership and control where most firms are managed by managers who act as agents of shareholders. These managers do not necessarily own shares in the firm and as such this relationship is fraught with agency problems. The shareholders and managers, consciously or unconsciously, serve their interests. While shareholders would want to see the maximisation of firm value, the management may want to maximize their selfish interests. Examples of such interests may be to invest in certain projects which yield the best result on net profits in the short term to inflate their bonuses. Also, they may be inclined to misuse company funds by incurring huge on job expenses (Gwatidzo, 2008). The investors of a firm are aware of the managers' opportunistic behaviour and thus take it into account when valuing the firm's shares. They will offer a lower price than when there is no opportunistic behaviour. According to the agency theory, the observed capital structure of a firm should thus aim to minimize the potential for opportunistic behaviour in the firm. The extent of opportunistic behaviour depends on the environment in which the firm is operating. For example, an efficient legal system that protects investors' rights curbs opportunistic behaviour by management. In most developing economies the legal system is not efficient; therefore, there are high chances for opportunistic behaviour by management.

Some of the ways of mitigating the conflict between management and investors (Gwatidzo, 2008) are: Issuing debt - Issuing debt rather than equity forces management to contractually commit themselves to a given level of payment to investors (lenders), thus reducing opportunistic behaviour; Issuing short-term debt - Issuing short-term debt forces management to the negotiation table periodically, thus making the issuance and payment of debt more like a repeated game in which the management is punished by the creditors if they are seen to be behaving in any way detrimental to the creditors; In addition to the above, the conflict of interest between equity holders and debt holders can be mitigated by designing debt covenants that protect the interests of debt holders; if a long-term debt is issued, it may be secured with specific assets; and another way is to just increase debt levels in industries where the potential for opportunistic behaviour is high.

Methodology

This study adopted ex-post factor research design. This method is suitable for the study because it is not possible to directly manipulate or control any of the independent variables as the events have already taken place and therefore the research is being conducted after the fact. Hence, ex-post factor research design was adopted because it helps this study to explain the effect of the independent (explanatory) variable on the dependent variable. The population of a study involves gathering different components that can be considered as options (Cooper & Chandler, 2003). In the period under investigation, there are 39 quoted insurance companies on the Nigerian insurance companies identified as potential components for inclusion in the study.

To ensure a representative subset of the population, a simple random sampling technique was employed. The study uses fourteen 14 insurance companies from the pool of 39 identified in the Nigeria Exchange Group on the basis of length of existence and data availability.

The selection of the sample size was based on the following filter criteria:

- i. That the financial statement of such companies shall be available between the research periods (1992-2022)
- ii. That company with unavailable or incomplete set of annual reports will be eliminated.

The sample size of the study was derived by using some criteria. The criteria are that the companies are listed and they have complete data in the annual reports. For this reason, the number of the companies reduced fifteen (15). The technique of data analysis employed by this study was panel multiple regression analysis. The study adopted this technique and ascertained the impact of firms' characteristics proxies by profitability, liquidity and firm size. The data was analyzed using Stata 17 and the outcome was used to test the research formulated hypotheses. In view of this, panel data analysis was adopted for the study. This current study adapts the econometric style of, Bilal, *et al.*, (2012), Anila (2013), Musharof and Yakub (2014), Mohammad, *et al.*, (2015), Pranesh (2015), Adaramola and Olarewaju (2015) and Semra, *et al.*, (2016). Various robustness tests were carried out to test the validity of the research results.

Capital structure is proxied by financial leverage (FL) which is measure through total debt to total equity and is a function of firm characteristics, which are profitability (PRT), liquidity (FLQ) and Firm size (FSZ)] with firm age (FAG) as a control variable.

Therefore;

$$FL = f (PRT, FLQ, FSZ, FAG)$$

Econometrically, the above equation is rewritten into different models as follows:

$$FL_{it} = \beta_0 + \beta_1 PRT_{it} + \beta_2 FLQ_{it} + \beta_3 FSZ_{it} + \beta_4 FAG_{it} + \mu_{it} \text{-----(1)}$$

Where:

$\beta_1, \beta_2, \beta_3, \dots, \beta_n$ are parameters to be estimated with a-priori expectations.

