



## FINANCIAL LEVERAGE, FIRM SIZE AND PROFITABILITY OF QUOTED INSURANCE COMPANIES IN NIGERIA

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Article history:	Abstract:
<p><b>Received:</b> 24<sup>th</sup> December 2023 <b>Accepted:</b> 20<sup>h</sup> January 2024 <b>Published:</b> 26<sup>th</sup> February 2024</p>	<p>This study evaluated how financial leverage, firm size and profitability affects the value of quoted insurance companies (QICs) in Nigeria over the period 2010-2022. Secondary time-series were gathered from bias-free annual reports of 20 QICs. The unit root, Pedroni cointegration, and GMM techniques were adopted at the 5% level. The unit root test shows that all the variables are integrated at first difference leading to application of the Pedroni co-integration which confirmed the absence of long-run form among the variables. The GMM test shows that long-term debt and firm size are substantially positive to Tobin's Q ratio; while short-term debt and ROE also promote the Tobin's Q ratio, but this was seen to be insignificant. The study concludes that financial leverage and firm size are the two determinants of firm value among QICs in Nigeria. From the findings, the study advocates for the continual usage of long-term debt ratio and an increase in firm's size of quoted insurance companies to accommodate more insurance businesses and at the same time boost the level of their confidence among potential and actual investors. Additionally, insurance companies are advised to do share buyback when analyzed to be undervalued to remain more competitive in their industry and create added value for shareholders. Lastly, the Central Bank of Nigeria should revert to a bi-monthly review of interest rate charges by lending institutions in Nigeria to help monitor and improve their performance on the usage of borrowed funds.</p>

**Keywords:** Panel GMM, Tobin's Q, Leverage, Size, Insurance firms, Nigerian Stock Market

### INTRODUCTION

Profitability is the hallmark for measuring the success of any business enterprise (Hifza, 2011). It conveys information on how efficient management is in the deployment of her scarce resources. Profits are achieved when management create more value for shareholders by investing in projects that generate positive net present values, thereby fulfilling its wealth maximization objective. Agha (2015) argues that profitability measures an organization's long-term viability, and how well a company utilizes its assets to generate profits for itself and value for existing investors. All businesses face economic downturns; however, Managers benefit more when they can understand better the factors that influence profitability as well as their magnitude as it aids them to know which aspects of the business and financial strategy are performing well and those that require improvement to increase profitability. For an insurance company, Malik (2011) asserts that it is determined first by its underwriting operations (expenses and losses) and its

investment operations (financial leverage, asset allocation and management). The financial leverage (FLE) that a company will use is determined by its risk and return features, as well as its management's approach (Olaniyi & Abdusalam, 2015). If a company has both debt and equity, the most realistic capital mix is one that incorporates any leverage advantages (if any) into its structure, resulting in a more efficient capital structure (Olokoyo, 2012). The use of debt in the capital structure of a company has a positive impact on the company's long-term solvency. Here, the study used the term 'capital structure and financial leverage' interchangeably.

According to Rahman, Sarker, and Uddin (2019), defined a company's FLE as the mix of equity and debt that management chooses to use to maximize shareholder wealth. To this end, Abubakar, Maishanu, Abubakar, and Aliero (2018) point that every business's FLE should include a mix of equity and debt. This is because a company's FLE decision has a significant impact on profit (Rosario & Chavali, 2019). However,



Dang, Bui, and Nguyen (2019) assert debt rather than equity as a common tool for increasing a firm's profit. Afolabi, Olabisi, Kajola, and Asaolu (2019) note that available research on FLE sees it as less expensive than equity (because of inherent risk). The optimal level of leverage for a company is a point of contention in the business world. According to one of the positions, at some point, the trade-off between bankruptcy costs and the tax benefits of charging interest expenses can be achieved (Ahmed, Awais, & Kashif, 2018; Owolabi & Inyang, 2013). Wasfi and Haneen (2016) argue on the tradeoff between reward and risk when deciding on the optimal capital structure, and it is critical to strike the right balance between reward and risk (Saputra, Achسانی, & Anggraeni, 2015). This means that the optimal level of capital structure is one that allows the company to make the best use of its assets (Enekwe, Agu, & Eziedo, 2014). This is one of the most important responsibilities for the company's management (Rosario & Chavali, 2019), which makes the company more valuable and the owners wealthier. This is why investors and creditors are so concerned about the value of the company that they are more selective in their investments and loans.

A company's value in today's business world is a measure of how far it has progressed in its quest to maximize the wealth of its investors and other stakeholders. This is because shareholders want to see a return on their committed funds, which they can get if the organization's resources are employed properly (Bintara, 2018). As a result, new investors and financial providers secure a solid foundation to build their own investments. The study by Kartikasari and Merianti (2016) showed that firm value is dynamically important for economic development. An organization with well-organized managers who closely monitor the firm's performance can benefit all the firm's stakeholders by providing high returns on investment. Notable in the finance literature, firm value is defined as the assets that are readily made available from two parties: debt and equity investors. It is further important to understand a company's value and size because it attracts investors.

Generally, smaller businesses do not benefit from economies of scale due to their size. As an example, some large businesses expand to gain a competitive advantage, and lower their production costs which aids in gaining more market share. This means that large corporations can produce goods at lower costs than their smaller counterparts. The lower cost of production will lead to an increase in the firm's profitability,

depicting the direct link between the firm's size and profitability.

However, most of the empirical literature applied the Pooled OLS techniques; but this study made use of the Pedroni cointegration and the GMM methods on 20 QICs in Nigeria ranging from 2010-2022. This is the gap in literature that the current study fills.

## **LITERATURE REVIEW**

To carry out a thorough analysis, the market timing theory -MTT and signaling theory were adopted as the theoretical foundations for this study.

MTT is among the few recent FLE theories. The FLE of a company, including its debt and equity mix, is largely determined by it (Baker & Wurgler 2002). When it comes to financing, businesses don't care whether they use debt or equity; they simply go with what the financial markets prefer at the time. Managers are said to use MMT to examine debt and equity markets before deciding which market appears to be more favorable when they need financing (Attar, 2014). In theory, a financing decision could be postponed or even canceled if neither the debt nor equity markets appear to be favorable. Because both markets appear to be favorable, and businesses may raise funds even if they do not require it (Attar, 2014). It implies that organizational managers are more likely to issue equity when they believe the market overvalues their shares, depending on how they see firm value (Boudry, Kallberg & Liu, 2010). In other words, a company will issue equity when it believes its stock is overvalued and when undervalued, it buys it back. Thus, when a company's market-to-book valuation is high, it is more likely to issue equity rather than debt (Hillier, Grinblat, & Titman, 2008). It has been discovered that it is when market valuations are high that low-leverage firms raise funds, whereas higher-leverage firms raise funds when market valuations are low (Baker & Wurgler, 2002). This means that investors expect low-leverage companies to have a high market value. Hence, the Pecking order theory does not appear to play a role in determining firm FLE decisions, rather the MTT.

The signaling theory includes financial information about firms. To Suazo, Martinez and Sandoval (2009), it concerns how two parties synthesize information. It explains how information on firm value and financial performance entices investors and shareholders to put more money into the company (Bird & Smith, 2005). It further implies that managers, depending on how they view firm value, rely on the right asymmetric information provided to inform their decision basis in a company (Gao, Darroch, Mather, & MacGregor, 2008).



Empirically, low-performing firms have poor information asymmetry and vice versa (Connelly, Certo, Ireland & Reutzel, 2011). In this study, it was assumed that investors have access to all the information they require to make an informed decision before committing resources; hence the basis of signaling theory.