β_3 and $\beta_4 > 0$

$\beta_1, \beta_2, \beta_3, \beta_4 < 0$

FL= Financial Leverage

PRT = Profitability

FLQ = Firms' Liquidity

FSZ = Firm Size

FAG = Firm Age

β_0 = Constant

e = Error term

i = Firms

t = Periods

Table. 1: Below explains the Variables under Study

Variable	Acronym	Type of variable	Measurement	Justification
Financial Leverage	FL	Dependent	Total debt/Total equity.	Adaramola and Olarewaju (2015); Pranesh (2015); Saber <i>et al</i> (2012); Saira (2019).
Profitability	PRT	Independent	Profit after tax /Total assets	Enakirerhi and Chijuka (2016); Pranesh (2015); Siti and Hassan (2015).
Firms' Liquidity	FLQ	Independent	Current assets/current liabilities.	Adaramola and Olarewaju (2015); Enakirerhi and Chijuka (2016); Didy (2016); Pranesh (2015).
Firm size	FSZ	Independent	Natural log of total assets.	Adaramola and Olarewaju (2015); Didy (2016); Enakirerhi and Chijuka (2016); Pranesh (2015); Saira (2019); Siti and Hassan (2015).
Firm Age	FAG	Control variable	Years of establishment	

Source: Researcher's compilation, 2023

Result and Discussion

Table 2: Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
Lev	465	.2273171	.1973533	.013035	.84779
prt	465	.4367789	.197384	.02847	.878764
Flq	465	.1832189	.1781561	.012548	.76854
fsz	465	6.891105	.7637749	1.3811	7.90377
Fage	465	55.55484	64.06538	1	302

Source: Stata 17 output 2024.

Table 2 presents descriptive statistics for a sample of 465 observations across seven variables related to firm's specifics and capital structure. The average financial leverage among the firms is approximately 22.73%, with a standard deviation of 19.73%. This indicates moderate variability around the mean leverage. The minimum leverage is almost zero, suggesting some firms have very little debt, while the maximum leverage is 84.78%, indicating some firms rely heavily on debt financing. The average profitability among the firms is approximately 43.68%. This means that, on average, 43.68% of a firm's profitability is 43.68. This indicates a relatively moderate profitability. The standard deviation of 19.74% indicates a significant variability across the firms.

The average firm liquidity in the firms is approximately 18.32%. This suggests that, on average, the firm liquidity is 18.32%. The standard deviation of .17.81% indicates moderate variability in the liquidity among the firms. Some firms have liquidity significantly different from the average. The average firm size in the firms is approximately 6.89 million. This suggests that, on average, the firm size is 6.89 million. The standard deviation of 76% indicates moderate variability in the size of the firms. Some firms size significantly different from the average the average age of the firms in the sample is approximately 56 years. This suggests that, on average, the firms have been in existence for nearly six decades. The standard deviation of 64.06538 indicates a considerable amount of variability in firm age among the sample.

Table 3: Correlation matrix

Variables	lev	prt	flq	fsz	fage
Lev	1.0000				
prt	0.3087	1.0000			
Flq	-0.0383	0.0115	1.0000		
Fsz	0.0765	0.1424	-0.0044	1.0000	
fage	0.2774	0.1502	-0.0136	0.0721	1.0000

Source: Stata 17 output 2024.

Table 3 presents the correlation matrix for the variables used in the study. The results of the Pearson correlation analysis indicate that the extent of capital structure correlated with a correlation coefficient of 0.3087, -0.0383, 0.0765 and 0.2774 respectively. On the other hand, the results also show profitability, firm liquidity, firm size and firm age.

Regression Diagnostics

Table 4: Tolerance and Variance Inflation Factors

Variables	VIF	1/VIF
Prt	1.04	0.959833
Fage	1.03	0.974585
Fsz	1.02	0.977062
Flq	1.00	0.999600
Mean VIF	1.02	

Source: Stata 17 output 2024.

Based on the evidence presented in Table 4, it can be concluded that there is no multicollinearity problem. This is because the VIF values for all the variables are less than 10 and the tolerance values for all the variables are greater than 0.10 (rule of thumb). Further, Gujarati (2003) suggests that a VIF value of less than 10 is acceptable; the maximum VIF value is 1.04. The low mean VIF (1.02) is also an indicator to the minor correlation among the regressors. This shows the appropriateness and fitness of the explanatory variables used in the model.

Table 5.: Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity Ho: Constant variance Variables: fitted values of FL chi2(1) = 0.86	Prob > chi2 = 0.5217
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Source: Stata 17 output 2024.

The result of the Breusch-pagan / Cook-Weisbaerg test for the study shows that the chi2 value is 0.86 the p-value of chi2 is 0.5217 indicating the absence of heteroscedasticity.

Table 6: Hausman Specification Test

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 6.80	Prob>chi2 = 0.1467
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Source: Source: Stata 17 output 2024.

To decide whether to adopt the fixed effects model (FEM) or the random effects model (REM), Hausman specification test was carried out to select the preferred model. It basically tests whether the unique errors (term error) are correlated with the regressors (Hassan, 2012). The result of the test reveals that the Ch2 value of 6.80 has a probability of 0.1467 and as such, it is significant at the 5% level. As such, the result of the random effects model was favored.

Breusch and Pagan lagrangian multiplier

The Lagrange multiplier (LM) test helps the study decide whether the OLS regression or random effects regression should be used for the analysis of panel data. The null hypothesis tested is that variance across entities is zero, meaning no panel effect in data (Torres-Reyna 2007).