Looking at the empirical literature, Hameed and Tsoho (2020) examines how financial performance (FIP), and firm size affects the value of 21 quoted insurance companies (QICs) at the Nigerian Stock Exchange covering 2012-2019. Applying the regression and descriptive tests, the study discovers negative but significant effects from firm size, and ROA to Tobin's Q. In a study of healthcare sector from 2003-2012, Olumuyiwa, Abubakar and Umaru (2020) employ the ordinary least square (OLS) and divulge that FLE is relevant to the health sector. Olaniyan, Olaniyan and Agbadua (2020) assess the link between FLE and shareholder's wealth from 2008-2017. Applying the differenced GMM, on 18 QICS, the study affirms debt ratio as negative, while interest coverage and debt-equity ratios are positively related to FIP. Sanni, Muhammad, Fawad and Chibuzor (2019) employ OLS to evaluate how FLE affects 15 sampled QICs in Nigeria between 2013 and 2017. The study discovers that in the short term it is negative but significant, while premium growth and long-term debt are positive and significant to the FIP of QICs in Nigeria. Using a sample of 27 QICs in Nigeria from 2012-2017, Ayuba, Bambale, Ibrahim and Sulaiman (2019) determine the impact of FLE, FIP and firm size on firm's value. The study reveals that firm size, FLE and return on capital employed affects firm negatively. Afolabi, Olabisi, Kajola, and Asaolu (2019) evaluates the link amidst FLE and FIP of Nigerian firms from 2007-2016. Engaging the Random GLS, the study discovers that positive and substantial link between FLE and ROCE. In Kenya, Gathara, Kilika, and Maingi (2019) evaluates the effect of FLE on FIP of quoted companies. Applying the OLS, the result indicates that FLE has substantial positive effect on FIP. A study of 32 listed Indonesian companies from 2006-2010, Rosikah, Prananingrum, Muthalib, Azis and Rohansyah (2018) use the OLS method and divulge that ROA has substantial positive while ROE has insignificant positive impact on Tobin Q. Among 16 textile companies quoted in Pakistan Stock exchange from 2011-2015, Iqbal and Usman (2018) discover that FLE has substantial negative influence on FIP when regression method is used. Pradhan and Khadka (2017) analyze the impact of FLE on FIP of commercial banks in Nepal over the period 2008 to 2014. Applying the multiple regression

estimate, the study shows evidence of substantial negative nexus from liquidity, FLE to FIP among 20 commercial banks. In Nigeria, Salman, and Hassan (2016) evaluate the influence of FLE on shareholders' wealth of 14 DMBs from 2005-2014. The result of the OLS method shows that FLE has direct and significant association with FIP. In an earlier study by Bello (2014) on the impact of FLE on shareholders' wealth of QICs in Nigeria, the author discovers positive association between FLE and shareholders' wealth when OLS method is used. Among DMBs in Nigeria from 2005-2013, Abubakar (2015) examine how FLE affects FIP. Applying the correlational method, the author divulge debt ratio has significant negative association with FIP. In Ghana, Yakubu, Alhassan, Mikhail, and Alhassan (2017) assess how FLE impact on FIP of 23 banks over the period 2010-2015. Adopting the OLS method, the result discloses that short- and long-term debt are negatively related to FIP of banks in Ghana.

#### METHODOLOGY

In this study, the longitudinal panel research design was utilized due to its distinctive ability to deal with repetitive observations that cannot be manipulated; alongside the convenient sampling techniques (this is based on judgment). The series was gathered from the NSE factbook and financial statements of 20 Nigerian listed insurance companies from 2010 to 2022. Tobin's Q is the explained indication to investors on the performance of the firm in terms of their stock valuation and need to increase their capital base either through debt or equity (Ayuba et al., 2019; Hamed & Tsoho, 2020; Marsha & Murtaqi, 2017). The explanatory variables are long-term debt (Salawu & Agboola, 2008; Ayuba et al. 2019; Rafiu et al. 2018), short-term debt (Salawu & Agboola, 2008; Ayuba et al. 2019; Rafiu et al. 2018), firm size (Asad & Cheema, 2017; Hamed & Tsoho, 2020; Rafiu et al, 2018;); and the moderating variable ROE (Rafiu et al, 2018; Hamed & Tsoho, 2020) This study employs the unit root, descriptive analysis, Pedroni cointegration, and GMM (Generalized Method of Moments) approaches.

The model is stated as:

$$TBQ = f(LTD, STD, FZ, ROE)$$

$$TBQ_{it} = a_0 + a_1LTD_{it} + a_2STD_{it} + a_3FZ_{it} + a_4ROE_{it} + \mu_{it} \quad (1)$$

On apriori,  $a_1$  and  $a_2 < 0$ ;  $a_3$  and  $a_4 > 0$

Note,  $a_1$ ,  $a_2$ , and  $a_3$  = Constant factors,  $a_0$  = Intercept,  $it$  = different firm I in year t,  $\mu_{it}$  = Stochastic term.