Table 7: The Lagrange multiplier (LM) test for earnings quality

	Var	sd = sqrt(Var)
Lev	.0389483	.1973533
E	.016703	.12924
U	.0187479	.136923
	chibar2(01) = 1475.65	Prob > chibar2 = 0.0000

Source: Stata 17 output 2024

The Lagrange multiplier test for earnings quality shows that the p-value is less than 0.05. Hence, the study found evidence to reject the null hypothesis and conclude that there is significant cross-sectional variance across firms. This indicates that random effects regression should be used, instead of pooled OLS.

Table 8: Random Effect Results.

Variables	Coef.	Std. Err.	Z	P> t
Prt	.111491	.0373101	2.99	0.003
Flq	.0646844	.0383682	1.69	0.092
Fsz	-.0070995	.0094721	-0.75	0.454
Fage	.000476	.0004433	1.07	0.283
Constant	.1892466	.0737923	2.56	0.010
R-square = 0.3807				
F(4,446) = 2.77				
Prob > F = 0.0270				

Source: Source: Stata 17 output 2024

In table 6, it can be observed that the R^2 is 0.3807, which means that 38% of the variation in capital structure proxy as financial leverage of listed firms in Nigeria is explained jointly by the independent and control variables captured in the model. The F-statistic of $F(4,446) = 2.77$ which is significant at 5%. This is indicative of the fitness of the model.

Hypothesis one:

The regression results indicate that profitability has a significant impact on the capital structure of listed insurance firms in Nigeria. This is supported by a t-value of 2.99 and a p-value of 0.003, demonstrating statistical significance at the 5% level. The beta coefficient of .111491 suggests that a 11% improvement in capital structure, as proxied by financial

leverage, corresponds with increased profitability. This finding implies that higher profitability in these firms leads to a stronger capital structure. Therefore, the results provide sufficient evidence to reject the first null hypothesis, which posited that firm profitability does not have a positive significant effect on the capital structure of listed insurance firms in Nigeria. This result is in line with those of Ferriswara et al (2024), Li et al (2024) and Mbonu and Amahalu (2021) results.

Hypothesis two

The regression results indicate that firm liquidity has an insignificant positive impact on the capital structure of the selected insurance firms in Nigeria. This is evidenced by a t-value of 1.69 and a p-value of 0.092, demonstrating insignificance level. The beta coefficient of .0646844 suggests that a 1% increase in firm size leads to a 0.6% increase in capital structure. This implies that firm's liquidity does not actually influence the financial leverage. Consequently, these findings provide evidence to accept the second null hypothesis, which posited that firm liquidity has no significant positive effect on the capital structure of listed insurance firms in Nigeria. This result corroborates with those of Amahalu and Okudo (2023) findings.

Hypothesis Three:

The regression results show that firm size have a negative insignificant effect on the capital structure of the selected insurance firms in Nigeria. This is confirmed by a t-value of -0.75 and a significant p-value of 0.454, it is evident that firm size has an insignificant statistical influence on the capital structure of these insurance firms. The beta coefficient of -.0070995 indicates that a 1% increase in firm size results in a .07% reduction in capital structure. This implies that larger firms rely more on financial leverage. Consequently, these findings provide evidence to accept the third null hypothesis, which posited that firm size has no significant effect on the capital structure of listed insurance firms in Nigeria. This is in line with Yisau et al (2024) finding. The control variable, firm age, has a statistically significant negative effect on the capital structure of the sampled firms in Nigeria. This is shown by the coefficient of .000476 and a t-value of 1.07, which is insignificant. This suggests that the age of a firm does not matter when it comes to capital structure of the firms.

Conclusion and Recommendation

The study concluded that profitability has a significant and positive impact on the capital structure of listed insurance firms in Nigeria. Based on the reported coefficient and p-value, the finding suggests that high profitability reduces borrowing rate and improve capital structure, as proxied by financial leverage, corresponds with increased profitability. The study as well concluded that firm liquidity insignificantly impacts the capital structure of the selected insurance firms in Nigeria. This is evidenced from the from the findings. The study concluded that firm size insignificantly and negatively impacts the capital structure of the selected insurance firms in Nigeria. This suggest that the size of the firm does not determine the capital structure.

The following recommendations have become necessary given the findings of the study:

- i. The study recommends that, the managements of the insurance companies should develop robust risk management frameworks that consider the interplay between profitability and leverage can help firms mitigate financial risks.
- ii. The insurance firms should enhance liquidity management practices to optimize capital structure. This may involve improving cash flow management, reducing unnecessary expenses, and maintaining adequate liquid assets.
- iii. Larger firms should take advantage of economies of scale in their operations. This can reduce operational costs, leading to increased profitability and better capital structure management. By efficiently utilizing resources, larger firms can negotiate better terms with suppliers and service providers, thereby improving their financial stability.

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