**Table1: Concept Acronyms, Meaning and Description**

Acronyms	Full Meaning	Description
TBQ	Tobin Q	MV + BV/Total assets
LTD	Long-term debt	Long-term debt/Total assets
STD	Short-term debt	Short-term debt/Total assets
FZ	Firm size	Natural log of total assets
ROE	Return on equity	Earnings after tax/Shareholder equity

## RESULTS AND DISCUSSION

**Table 2: Descriptive Test Outcome**

	TBQ	LTD	STD	FZ	ROE
Mean	0.536114	0.675256	0.749592	5.714461	0.221383
Std. Dev.	0.187890	0.427737	0.584175	0.946194	0.042904
Skewness	-0.118484	4.431984	2.326264	3.489352	-1.705631
Kurtosis	2.031482	22.21091	7.676704	19.07174	8.841851
Jar-Bera	10.77030	4849.312	471.4404	3325.867	495.7760
Prob.	0.004584	0.000000	0.000000	0.000000	0.000000

**Source: E-views10 output**

The average annual TBQ, LTD, STD, FZ and ROE values are 0.536114, 0.675256, 0.749592, 5.714461, and 0.221383 respectively. The average of TBQ indicates that insurance stocks are undervalued; LTD and STD implies that the insurance companies are highly leverage firms; and FZ signifies that they are mild in size. Their level of variability from mean are 0.187890%, 0.427737%, 0.584175%, 0.946194%,

and 0.042904% respectively. LTD, STD, and FZ are positively skewed, whereas TBQ and ROE are negatively skewed. LTD, STD, FZ and ROE are leptokurtic as their coefficients exceed 3; but TBQ IS platykurtic as its coefficient is below 3. The Jar-Bera p-val shows that TBQ, LTD, STD, FZ, and ROE are not normally distributed since it is above the 5% level.

### Stationary Test

**Table 3: Levin, Lin & Chu Stationarity Test**

Variables	LLL T-Statistics	P-value	Remarks
TBQ	-12.9816	0.0000	I (1)
LTD	-2.94241	0.0016	I (1)
STD	-9.19205	0.0000	I (1)
FZ	-7.90234	0.0000	I (1)
ROE	-11.2717	0.0000	I (1)

**Source: E-views10 output**

At the 5% level, all the variables are integrated at first difference I (1) as seen in table 4.2. Thus, necessitating the test of long-run form to discover if the variables move jointly.

### Panel Co-integration Test

**Table 4: Pedroni Residual Cointegration Test (PCT)**  
**Pedroni Residual Cointegration Test**

Series: TBQ LTD STD FZ ROE

Alternative hypothesis: common AR coefs. (within-dimension)				(between-dimension)			
		Weighted					
Statistic	Prob.	Statistic	Prob.	Statistic	Prob.	Statistic	Prob.



Panel v-Statistic	-1.294155	0.9022	-3.623344	0.9999	Group rho-Statistic	2.810148	0.9975
Panel rho-Statistic	1.511095	0.9346	2.031047	0.9789	Group PP-Statistic	-0.304457	0.3804
Panel PP-Statistic	-8.083551	0.0000	-1.748365	0.0402	Group ADF-Statistic	2.283551	0.9888
Panel ADF-Statistic	0.416878	0.6616	3.848649	0.9999			

**Source: E-views10 output**

Table 4 PCT outcome shows that 2 out of 11 statistics are significant at 95% confidence interval. This affirms that there is no joint association among the variables in

the long run. Consequently, the study progresses with the GMM short –term test.

**Short-run Test**

**Table 5 Panel GMM**

Dependent Variable: TBQ  
 Method: Panel Generalized Method of Moments  
 Instrument specification: DYN (TBQ, -2) LTD(-1) STD(-1) FZ(-1) ROE(-1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TBQ (-1)	0.536302	0.006476	82.81018	0.0000
LTD	0.053381	0.010319	5.172855	0.0000
STD	0.007225	0.010559	0.684237	0.4946
FZ	0.257406	0.078128	3.294684	0.0012
ROE	0.015554	0.011142	1.396015	0.1640

Effects Specification

Cross-section fixed (first differences)			
Mean dependent var	-0.002899	S.D. dependent var	0.091148
S.E. of regression	0.113017	Sum squared resid	2.746176
J-statistic	13.95511	Instrument rank	18
Prob(J-statistic)	0.377013		

**Source: E-views10 output**

TBQ lagged value is positive (0.536302) and significant (0.0000). This indicates that the current stock valuation is dependent on the previous year’s stock valuation. Thus, a 1 unit increase in stock valuation currently is associated with 0.536302 unit increase in stock valuation previously. LTD and FZ are positive (0.053381 and 0.257406) and significant with p-va of 0.0000 and 0.0012 respectively. A unit increase in LTD and FZ would cause TBQ to increase by 0.053381 and 0.257406 units respectively. STD and ROE are positive (0.007225 and 0.015554) but insignificant with p-va of 0.4946 and 0.1640 respectively. A unit increase in STD and ROE would lead to about 0.007225 and 0.015554 unit increase in TBQ respectively; though infinitesimal for STD.

**DISCUSSION OF FINDINGS**

Long-term debt ratio is a substantial index of measuring financial leverage such that its increase triggers stock valuation of QICs in Nigeria. This is associated with the highly leverage nature of insurance companies since they collect deposits from the insured in the form of premiums. Additionally, lending institutions see them as capable of redeeming their debt obligations as most of their investments can easily be callable or sold to obtain cash. This view is synonymous with Hameed and Tsoho (2020), Olumuyiwa et al. (2020), Sanni et al. (2019), Afolabi et al. (2019), and Gathara et al. (2019) on the direct relationship amongst FLE and FIP. Though, not synonymous with Ayuba et al (2019), Salawu, et al. (2018), Pradhan and Khadka (2017), and Alhassan (2017) opine that FLE is negatively associated with FIP. Short term debt ratio can trigger stock valuation of QIC’s in Nigeria but not substantially. This is because



QICs settle debt obligations from insurance premiums, and this reduces the size of their investments. At the same time, the cost of short-term debt from lending institutions appears to be too costly to fund their investment and offers them lesser return after interest and other cost implications have been captured. This agrees with Sanni et al. (2019), Afolabi et al. (2019), and Gathara et al. (2019) on the direct association between FLE and FIP. Though disagrees with Ayuba et al (2019), Iqbal and Usman (2018), Salawu, et al. (2018), Pradhan and Khadka (2017), and Alhassan (2017) that FLE is negatively associated with FIP.

Firm size significantly promotes stock valuation of QICs in Nigeria. This is credited to the economies of scale, competitive advantages, and bargaining power these firms have over the contemporaries that are not quoted and as such spur their stock valuation. This disagrees with Hameed and Tsoho (2020) and Ayuba et al (2019) that firm size influence FIP negatively.

Return on equity is positive but not significant to Tobin's Q ratio. This is ascribed to the undervaluation of QICs stock in Nigeria as most investors do not have the germane information necessary for it to look appealing to them. This finding tallies with Rosikah et al. (2018) that Tobin's Q is influenced positively by FIP. However, deviates from Hameed and Tsoho (2020) and Ayuba et al. (2019) study that FIP does not influence Tobin's Q positively.

#### 4.6 Limitations

This study is restricted to the use of only 20 listed QICs in Nigeria based on size and leverage. Consequently, there are other non-quoted insurance companies in Nigeria and their addition can influence the outcome of the study. Also, is the use of financial statements of the reported QICs which is subject to different inventory and asset depreciation valuations; although, certified by credible auditors.

#### 5. CONCLUSION AND RECOMMENDATIONS

The study evaluates Financial Leverage, Firm Size and Profitability of Quoted Insurance companies in Nigeria from 2010-2022. Tobin's Q, return on equity, long and short-term debt, and firm size are the variables of interest. The unit root, descriptive analysis, Pedroni cointegration, and GMM methods were employed to analyze sourced time series from the annual reports of the quoted insurance companies. The study shows strong support for long-term debt and firm size as the main determinants of firm value. This is in line with Hameed and Tsoho (2020), Olumuyiwa et al. (2020), Sanni et al. (2019), Afolabi et al. (2019), and Gathara et al. (2019). Olulu-Briggs and Wobo (2022) found that

debt-equity ratio is positive and significant among listed manufacturing firms; and that the employment of debt capital was seen to be highly profitable especially when used for expansionary purposes. Though short-term debt and ROE promotes firms' value, it is not significant. This is because QICs settle debt obligations from insurance premiums, and this reduces the size of their investments. At the same time, the cost of short-term debt from lending institutions appears to be too costly to fund their investment and offers them less return after interest and other cost implications have been captured. Additionally, the undervaluation of QICs stock in Nigeria as most investors do not have the relevant information necessary for it to look appealing to them. The study advocates for the continual usage of long-term debt ratio and increase in firm size of quoted insurance companies to accommodate more insurance businesses and at the same time boost the level of their confidence among potential and actual investors. Furthermore, insurance companies should do share buyback when they are undervalued. Lastly, the Central Bank of Nigeria should revert to a bi-monthly review of interest rate charges by lending institutions in Nigeria to help monitor and improve their performance on the usage of borrowed funds.

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